M3 CLONEE – NORTH OF KELLS MOTORWAY SCHEME
ARCHAEOLOGICAL SERVICES CONTRACT 4
NAVAN TO KELLS AND KELLS BYPASS

E3123: GRANGE 3
MINISTERIAL DIRECTION REF. NO.: A029/

FINAL REPORT

SUBMITTED TO MEATH COUNTY COUNCIL

10 NOVEMBER 2010

IAC Irish Archaeological Consultancy

PROJECT DETAILS

Project Reference No.	MH 00 100
Project	M3 Clonee–North of Kells, Contract 4
Ministerial Direction Reference No.	A029
Excavation Registration Number	E3123
Excavation Director	Amanda Kelly
Senior Archaeologist	Shane Delaney
Consultant	Irish Archaeological Consultancy Ltd, 120b Greenpark Road, Bray, Co. Wicklow.
Client	Meath County Council
Site Name	Grange 3
Site Type	Multiperiod complex: Bronze Age houses, middle–late Bronze Age ring-ditch, Iron Age metalworking and early medieval cereal processing.
Townland	Grange
Parish	Ardbraccan
County	Meath
NGR (Easting)	280700
NGR (Northing)	269980
Chainage	61790–61980
Height m OD	70m OD
RMP No.	N/A
Excavation Start Date	26 June 2006
Excavation Duration	155 days
Report Type	Final
Report Date	10 November 2010
Report By	Dr. Amanda Kelly

ACKNOWLEDGMENTS

This final report has been prepared by Irish Archaeological Consultancy Ltd on behalf of Meath County Council and the National Roads Authority in advance of the construction of the M3 Clonee – North of Kells Motorway Scheme. This excavation has been carried out under Ministerial Direction to the Department of Environment, Heritage and Local Government (DoEHLG), in consultation with the National Museum of Ireland issued under Section 14 of the National Monuments Acts 1930–2004.

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ABSTRACT

This is a final report of an archaeological excavation at Grange 3 which was located on the route of the M3 Navan–Kells & Kells Bypass (Archaeological Services Contract 4) of the M3 Clonee–North of Kells Motorway Scheme, County Meath. The excavation was carried out by Dr. Amanda Kelly of Irish Archaeological Consultancy Ltd on behalf of Meath County Council and the National Roads Authority. The work was carried out under Ministerial Direction No. A029/005 and National Monuments Service (NMS) Excavation Registration No. E3123 which were received from the DoEHLG in consultation with the National Museum of Ireland. The fieldwork took place between 26 June 2006 – 26 January 2007.

Six phases of activity were identified as a result of the excavations at Grange 3. The earliest phase of activity consisted of a figure of eight shaped kiln dated to the early Bronze Age and an associated burnt spread and a pit (2460–2210 BC). Middle Bronze Age activity on the site consisted of two circular house structures, metalled work areas and various associated pits. A series of C14 dates from the two structures ranged between 1540–1269 BC, while middle to late Bronze Age domestic pottery recovered from the two structures supports this chronological range (Grogan and Roche, Appendix 2.1). A large quantity of lithics was also recovered from the site, predominantly from deposits associated with the two structures, included a saddle quern fragment, grinding/polishing stones, hammerstones, a stone axe and a large quantity of chert (Nelis, appendix 2.3). A probable stone spindle whorl of sub-rectangular shape, with edge decoration, was also recovered from a pit that was sealed by one of the metalled surfaces associated with the structures (O'Brien, appendix 2.4.3).

Middle–late Bronze Age funerary activity on the site consisted of a substantial ring-ditch, with an external diameter of 16.5m (1372–1131 BC, 974–828 BC). A cluster of pits and postholes and a spread located *c*. 25m to the south of the ring-ditch may also have been associated with this activity. In addition to this, two parallel linear ditches oriented south-west to north-east and an associated ditch oriented north-west to south-east (C400, C327 and C397), located *c.* 130m to the south-east of the ring-ditch, also date to this period (1090–840 BC).

Four possible cremation pits were located in the outlying area of the middle Bronze Age structures and one of these was dated to this phase (1420–1294 BC) while another was dated to the late Bronze Age (971–807 BC). Each of these pits contained burnt bone; however, analysis indicated that none of the four pits contained identifiable human remains. While it is possible that some or all of these features represented token burial deposits associated with funerary activity, it is also possible that they may have served a non-funerary function (Coughlan, Appendix 2.8).

Ten pits dispersed across the site were interpreted as furnace pits where smelting or smithing activity was carried out during the Iron Age. Four dated furnace pits, ranged between 390 BC – AD 30, and the other furnace pits are also likely to date to this period. Based on the analysis of the slag recovered from the site, it is likely that a combination of small-scale smelting and smithing took place at this site (Wallace and Anguilano, Appendix 2.10).

This activity was post-dated by early medieval activity consisting of three figure of eight cereal drying kilns, one of which returned a date of AD 427–570, and a series of ditches forming a possible sub-rectangular enclosure in the north-western area of the site (AD 617–666, AD 669–772). An early medieval iron penannular ring pin or ring

brooch, the broken shank of a pin of similar date, and a portion of a bronze pin were recovered from the fills of the early medieval ditches (MacDermott, Appendix 2.4.1). A fragmentary bone needle made from a pig fibula was also recovered from a feature which post-dated the ring-ditch and Riddler notes that such artefacts are common implements of the early medieval period in Ireland (Appendix 2.4.2). The carbonised plant remains assemblage recovered from the kilns was dominated by barley, followed by much lesser oat and wheat content confirming that medieval crop-drying activities were conducted at the site (Lyons, Appendix 2.6).

Undated activity consisted of various pits dispersed across the site and linear ditches which could not be definitively associated with any of the phases or groups of activity. Modern activity on the site consisted of linear ditches, a stone drain and a cluster of linear ditches and furrows to the south of the ring-ditch (Phase 6).

Charcoal was identified from forty eight samples from the site and the results were dominated by oak, hazel, pomaceous fruitwood and ash. Ash and oak were selected in some cases for posts related to Structures 1 and 2. It was not possible, however, to determine what wood *taxa* were used for building these structures. Nearby cremations were dominated by pomaceous fruitwood and oak. The pomaceous fruitwood type may have been selected for its aromatic qualities, the oak for the high temperatures it can achieve. Mainly oak and hazel were used for fires within the figure of eight kilns. Willow and alder (most likely pre-produced charcoal) were burnt in the Iron Age furnaces. A variety of wood *taxa* were identified from the ring-ditch, probably reflecting on-site burning (O'Donnell, Appendix 2.5).

The excavation at Grange 3 uncovered multi-period activity spanning the early Bronze Age to the early medieval period, with four major phases of activity identified. Further contemporary activity was excavated within 500m north-west and 500m south-east in the same townland. The excavated remains from this site and the other sites in Grange indicate that this area was the focus of activity over a prolonged period indicating that the locale held a certain significance ensuring its longevity in terms of human activity.

CONTENTS

List of Figures:

List of Plates:

1 INTRODUCTION

This report presents the results of the archaeological excavation of Grange 3 carried out in the townland of Grange, Co. Meath (Figures 1–4) as part of an archaeological mitigation program completed under Archaeological Services Contract 4 for the M3 Navan–Kells & Kells Bypass, which forms part of the M3 Clonee–North of Kells Motorway Scheme, County Meath. Archaeological fieldwork was directed by Amanda Kelly of Irish Archaeological Consultancy Ltd (IAC) under Ministerial Direction No. A029/005 and NMS Registration No. E3123. The work described here was funded by the Department of Transport under the National Development Plans 2000–2006 and 2007–2013 as part of the Transport 21 initiative. The total archaeological cost is administered by the National Roads Authority through Meath County Council. Irish Archaeological Consultancy Ltd was appointed by Meath County Council to undertake the works following a public procurement process.

1.1 Background to the Proposed Development

The M3 Clonee–North of Kells Motorway Scheme involves construction of 49km of two-lane, dual-carriageway motorway between Clonee and Kells and 10km of single carriageway from Kells to Carnaross, north of Kells, along with additional road upgrades, realignments and associated ancillary works. For the purposes of the Environmental Impact Assessment and the subsequent archaeological investigations the scheme was subdivided into five separate sections as follows: Clonee to Dunshaughlin (Contract 1), Dunshaughlin–Navan (Contract 2), the Navan Bypass (Contract 3) Navan to Kells (Contract 4) and Kells to North of Kells (Contract 5). This section of the scheme incorporates 11.1km along the N3 Navan–Kells Road and 3.8km of the N52 Kells Bypass.

The archaeological components of the Environmental Impact Statement published in 2002 were carried out by Valerie J. Keeley Ltd (VJK) and Margaret Gowen and Co. Ltd (MGL) in 2000–2001. This included desk based studies and field surveys of each section (VJK – Sections 1 & 3 and MGL – Sections 2, 4 & 5). Additionally on behalf of Margaret Gowen and Co. Ltd geophysical survey was undertaken on the Dunshaughlin–Navan section and at Nugentstown on the Navan–Kells section by GSB Prospection (2000 & 2001). These studies carried out as part of the Environmental Impact Assessment were augmented by further geophysical survey conducted by Bartlett-Clark Consultancy on the remainder of the scheme (2002).

Advance archaeological testing was completed by ACS and Irish Archaeological Consultancy Ltd (IAC) in 2004 (ACS – Sections 1–3 and IAC Sections 4–5). Excavation of the sites identified during testing was conducted by ACS and IAC between 2005 and 2008 (ACS Sections 1–3 & 5 and IAC Section 4).

The archaeological requirements for the M3 Clonee–North of Kells Motorway Scheme are set out in the Archaeological Directions issued to Meath County Council by the Minister for Environment, Heritage and Local Government under Section 14A (2) of the National Monuments Acts 1930 – 2004 and in the terms of the contract between Meath County Council and Irish Archaeological Consultancy Ltd. These documents form the basis of all archaeological works undertaken for this development. The excavations at Grange 3 were carried out in accordance with the written method statement submitted for approval to the Project Archaeologist and the National Monuments Service and National Museum of Ireland in accordance with the provisions of the Ministerial Directions and the terms of the contract.

All features identified during the assessment phase were subsequently re-identified and the site was fully excavated during the resolution phase of the scheme which took place between 26 June 2006 – 26 January 2007.

Grange 3 was located in the townland of Grange, *c.* 2km south of the current N3 and *c.* 9km south-east of Kells town (County Meath OS sheet 24). The topography from Navan to Kells is generally flat and gently undulating lowland. The area is characterised by a patchwork pattern of high quality agricultural fields as well as developed hedgerows.

The site was assigned the following identification data:

Site Name: Grange 3; Ministerial Direction Number: A029; Excavation Registration Number: E3123; Route Chainage (Ch): 61790–61980; NGR: 280700/269980.

1.2 Previous Archaeological Work

1.2.1 EIS

An archaeological assessment of the proposed corridor for Contract 4 of the M3 Navan–Kells & Kells Bypass, which in turn forms part of the proposed M3 Clonee–North of Kells Motorway Scheme, was included within an Environmental Impact Statement (EIS), which was published in February 2002. This identified twelve RMP sites that would be directly affected by the entire proposed road development and highlighted a number of areas of archaeological potential.

The Environmental Impact Assessment recorded the following archaeological sites and areas of archaeological potential within 500m of Grange 3:

- ME024:007, a possible church site, which is located *c.* 300m south-west of Grange 3.

- ME024:008, an enclosure site, is also located *c.* 300m SSW.

1.2.2 Geophysical Survey

A geophysical survey of the scheme was undertaken from May to July 2002. The survey phases were as follows:

Phase 1:	Magnetometry of 9m blocks within each 20m strip of ground, giving 45% coverage of each 20m block.
Phase 2:	A magnetic susceptibility reading at 12.5m intervals along the magnetometry transects.

Bartlett-Clark Consultancy undertook the geophysical survey of the scheme under Licence No. 02R058 and any potential archaeological anomalies worth investigation were highlighted within the report. The area containing Grange 3 (plot 3006C) was under potatoes and could not be surveyed at that time.

Additional geophysical survey was undertaken by Target Archaeological Geophysics at Grange 3 in May and August 2006 under Ministerial Direction No. A029/047 (Nicholls 2006a). A total of 1.7ha of detailed gradiometer survey was undertaken (Figure 5). The north-west area of the site was surveyed in July 2006 also by Target under Ministerial Direction No. A029/052 and is included in the Geophysics report for the adjacent site Grange 2 (Nicholls 2006b).

A summary of the results is as follows:

The detailed gradiometer survey at Grange 3 has identified a broad concentration of archaeological activity, which appears to extend across much of the survey grid. The results are dominated by the remains of an enclosure system to the north-west, and at the interior and outer edges of this response complex a large number of anomalies of significant archaeological potential have also been highlighted. Evidence for possible industrial remains or firing activity is suggested a short distance from the southern edge of the enclosure.

Several further areas of archaeological potential which show some correlation with the discoveries made during the testing phase have also been recorded. These include a concentration of sub-circular and irregular shaped anomalies, the remains of a possible early land division, and part of a former field system. Numerous faint linear / curvilinear trends, and discrete pit type responses have been recorded throughout. The possibility that a portion of these may reflect remains of significant features truncated by more recent land use should not be dismissed. Two ditch type anomalies located at the south-eastern and north-western edges of survey may also be of interest.

The detailed gradiometer survey undertaken at the adjacent site of Grange 2 identified a circular enclosure measuring c. 10m in diameter and this area was excavated as part of Grange 3.

The data indicates that significant areas of archaeological interest are likely to survive beyond the current area of investigation at Grange 3.

1.2.3 Testing

Grange 3 was identified as a result of archaeological assessment undertaken by IAC Ltd. in June 2004. Testing at site Grange 3 (Ronayne 2005) revealed pits containing burnt bone and a bowl furnace.

1.3 Methodology

The methodology adopted was in accordance with the approved Method Statement. The topsoil was removed to the interface between natural and topsoil using a 20 tonne mechanical excavator equipped with a flat toothless bucket under strict archaeological supervision across an area measuring 14840m². The remaining topsoil was removed by the archaeological team with the use of shovels, hoes and trowels in order to expose and identify the archaeological remains. A site grid was set up at 10m intervals and was subsequently tied in to the national grid using GPS survey equipment.

All archaeological features were fully excavated by hand and recorded on *pro forma* record sheets using a variant of the single context recording system with plans and sections being recorded at a scale of 1:50, 1:20 or 1:10 as appropriate.

A complete photographic record was maintained throughout the excavation. Digital photographs were taken of all features and of work in progress. These photographs were supplemented by specialist aerial photography.

An environmental strategy was devised at the beginning of the excavation which consisted of a combination of targeted and random bulk sampling. This ensured that noticeably rich contexts were sampled, but also allowed for samples where environmental remains may not have been obvious. Features exhibiting large amounts of carbonised material such as kilns and hearths were the primary targets

as well as structural stakeholes and postholes. Features containing metallurgical waste were fully sampled for analysis.

All artefacts uncovered on site were dealt with in accordance with the guidelines as issued by the NMI and where warranted in consultation with the relevant specialists. All artefacts, ecofacts and paper archive are currently stored in IAC's facility in Lismore, Co Waterford and will ultimately be deposited with the National Museum of Ireland.

All dating of samples from the site was carried out by means of AMS (Accelerator Mass Spectrometry) Radiocarbon Dating of identified and recommended wood charcoal, charred plant remains and bone (burnt and unburnt) samples. All calibrated radiocarbon dates in this report are quoted to two Sigma. Dating of the site also involved pottery analysis through typological study.

All excavation and post excavation works were carried out in accordance with the relevant approvals and in consultation and agreement with the National Roads Authority (NRA) Project Archaeologist, the National Monuments Section of the DoEHLG and the National Museum of Ireland. Where necessary licences to alter and export archaeological objects were sought from the National Museum of Ireland.

Final Report Date Ranges
The following date ranges for Irish prehistory and medieval periods are used for all final reports for the M3 Contract 4 excavations.

Mesolithic: 7000–4000 BC
Neolithic: 4000–2500 BC
Early Bronze Age: 2500–1700 BC
Middle Bronze Age: 1700–1200 BC
Late Bronze Age: 1200–800 BC
Iron Age: 800 BC–AD 500
Early medieval period: AD 500–1100
Medieval period: AD 1100–1600
Post-medieval: AD 1600–1800

Source:
Carlin, N., Clarke, L. & Walsh, F. 2008 *The M4 Kinnegad–Enfield–Kilcock Motorway: The Archaeology of Life and Death on the Boyne Floodplain*. NRA Monograph Series No. 2, Wordwell, Bray.

2 EXCAVATION RESULTS

Six phases of activity were identified as a result of the excavations at Grange 3. The earliest phase of activity consisted of a figure of eight shaped kiln dated to the early Bronze Age and an associated burnt spread and a pit (2460–2210 BC; Phase 1). Middle Bronze Age activity on the site consisted of two circular house structures, metalled work areas and various associated pits. A series of dates from the two structures ranged between 1540–1269 BC. A cremation pit located to the south of the two structures was also dated to this phase (1420–1294 BC; Phase 2).

Middle–late Bronze Age funerary activity on the site consisted of a substantial ring-ditch, with an external diameter of 16.5m (1372–1131 BC, 974–828 BC). A cluster of pits and postholes and a spread located *c*. 25m to the south of the ring-ditch may also have been associated with this activity. Two parallel linear ditches oriented south-west to north-east and an associated ditch oriented north-west to south-east (C400, C327 and C397) which were located *c.* 130m to the south-east of the ring-ditch also date to this period (1090–840 BC; Phase 3).

Ten pits dispersed across the site were interpreted as furnace pits where smelting or smithing activity was carried out during the Iron Age (Phase 4). Four dated furnace pits, ranged between 390 BC–AD 30, while the other furnace pits are also likely to date to this period. This activity was post-dated by early medieval evidence (Phase 5) consisting of three figure of eight cereal drying kilns, one of which returned a date of AD 427–570, and a series of ditches forming a possible sub-rectangular enclosure in the north-western area of the site (AD 617–666, AD 669–772).

Undated activity consisted of various pits dispersed across the site and linear ditches which could not be definitively associated with any of the phases or groups of activity. Modern activity on the site consisted of linear ditches, a stone drain and a cluster of linear ditches and furrows to the south of the ring-ditch (Phase 6).

2.1 Natural Geology

The overburden in this area of the proposed route consists of stiff silts overlying glacial till. Bedrock is likely to be found *c.* 5 m below ground level and to consist of limestone. Generally, the area surrounding Kells is characterised by relatively low ice marginal ridges, eskers, and kame and kettle topography (Finch *et al*. 1983; Meehan 1999) dominated by sand and gravel units. Overall, this area is very hummocky with some interspersed peat bogs and badly drained hollows (Meehan 1999).

The natural subsoil comprised silts and sands.

2.2 Phase 1: Possible Early Bronze Age Activity

This phase of activity consists of a figure of eight shaped kiln, an associated burnt spread and a pit. During excavation this feature was thought to have been associated with other kilns on the site dated to the early medieval period; however, radiocarbon dating of a sample from this kiln indicated a date in the early Bronze Age.

Contexts:

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C245	C491	1.75	N/A	0.4	Red burnt silty clay.	Upper fill of kiln.
C491	N/A	1.75	0.61	0.4	Cut of small figure-of-eight-shaped kiln.	Cut of kiln.
C492	C491	N/A	N/A	N/A	Lower charcoal fill.	Lower fill of kiln.
C493	N/A	2.8	1.8	0.28	Irregular, compact red baked clay.	Spread.
C563	C564	0.57	0.56	0.2	Loose grey/brown silt.	Fill of pit.
C564	N/A	0.57	0.56	0.2	Cut of circular pit.	Cut of pit.
C567	C564	0.3	0.3	0.1	Compact burnt red clay.	Basal fill of pit.

Finds:

Context	Find Number	Material	Period	Description
C491	E3123:491:1	Pottery	18th – 19th century.	Body fragment.

Interpretation:
The earliest activity on the site was a small figure-of-eight-shaped kiln (C491) related to a thick layer of burnt red clay (C493) and a fired pit (C564) (Figures 7 and 16; Plates 1 and 2). Charcoal analysis of samples taken from kiln C491 identified a single fragment of oak from fill C245, and 50 fragments of oak from fill C492. It is likely that oak was used as fuel in this feature (O'Donnell, Appendix 2.5). The fragment of oak charcoal (0.5g) (*Quercus* sp.) recovered from C245 was chosen for AMS dating and returned an AMS result of 3858+/-24 BP (UBA 12059). The 2 Sigma calibrated result for this was 2460–2210 BC, indicating a date in the early Bronze Age for this kiln (QUB, Appendix 2.9). No charred cereal remains were recovered from the samples taken from this feature.

The only related find was a pottery sherd (E3123:491:1) which was found adjacent the top of the cut and clearly represents disturbance of the surface as it represents a fragment of 18th–19th century transfer printed ware (Doyle, Appendix 2.2).

2.3 Phase 2: Middle Bronze Age Structures and Associated Activity

Middle Bronze Age activity on the site consisted of two circular house structures, metalled work areas and various associated pits. Structure 1 was defined by a series of 10 pits forming a circle (with an external diameter of approximately 8m) incorportaing a porch feature along its eastern perimeter. The perimeter pits were flanked internally by a circle of postholes, spaced approximately 2m apart, and with a diameter of *c.* 5.2m. The porched entrance of Structure 1 looked towards the east, opening onto an area peppered with several small contained metalled surfaces and four larger metalled working areas or floors. Structure 2 was also comprised of a series of pits forming a circle (diameter *c.* 8m). The pits were flanked internally by a series of postholes, some of which were spaced approximately 2m apart, but the pattern was not as defined as that in Structure 1. A large metalled area was located immediately south-east of Structure 2 and represented the most extensive metalled surface within the complex. A cremation pit, located to the south of the two structures, was also dated to the middle Bronze Age.

2.3.1 Pits along Perimeter of Structure 1

(Figures 7, 8 and 13; Plates 3, 4 and 46)

Contexts:

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C3	C30	0.2	0.55	0.9	Charcoal-rich soil.	Fill of pit
C4	C174	1.6	1.2	0.3	Charcoal-rich soil.	Fill of pit.
C8	C228	~2.2	~1	~0.25	Upper fill of pit.	Upper fill of pit.
C18	C444	0.82	0.49	0.01	Stone-packing.	Fill of depression.
C23	C177	1.86	0.92	0.18	Red fired/burned clay	Fill of pit.
C25	N/A	1.31	0.66	0.35	Cut of pit.	Cut of pit.
C26	C376	~0.54	N/A	0.44	Clay fill.	Fill of posthole/pit.
C27	C123	1.86	0.46	0.15	Upper fill of a rectangular pit.	Upper fill of pit.
C28	C30	0.1	0.45	1.8	Red baked middle fill.	Middle fill of pit.
C29	C30	0.06	0.3	0.8	Lower charcoal-rich fill.	Lower fill of pit.
C30	N/A	0.25	0.65	2.3	Cut of curving pit	Cut of pit.
C43	C201	0.41	0.41	0.31	Medium firm mid-brown sandy silt	Fill of pit/posthole.
C47	C168	0.8	0.62	0.21	Lower fill of sub-oval pit.	Lower fill of pit.
C55	C488	~0.81	~0.6	~0.02	Stone packing/spread set in silty soil.	Fill of pit/depression.
C66	C86	1.4	~0.3	~0.19	Fill of elongated oval pit	Fill of pit

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C78	C101	0.85	0.4	0.5	Burnt fill containing hazelnut and flint.	Fill of pit.
C86	N/A	1.4	~0.3	~0.18	Cut of elongated oval pit.	Cut of elongated pit.
C101	N/A	0.85	0.4	0.5	Cut of small shallow pit.	Cut of pit.
C118	C123	1.86	0.46	0.18	Orange/brown fine powder.	Fill of rectangular pit.
C123	N/A	1.86	0.46	0.22	Cut of rectangular pit.	Cut of pit.
C150	C123	1.86	0.46	0.03	Charcoal-rich powder clay.	Fill of pit.
C166	C168	0.82	0.6	0.18	Mid-brown - black with charcoal flecks.	Upper fill of pit.
C167	C168	0.32	0.18	0.05	Light brown reddish clay.	Middle fill of pit.
C168	N/A	0.88	0.62	0.21	Sub-oval pit.	Cut of pit.
C169	C168	0.8	0.6	0.02	Charcoal lens.	Middle fill of pit.
C174	N/A	1.6	0.2	0.45	Cut of pit.	Cut of pit.
C175	C174	0.5	0.3	0.02	Charcoal-rich fill.	Lower fill of pit.
C177	N/A	1.86	0.92	0.18	Irregular shallow cut of pit	Cut of pit.
C199	C200	0.93	0.89	0.17	Dark charcoal-rich fill.	Fill of pit.
C200	N/A	0.93	0.89	0.17	Cut of pit.	Cut of pit.
C201	N/A	0.41	0.41	0.3	Cut of small pit/possible posthole.	Cut of pit/posthole.
C202	C30	0.2	0.4	2	Stone packing.	Fill of pit.
C219	C174	0.3	0.27	0.1	Orange sandy lower fill of pit.	Lower fill of pit.
C220	C25	1.31	0.66	0.35	Burnt orange fill.	Fill of pit.
C223	C25	1.31	0.66	0.35	Charcoal-rich fill, with frequent burnt stone	Fill of pit.
C226	C228	~2.2	~1	~0.25	Stony middle fill of pit.	Middle fill of pit.
C227	C228	~2.2	~1	~0.25	Lower charcoal lens.	Lower pit fill, structure 1.
C228	N/A	~2.2	~1	~0.25	Cut of pit.	Cut of pit.
C332	N/A	1.35	0.69	0.19	Cut of pit.	Cut of pit.
C333	C332	1.35	0.69	0.19	Fill, containing frequent charcoal.	Fill of pit.
C350	N/A	0.08	0.01	0.08	Cut of stakehole in base of pit.	Cut of stakehole.
C351	C350	0.08	0.09	0.08	Fill of stakehole, in base of pit.	Fill of stakehole.
C352	N/A	0.18	0.2	0.17	Cut of post/stakehole, in base of pit.	Cut of post/stakehole.
C353	C352	0.2	0.18	0.18	Fill of post/stakehole in base of pit.	Fill of post/stakehole.
C376	N/A	0.54	0.54	0.44	Cut of possible circular pit.	Cut of pit.
C377	C376	0.54	0.54	0.44	Fill of possible pit or large posthole.	Fill of pit/posthole.
C401	C402	1.48	0.44	0.3	Red baked clay.	Fill of oval pit.
C402	N/A	1.48	0.44	0.3	Cut of oval pit.	Cut of pit.
C429	C453	0.33	0.12	0.09	Fill of burnt pocket under stone spread.	Fill of burnt pocket.
C444	N/A	0.82	0.49	0.01	Shallow cut containing small stone spread.	Shallow cut.
C445	C446	ø 0.15	ø 0.15	~0.19	Fill of posthole.	Fill of posthole.
C446	N/A	ø 0.15	ø 0.15	~0.19	Cut of posthole under stone spread.	Cut of posthole.
C453	N/A	0.33	0.12	0.09	Cut of burnt pocket under stone spread.	Cut of burnt pocket
C488	N/A	~0.81	~0.6	~0.02	Cut of pit/or natural depression.	Cut of pit/depression.
C489	C490	ø~0.28	ø~0.28	0.32	Fill of posthole.	Fill of posthole.
C490	N/A	ø~0.28	ø~0.28	0.32	Cut of posthole.	Cut of posthole.

Finds:

Context	Find Number	Material	Period	Description
C3	E3123:3:1	Stone	Bronze Age	Small mortar or grinding stone.
C4	E3123:4:1	Stone	Bronze Age	Stone axe.
C4	E3123:4:2	Stone	Bronze Age	Grinding stone/quern.
C4	E3123:4:3	Stone	Bronze Age	Hammerstone, sub-cuboid.
C29	E3123:29:1	Flint	Bronze Age	Bipolar flake.
C66	E3123:66:1–2	Pottery	Mid-late Bronze Age	Bodysherds.
C66	E3123:66:4	Pottery	Mid-late Bronze Age	Bodysherd.
C78	E3123:78:1	Flint	Bronze Age	Burnt projectile, modified.
C78	E3123:78:2	Flint	Bronze Age	Flint pressure flake.
C78	E3123:78:3	Chert	Bronze Age	Platform flake.

Context	Find Number	Material	Period	Description
C78	E3123:78:4	Flint	Bronze Age	Burnt flint pressure flake.
C333	E3123:333:1	Pottery	Mid-late Bronze Age.	Rimsherd.
C333	E3123:333:2	Pottery	Mid-late Bronze Age.	Bodysherd.
C333	E3123:333:3	Pottery	Mid-late Bronze Age.	Fragments.

Interpretation:
Ten perimeter pits formed the outline of a circular structure (Structure 1), with a composite eastern entrance, which represents a Bronze Age house (Plates 3 and 4). Structure 1 was comprised of a series of interrupted pits (C228, C168, C30, C174, C201, C101, C332, C177, C200, C123), forming a circle, with an internal diameter of approximately 7m and an external diameter of approximately 8m (Figures 8 and 13). The perimeter pits were flanked internally by a circle of postholes (Cf. Section 2.3.2), which were spaced approximately 2m apart. The perimeter pits yielded evidence for intense burning, which appeared to mark the abandonment of the structure. Charcoal analysis of a sample of fill C78 of pit C101 identified a mixture of hazel (*Corylus avellana* sp.), ash (*Fraxinus* sp.), pomaceous (*Maloideae* sp.) and scrub/shrub trees (*Prunus* sp.). Hazelnut shells were identified from this pit and may have been accidentally burnt on a hazel branch. Charcoal analysis of a sample of fill C150 of pit C123 identified small amounts of hazel and ash and analysis of a sample of fill C227 from pit C228 identified single fragments of alder and hazel and 46 fragments of ash suggesting that this latter species was used as fuel (O'Donnell, Appendix 2.5). Fill C78 also contained three pieces of chert and one piece of flint consisting of pressure and platform flakes (E3123:78:2–4) and a modified flint projectile (E3123:78:1). The fill C4 of pit C174 contained several ground stone tools including a polished stone axe (E3123:4:1, Figure 22), a grinding stone / quernstone (E3123:4:2) and a hammerstone (E3123:4:3) (Plates 5 and 6) (Nelis, Appendix 2.3).

A sample of hazel charcoal (0.09g) recovered from fill C227 of pit C228 in Structure 1 returned an AMS result of 3155+/-40 BP (SUERC 29331). The 2 Sigma calibrated result for this was 1520–1310 BC (SUERC, Appendix 2.9), indicating a date in the middle Bronze Age for this structure. This date was supported by a similar date from the fill of pit C30. A fragment of burnt bone (1.7g) was recovered from a sample of fill C28 from pit C30 and was chosen for AMS dating. The sample returned an AMS result of 3182+/-25 BP (UBA 12937). The 2 Sigma calibrated result for this was 1499–1415 BC (QUB, Appendix 2.9), further indicating a date in the middle Bronze Age for Structure 1.

The structure was effectively bisected by a linear ditch (C172) which effectively cut perimeter pits C30, C168 and interior posthole cut C124. This linear ditch disturbed the site considerably, as is evident from its related decontextualised prehistoric finds, and the presence of a truncated posthole relating to Structure 2 to the south, visible in the eastern side of the ditch's cut (C396) (Plates 4, 8 and 10).

Fill C29 of pit C30 along the perimeter of Structure 1 produced 18 bone fragments, none of which were identifiable as species, although five fragments were sufficiently large to indicate that they came from a medium-sized mammal such as sheep/goat or pig. Two fragments of indeterminate bone were found in the fill C377 of posthole C376 at the entrance to the structure. A mandible fragment of an adult sheep/goat was found in fill C150 of pit C123 along the perimeter of the structure and the remaining 31 bones from this feature consisted of three medium-sized mammal fragments, five large mammal fragments and 23 indeterminate bones (McCarthy, Appendix 2.7).

The house type seems to represent Carlin's circular house type (iii) Type A (2006) as it has an inner ring of posts which could potentially support a roof, flanked externally by interrupted ditches forming a circle. It is possible that the perimeter pits represent storage areas under the eaves of the roofing structure, rather than slot-trenches.

The entrance was a composite feature, opening to the east, formed by a series of pits and a localised metalled spread. This metalled surface is a common feature and is also seen at Caltragh, Co. Sligo (McCabe 2005), Cappagh Beg, Co. Londonderry (Linnane 2003), and Rathmullan 15, Co. Meath (Stafford 2003). It has been suggested that these stone layers were deposited to prevent the ground surface from being worn away in wet conditions. The entrance represents a clearly defined porch opening onto the metalled working areas to the east.

Three large lithic artefacts were discovered in the intensely burnt fill of C4 (Figures 8 and 13; Plates 3 and 4). These included a large stone axe (230mm long) (E3123:4:1) which was possibly re-used as a percussion implement (i.e. a hammer) as ware marks along its cutting edge would indicate (Plates 48 and 49), a grinding stone / quernstone (E3123:4:2) and a hammerstone (E3123:4:3), the latter of which is identical to another example found in an outlying cremation pit (E3123:229:1; Figure 23, Plate 13).

Whether these artefacts represent ritual deposition at the point at which the structure was ritually abandoned or represent household waste, left behind when the inhabitants moved on, is unclear. Certainly, Brück interprets saddle querns and hammerstones in unusual contexts (i.e. in the corners or terminals of ditches) as representative of deliberate deposition (1999, 145–66).

A small pit along the western perimeter of Structure 1 yielded smaller lithics, including a burnt flint projectile (E3123:78:1), two flint flakes (E3123:78:2, 78:4) and a chert flake (E3123:78:3). A flint flake was also found in a pit along the northern perimeter (E3123:29:1, Figure 21).

Pottery finds were more common in the perimeter pits (C177 and C332) and included various sherds (rimsherds and bodysherds) of middle to late Bronze Age domestic vessels (E3123:23:1, E3123:333:1–3) (Figure18) (Grogan and Roche, Appendix 2.1). The pit C177 was filled by C23 which contained small volumes of carbonised cereal grains consisting mainly of Barley (*Hordeum vulgare*) with smaller quantities of wheat (*Triticum* sp.) and oat (*Avena sativa*)(Lyons, Appendix 2.6). Charcoal analysis of a sample of C23 also identified a mixture of hazel (*Corylus avellana* sp.), ash (*Fraxinus* sp.), pomaceous (*Maloideae* sp.) and a fragment of elm (*Ulmus* sp.) (O'Donnell, Appendix 2.5).

The fill of pit C86 (C66), just to the south-west of Structure 1, may also represent a refuse pit pertaining to the domestic structure. Sherds of middle to late Bronze Age domestic pottery were recovered from this feature (E3123:66:1–2 and E3123:66:4, Figure 19) (Grogan and Roche, Appendix 2.1).

Excavations at Caltragh, Co. Sligo, revealed that one structure had been built over the location of a previous one (McCabe 2005, 47) and Carlin notes that there is a strong attachment to place in Irish settlements (2006). It is possible that Structure 1 and Structure 2 represent a shift in placement rather than absolute contemporaneity in occupation.

2.3.2 Postholes and Stakeholes in Interior of Structure 1

Contexts:

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C7	C124	0.4	0.48	0.2	Light brown sandy silt.	Fill of posthole.
C124	N/A	0.4	0.48	0.32	Cut of posthole.	Cut of posthole.
C263	C288	0.2	0.16	0.11	Loose brown sandy soil.	Fill of posthole.
C288	N/A	0.2	0.16	0.11	Cut of posthole.	Cut of posthole.
C340	C341	0.22	0.22	0.26	Charcoal and flecks of red burnt material.	Fill of posthole.
C341	N/A	0.22	0.22	0.26	Cut of posthole.	Cut of posthole.
C342	C343	0.22	0.2	0.23	Loose dark brown sandy clay.	Fill of posthole.
C343	N/A	0.22	0.2	0.23	Cut of posthole.	Cut of posthole.
C344	C345	N/A	0.3	0.28	Loose dark grey fill with charcoal flecks.	Fill of posthole.
C345	N/A	N/A	0.3	0.28	Cut of posthole.	Cut of posthole.
C346	C347	0.39	0.28	0.11	Loose dark brown sandy clay.	Fill of posthole.
C347	N/A	0.39	0.28	0.11	Cut of posthole.	Cut of posthole.
C348	C349	0.17	0.12	0.29	Loose dark brown sandy clay.	Fill of posthole.
C349	N/A	0.28	0.13	0.29	Cut of small posthole.	Cut of posthole.
C354	C355	0.1	0.08	0.11	Dark-brown sandy clay.	Fill of stakehole.
C355	N/A	0.1	0.08	0.11	Cut of stakehole.	Cut of stakehole.
C357	C359	0.08	0.07	0.09	Loose mid-brown sandy clay.	Fill of stakehole.
C358	C349	0.11	0.13	0.12	Loose light brown fill.	Fill of posthole.
C359	N/A	0.08	0.07	0.09	Cut of stakehole.	Cut of stakehole.
C360	C361	0.13	0.07	0.13	Mid-brown sandy clay	Fill of stakehole.
C361	N/A	0.13	0.07	0.13	Cut of stakehole.	Cut of stakehole.
C363	C365	0.07	0.05	0.06	Loose light brown silty sand.	Fill of stakehole.
C364	C369	0.13	0.09	0.15	Loose mid-brown sandy clay.	Fill of stakehole.
C365	N/A	0.07	0.05	0.06	Cut of oval stakehole.	Cut of stakehole.
C368	C370	0.07	0.05	0.06	Loose light brown silty clay.	Fill of stakehole.
C369	N/A	0.13	0.09	0.15	Cut of relatively larger oval stakehole.	Cut of stakehole.
C370	N/A	0.07	0.05	0.06	Cut of stakehole.	Cut of stakehole.
C371	C375	0.07	0.06	0.09	Loose mid-brown sandy clay.	Fill of stakehole.
C375	N/A	0.07	0.06	0.09	Cut of stakehole.	Cut of stakehole.
C378	C379	0.07	0.05	0.06	Loose mid-brown sandy clay.	Fill of stakehole.
C379	N/A	0.07	0.05	0.06	Cut of stakehole.	Cut of stakehole.
C382	C383	0.06	0.04	0.05	Loose mid-brown sandy clay.	Fill of stakehole.
C383	N/A	0.06	0.04	0.05	Cut of stakehole.	Cut of stakehole.
C392	C393	0.25	0.24	0.26	Loose, dark brown sandy clay.	Fill of posthole.
C393	N/A	0.25	0.24	0.26	Cut of posthole.	Cut of posthole.
C403	C404	0.16	0.15	0.14	Loose brown sandy clay.	Fill of posthole.
C404	N/A	0.16	0.15	0.14	Cut of posthole.	Cut of posthole.
C406	C407	0.17	0.16	0.17	Loose, brown sandy clay.	Fill of posthole.
C407	N/A	0.17	0.16	0.17	Cut of posthole.	Cut of posthole.
C416	C418	0.09	0.07	0.07	Loose brown sandy clay.	Fill of stakehole.
C418	N/A	0.09	0.07	0.09	Cut of stakehole.	Cut of stakehole.

Finds: None.

Interpretation:

Structure 1 had an internal diameter of approximately 7m (Figure 8). The perimeter pits were flanked internally by a circle of ten postholes (C345, C341, C343, C349, C347, C393, C404, C407, C124 and C288), which were spaced approximately 2m apart: there was no evidence for clustering. This plan seems to comply with Carlin's Type A middle Bronze Age Circular House (2006). These postholes were all similarly sized, apart from C124, which was larger than the others. They would have formed the principal roof supports and it is possible that horizontal lathes were woven

between them, thereby demarcating the internal space of the structure. Such lathes would rarely be preserved in the archaeological record. Charcoal analysis identified hazel (*Alnus* sp.), ash (*Fraxinus* sp.) and oak from a sample of C348 of posthole C349 (O'Donnell, Appendix 2.5). A small quantity of carbonised barley grains (*Hordeum vulgare*) were also recovered from C348 (Lyons, Appendix 2.6).

Charcoal analysis of a sample of C406 from the posthole C407 identified small amounts of four wood *taxa*: hazel, ash, pomaceous and elm (O'Donnell, Appendix 2.5).

A cluster of stakeholes was identified within the southern half of the interior area and may represent some household 'furniture' in this area. No hearth or central feature was apparent within the structure and no internal divisions, other than the concentric post-ring, were evident; however, the site seems to be severely truncated on its horizontal plane. Charcoal analysis identified seven fragments of hazel from a sample of C354 from stakehole C355 and single fragments of ash and elm were identified from C363 from stakehole C365 (O'Donnell, Appendix 2.5).

2.3.3 Stone Spreads Associated with Structure 1

Contexts:

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C6	C176	3.3	1.4	0.13	Medium compact grey sandy gravel.	Fill/spread.
C12	C176	3.3	1.8	0.2	Stone spread containing *in situ* lower quernstone (E3123:12:1). Set into a shallow cut - possibly a natural depression (C176) and below clay spread/fill C6.	Metalled working area.
C19	C452	6	4	0.05	Medium compact yellow/brown silty clay.	Clay deposit.
C22	C439	2.7	1.56	0.2	Stone spread/metalled.	Metalled surface.
C24	N/A	0.9	0.8	N/A	Shallow stone spread.	Shallow stone spread.
C50	C178	0.3	N/A	0.27	Medium compact mid-brown sandy.	Fill of posthole.
C51	C209	0.09	0.09	0.19	Medium compact, grey/brown, sandy silt.	Fill of stakehole.
C52	C134	0.11	0.09	0.12	Dark brown fine grained fill.	Fill of stakehole.
C53	C141	0.07	0.07	0.1	Brown sandy silt fill.	Fill of stakehole.
C58	C215	3.9	0.9	0.1	Irregular shallow stony deposit/spread.	Stone deposit.
C134	N/A	0.11	0.09	0.12	Posthole.	Cut of posthole.
C141	N/A	0.07	0.07	0.1	Cut of stakehole.	Cut of stakehole.
C162	C171	0.1	0.1	0.1	Medium compact dark brown sandy fill.	Fill of stakehole.
C171	N/A	0.1	0.1	0.1	Cut of stakehole within posthole fill C50.	Cut of stakehole.
C176	N/A	3.3	1.4	0.13	Shallow cut - possibly a natural depression.	Shallow cut.
C178	N/A	0.3	0.3	0.27	Cut of posthole.	Cut of posthole.
C208	C210	0.08	0.08	0.1	Medium compact, light brown, sandy silt.	Fill of stakehole.
C209	N/A	0.09	0.09	0.19	Stakehole.	Stakehole.
C210	N/A	0.08	0.08	0.1	Stakehole.	Cut of stakehole.
C215	N/A	3.9	0.9	0.1	Cut of deposit/spread.	Cut of deposit/spread
C221	C452	3.3	3.2	0.1	Large irregular stone spread.	Metalled surface.
C222	C439	2.7	1.56	0.05	Silty grey clay deposit	Deposit.
C224	C394	3	1.2	0.15	Compact grey sandy clay.	Layer
C225	C394	3	1.2	0.1	Irregular stone spread.	Spread
C231	C435	0.5	0.5	0.25	Compacted circular stone deposit.	Metalled area
C232	C438	0.17	0.15	0.13	Loose dark brown silty sandy fill.	Fill of posthole.
C233	C435	0.5	0.5	0.03	Loose brown silty sandy deposit.	Deposit.
C249	C250	~1	~1	N/A	Cobbled stone surface/metalled surface.	Metalled surface.
C250	N/A	~1	~1	N/A	Cut of shallow depression.	Cut of depression.
C301	N/A	0.3	0.2	0.2	Irregular compact charcoal-rich clay deposit	Deposit
C304	N/A	2.2	1.3	0.05	Irregular stone spread.	Irregular metalled surface.

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C394	N/A	3	1.2	N/A	Cut of irregular stone spread.	Metalled surface.
C411	C417	1.4	1.4	0.15	Oval stone spread/patch.	Metalled surface.
C412	C424	0.8	0.6	0.1	Oval-shaped small stone spread/deposit.	Oval metalled surface.
C417	N/A	1.4	1.4	0.15	Cut of small shallow circular depression.	Oval stony/metalled patch.
C424	N/A	1.2	0.5	0.11	Small stone spread/deposit.	Oval metalled surface.
C425	N/A	2.2	1.3	0.05	Shallow cut or natural depression.	Cut/depression.
C435	N/A	0.5	0.5	0.25	Cut of small shallow circular depression.	Circular metalled area.
C436	C437	0.2	0.19	0.03	Dark/black sandy charcoal-rich fill.	Fill of pit.
C437	N/A	0.2	0.19	0.03	Cut of small circular pit.	Cut of pit.
C438	N/A	0.17	0.15	0.13	Cut of posthole, under stone layer C22.	Posthole.
C439	N/A	3.6	1.56	0.2	Cut/ or natural depression.	Cut or natural depression
C449	C450	0.32	0.32	0.17	Loose dark brown silty sandy fill.	Fill of posthole.
C450	N/A	0.2	0.32	0.17	Cut of posthole.	Cut of posthole.
C451	C462	2.28	1	0.1	Dark brown charcoal-rich silty sand.	Fill of pit.
C452	N/A	3.3	3.2	N/A	Possible cut or natural depression.	Possible cut
C461	C462	2.28	1	0.1	Stony fill within large oval pit.	Fill of pit.
C462	N/A	2.28	1	0.23	Cut of large oval pit.	Cut of pit.
C466	C470	~0.24	~0.24	0.26	Medium compact brown sandy fill.	Fill of posthole.
C469	C479	~0.47	~0.47	~0.34	Loose dark grey/brown silty sandy fill.	Fill of pit.
C470	N/A	~0.24	~0.24	0.26	Cut of posthole.	Cut of posthole.
C471	C472	0.47	0.3	0.26	Loose dark brown charcoal-rich sandy clay.	Fill of pit.
C472	N/A	0.47	0.3	0.26	Cut of pit	Cut of pit.
C477	C478	0.18	0.16	0.18	Dark brown charcoal-rich sandy fill.	Fill of posthole.
C478	N/A	0.18	0.16	0.18	Cut of posthole.	Cut of posthole.
C479	N/A	~ 0.47	~ 0.47	~0.34	Cut of posthole/pit	Cut of small pit.
C480	C394	0.86	0.72	0.01	Loose, grey, charcoal-rich sandy clay.	Spread.
C481	C482	~0.17	~0.17	~0.5	Dark grey/brown silty sand.	Fill of stakehole.
C482	N/A	~0.17	~0.17	~0.5	Cut of stakehole.	Cut of stakehole.
C485	C486	0.21	0.17	0.11	Red burnt clay.	Fill of posthole.
C486	N/A	0.21	0.17	0.11	Cut of small pit.	Cut of pit.

Finds:

Context	Find Number	Material	Period	Description
C6	E3123:6:1	Chert	Bronze Age	Angular shatter
C6	E3123:6:2	Pottery	Middle Bronze Age	Fragments
C6	E3123:6:4	Flint	Bronze Age	Bipolar flake
C6	E3123:6:5–6	Pottery	Middle Bronze Age	Bodysherd + fragment
C6	E3123:6:7	Flint	Bronze Age	Platform flake
C6	E3123:6:8–10	Pottery	Middle Bronze Age	Fragment, bodysherd +rimsherd
C6	E3123:6:11	Quartz	Bronze Age	Platform flake
C6	E3123:6:13	Flint	Bronze Age	Bipolar flake
C6	E3123:6:14	Chert	Bronze Age	Angular shatter
C6	E3123:6:15–18	Pottery	Middle Bronze Age	2 Bodysherd, rimsherd + fragment
C6	E3123:6:21–22	Pottery	Middle Bronze Age	Bodysherd + fragment
C12	E3123:12:1	Stone	Bronze Age	Saddle quern
C19	E3123:19:1–2	Pottery	Mid-late Bronze Age	Fragments
C19	E3123:19:4–6	Pottery	Middle Bronze Age	Rim fragment, rimsherd + small sherd
C19	E3123:19:7–8	Pottery	Mid-late Bronze Age	Fragment + bodysherd
C19	E3123:19:10	Pottery	Middle Bronze Age	Necksherd
C19	E3123:19:11–12	Pottery	Mid-late Bronze Age	Bodysherd + fragment
C19	E3123:19:13	Chert	Bronze Age	Platform flake shatter
C19	E3123:19:14–20	Pottery	Mid-late Bronze Age	Fragments
C221	E3123:221:1–2	Pottery	Mid-late Bronze Age	Bodysherd + rimsherd

Context	Find Number	Material	Period	Description
C222	E3123:222:1–4	Pottery	Mid-late Bronze Age	Bodysherds
C224	E3123:224:1–4	Pottery	Mid-late Bronze Age	2 bodysherds, fragment + bodysherd
C224	E3123:224:5	Chert	Bronze Age	Abraded, angular shatter
C225	E3123:225:1	Flint	Bronze Age	Burnt platform shatter
C225	E3123:225:2	Chert	Bronze Age	Abraded angular shatter
C233	E3123:233:1	Chert	Bronze Age	Bipolar flake
C249	E3123:249:1	Stone	Bronze Age	Grinding stone/Quern
C301	E3123:301:1–2	Chert	Bronze Age	Angular shatter
C436	E3123:436:1	Stone	Prehistoric	Pendant/bead or spindle whorl
C451	E3123:451:1–2	Pottery	Mid-late Bronze Age	Rimsherds
C461	E3123:461:1–7	Pottery	Mid-late Bronze Age	Rimsherd + bodysherds
C471	E3123:471:1	Pottery	Mid-late Bronze Age	3 fragments

Interpretation:
Relatively high concentrations of various sherds (including bodysherds and necksherds) of middle to late Bronze Age domestic pottery were found in the contexts overlying stone spreads C6 and C19, while C224, C222 and C22 also yielded examples. Middle to late Bronze Age pottery (Figures 18–19) was also found wedged within stone spread C221 (Grogan and Roche, Appendix 2.1).

Three pieces of flint were found in C6 (E3123:6:4, E3123:6:7 and E3123:6:13) and occasional chert was also retrieved from C6, C19, C224, C225, C233, and C301 (Nelis, Appendix 2.3). These finds represent a relatively high quantity of flint on the site, when compared to other contexts associated with metalled surfaces.

The porched entrance of Structure 1 was located along the east of the structure's perimeter. The entrance opened onto an area peppered with several small contained metalled surfaces and four larger metalled working areas or floors (Figure 8).

Four small circular areas of compacted stone surfaces were set into shallow cuts or, possibly, natural depressions, to the east and north-east of the entrance (including cuts C417, C424, C425, C435 and deposit C24). A contained metalled surface was also located within the entrance feature itself (C18 and cut C444).

The larger stone spreads, or metalled surfaces, were also set into shallow cuts or natural depressions (cuts C176, C394, C452 and C439). These clearly represent outdoor working areas, as two quernstones were located within the stone cobbles (E3123:249:1 and E3123:12:1); the latter of which seems to be an *in situ* feature (E3123:12:1).

The largest metalled surface relating to Structure 1 was C221 (of which, metalled surface C22 may be a western extension). This stone spread was cut by two notable pits, one of which is a later pit furnace C473 containing iron slag. Charcoal analysis identified 4 fragments of hazel, 2 fragments of ash and 1 fragment of oak from a sample of C449 from posthole C450 adjacent to pit furnace C473 (O'Donnell, Appendix 2.5).

Several features pre-dated the metalled surfaces and were discovered once the stone spreads had been removed, one such feature was a charcoal-rich pit C437 containing a stone perforated object, perhaps a spindle whorl (E3123:436:1; Figure 24; Plates 52–54). This find was thought to date, by the specialist, to the early medieval period (O'Brien, Appendix 2.4.3); however, given that it was recovered from a pit that was sealed by the metalled surface associated with the structures a middle Bronze Age date is more likely. The defining characteristic of this object was the

decoration on both edges, giving a milled effect. This type of whorl is rare in Ireland and an exact parallel was not found (*Ibid*.). Charcoal analysis identified 15 fragments of hazel (*Corylus avellana* sp.) from a sample C436 of pit cut C437 (O'Donnell, Appendix 2.5).

A cluster of stakeholes and postholes was identified between the largest stone spreads which filled depressions C176 and C452, and may represent a make-shift structure, perhaps a shade or light canopy. The wider area was littered with pits and postholes but no coherent pattern could be deciphered. A large pit (C462), located to the south-east of the entrance of Structure 1, contained middle to late Bronze Age domestic pottery (E3123:461:1–6, Grogan and Roche, Appendix 2.1) (Figure 18; Plates 56–57) and possibly represents a storage or refuse feature. Charcoal analysis of a sample of C51 from the stakehole C209 identified low volumes of a mixture of alder (*Alnus* sp.), hazel (*Corylus avellana* sp.), spindle (*Euonymus* sp.) and oak (*Quercus* sp.) (O'Donnell, Appendix 2.5).

Outdoor metalled areas are a common feature of Bronze Age settlement. At the Bronze Age village at Corrstown, Co. Londonderry (Conway *et al*. 2008), small metalled pathways led out onto a cobbled avenue that traversed the site. At Grange 3 the metalled surfaces represent working features; areas which demonstrate a degree of specialised work areas. This specialisation became apparent when comparisons were made with metalled surface C54 relating to Structure 2.

2.3.4 Features between Structures 1 and 2

Contexts:

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C9	C88	1.4	0.58	~0.1	Upper charcoal-rich fill.	Fill of burnt pit.
C70	C242	1.05	1.15	0.08	Sterile fill of irregular cut.	Irregular sterile feature.
C72	C126	0.2	0.14	0.15	Dark brown, fine, charcoal-rich fill.	Fill of posthole.
C73	C135	0.57	0.45	0.17	Dark brown sandy fill.	Fill of circular pit.
C74	C186	0.2	0.15	0.03	Loose grey/brown sand.	Fill of stakehole.
C75	N/A	0.5	0.37	0.04	Deposit/spread of red burnt sandy clay.	Spread.
C87	C88	0.97	0.58	0.06	Light brown, silty clay.	Fill of burnt pit.
C88	N/A	1.4	0.58	~0.1	Possible shallow hearth cut.	Cut of burnt pit.
C104	C113	0.08	0.07	~0.23	Intensely charcoal-rich black fill.	Fill of stakehole.
C113	C104	0.08	0.07	~0.23	Stakehole.	Cut of stakehole.
C126	N/A	0.2	0.14	0.15	Posthole.	Cut of posthole.
C127	C145	0.23	0.23	0.1	Possible posthole.	Fill of posthole.
C135	N/A	0.57	0.45	0.17	Cut of circular pit.	Cut of circular pit.
C144	C164	0.34	0.32	0.25	Yellow-mid-brown compact, silty sand.	Fill of posthole.
C145	C127	0.23	0.23	0.1	Hard, compact, light brown, silty soil.	Fill of posthole.
C146	C179	0.06	0.06	0.05	Medium compact, mid-brown silty sand.	Fill of stakehole.
C164	N/A	0.34	0.32	0.25	Cut of posthole.	Cut of posthole.
C179	N/A	0.06	0.06	0.05	Cut of stakehole.	Cut of stakehole.
C184	C185	0.15	0.08	0.05	Loose, grey/brown soil.	Fill of stakehole.
C185	N/A	0.15	0.08	0.05	Cut of small circular pocket.	Cut of stakehole.
C186	N/A	0.15	0.12	0.09	Cut of small circular pocket.	Cut of stakehole.
C187	C188	0.06	0.06	0.06	Medium brown silty clay.	Fill of stakehole.
C188	N/A	0.06	0.06	0.06	Small stakehole cut.	Cut of stakehole.
C190	C191	0.15	0.12	0.09	Loose, grey/brown fill.	Fill of stakehole.
C191	N/A	0.15	0.12	0.09	Cut of stakehole.	Cut of stakehole.
C192	C193	0.21	0.16	0.06	Medium compact, orange/red-brown fill.	Fill of stakehole.
C193	N/A	0.21	0.16	0.06	Cut of small circular pocket.	Cut of stakehole.
C242	N/A	1.05	1.15	0.08	Irregular cut	Irregular sterile feature.
C386	C387	0.09	0.07	0.1	Mid-brown sandy clay.	Fill of stakehole.

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C387	N/A	0.09	0.07	0.1	Stakehole.	Cut of stakehole

Finds: None

Interpretation:
Fill C9, of burnt pit C88, and fill C104, of stakehole C113, are intensely burnt contexts and may represent an outdoor hearth to the north of Structure 2 (Figure 8). Charcoal analysis identified seven wood *taxa* from a sample of C9, oak (*Quercus* sp.), elm (*Ulmus* sp.), *prunus* sp., pomaceous (*Maloideae* sp.), ash (*Fraxinus* sp.), hazel (*Corylus avellana* sp.) and alder (*Alnus* sp.) suggesting these species were amongst those used as fuel for the hearth (O'Donnell, Appendix 2.5). The sample taken from fill C104 (in stakehole C113) identified two wood *taxa*, one fragment of hazel and 49 fragments of ash which strongly suggests that this stakehole was made from an ash stake (O'Donnell, Appendix 2.5).

Cuts C387, C164, C127, C126, C179, C188, C186, C185, C191, and C193 represent a cluster of stakeholes and postholes located between Structures 1 and 2. Pits C135 and C242 may represent storage or refuse areas related to either Structure 1 or 2. Pit C242 was filled by C70 which contained very small volumes of carbonised nutshell (*Corylus avellana*) (Lyons, Appendix 2.6). Charcoal analysis identified a single fragment of hazel from a sample of fill C146 of stakehole C179 (O'Donnell, Appendix 2.5).

Fill C72 from posthole C126 between the two Bronze Age structures yielded 26 indeterminate pieces of burnt bone (McCarthy, Appendix 2.7) and charcoal analysis of a sample of C72 identified two fragments of alder (*Alnus* sp.) and one fragment of pomaceous (*Maloideae* sp.)(O'Donnell, Appendix 2.5).

2.3.5 Pits Forming Perimeter of Structure 2

Contexts:

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C10	C90	2.2	0.61	0.13	Black/dark brown sandy clay.	Upper fill of pit.
C11	C112	0.77	0.59	0.47	Compact, mid-brown sandy clay.	Fill of pit.
C13	C195	0.9	0.55	0.08	Irregular stone-fill.	Fill of pit.
C20	C256	1.9	1.08	~0.23	Medium compact, dark brown, silty clay.	Fill of pit.
C32	C85	1.15	0.55	0.2	Compact dark grey silt.	Fill of pit.
C85	N/A	1.15	0.55	0.2	Pit.	Cut of pit.
C90	N/A	2.2	0.61	0.2	Pit.	Cut of pit.
C91	C90	2.2	0.5	0.05	Orange burnt sandy clay.	Lower fill of pit.
C106	N/A	0.5	0.4	0.3	Cut of small pit.	Cut of small pit.
C110	C111	1.42	0.56	0.32	Dark brown fill.	Fill of pit.
C111	N/A	1.42	0.56	0.32	Straight sided oval pit.	Cut of pit.
C112	N/A	0.77	0.59	0.47	Cut of sub-circular pit.	Cut of pit.
C116	N/A	0.2	0.2	0.1	Convex cut.	Cut of posthole.
C117	C121	0.21	0.17	0.11	Medium compact dark brown clay.	Fill of stakehole.
C119	C116	0.8	0.1	0.6	Compact grey fine-grained clay.	Fill of pit/posthole.
C121	N/A	0.21	0.17	0.11	Stakehole.	Cut of stakehole.
C125	C183	2.13	0.68	0.49	Medium compact, mid-brown, sandy silt.	Fill of pit.
C128	C106	0.5	0.4	0.3	Fill of small pit.	Fill of pit.
C129	N/A	1.25	0.4	N/A	Charcoal staining.	Visible on pre-ex plan.
C183	N/A	2.13	0.68	0.49	Cut of pit.	Cut of pit.
C195	N/A	0.9	0.8	0.08	Cut of possible pit.	Cut of possible pit.
C196	C197	0.12	0.12	~0.19	Medium compact, brown/black silty clay.	Fill of stakehole.
C197	N/A	0.12	0.12	~0.19	Stakehole	Cut of stakehole.

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C204	N/A	0.15	0.14	0.13	Posthole.	Cut of posthole.
C205	C204	0.15	0.14	0.13	Compact, grey/dark brown, sandy silt.	Fill of posthole.
C207	C195	0.9	0.8	0.08	Stony lower fill of pit.	Lower fill of pit.
C255	C256	~1.23	~1.08	~0.11	Stone packing.	Upper fill of pit.
C256	N/A	1.9	1.08	~0.23	Large pit.	Cut of pit.
C257	C258	0.12	0.12	0.29	Medium compact, dark brown silty clay.	Fill of stakehole.
C258	N/A	0.12	0.12	0.29	Stakehole.	Cut of stakehole.
C259	C261	0.12	0.11	0.16	Medium compact, mid-brown silty clay.	Fill of stakehole.
C260	C262	0.11	0.1	0.18	Medium compact, mid-brown silty clay.	Fill of stakehole.
C261	N/A	0.12	0.11	0.16	Stakehole.	Cut of stakehole.
C262	N/A	0.11	0.1	0.18	Stakehole.	Cut of stakehole.
C278	C280	0.24	0.21	~0.23	Medium compact, dark brown silty clay.	Fill of posthole.
C279	C283	0.08	0.06	0.1	Medium compact, mid-brown silty clay.	Fill of stakehole.
C280	N/A	0.24	0.21	~0.23	Posthole	Cut of posthole.
C283	N/A	0.08	0.06	0.1	Stakehole	Cut of stakehole.
C284	C295	0.1	0.06	~0.13	Medium compact, dark brown, silty clay.	Fill of stakehole.
C285	C296	0.15	0.09	0.1	Fill of stakehole.	Fill of stakehole.
C286	C297	0.14	0.08	0.07	Medium compact, dark brown silty clay.	Fill of stakehole.
C295	N/A	0.1	0.06	0.13	Stakehole.	Cut of stakehole.
C296	N/A	0.15	0.09	0.1	Stakehole.	Cut of stakehole.
C297	N/A	0.14	0.08	0.07	Stakehole.	Cut of stakehole.
C306	C307	0.23	0.19	0.2	Medium compact dark brown silty clay.	Fill of stakehole.
C307	N/A	0.23	0.19	0.2	Stakehole.	Cut of stakehole.
C331	C339	0.15	0.13	0.29	Medium compact, mid-brown, silty clay.	Fill of stakehole.
C339	N/A	0.15	0.13	0.29	Stakehole.	Cut of stakehole.

Finds:

Context	Find Number	Material	Period	Description
C20	E3123:20:1–4	Pottery	Mid-late Bronze Age	Fragments + bodysherd.
C20	E3123:20:5	Flint	Bronze Age	Pressure flake.

Interpretation:

The perimeter of Structure 2, like Structure 1, consisted of a series of interrupted pits, forming a circle (diameter *c*. 8m) (Figures 9 and 13; Plates 8 and 46). The eight perimeter pits (C85, C116, C106, C90, C111, C112, C204 and C256) were flanked internally by a series of postholes, some of which were spaced approximately 2m apart (Cf. Section 2.3.6), but the pattern was not as defined as that in Structure 1. Despite a degree of subsequent damage to the structure, as outlined below, its plan still loosely complies with Carlin's Type A middle Bronze Age Circular House (2006). Charcoal analysis identified hazel (*Corylus avellana* sp.), ash (*Fraxinus* sp.) and pomaceous (*Maloideae* sp.) from a sample of C11, the fill of pit C112 which was directly adjacent to C111 (O'Donnell, Appendix 2.5) suggesting these species were amongst those used as fuel within the structure.

Pit C256, along the south western perimeter of the structure, represents an unusual feature in that its base was peppered with stakeholes (Plate 9); representing a complex structure or a piece of household furniture. The lower fill of the pit (C20) also yielded middle to late Bronze Age plain domestic pottery (E3123:20:1–4) (Grogan and Roche, Appendix 2.1), evidence which can be directly associated with Structure 2 and its associated metalled areas to the immediate south-east.

A sample of hazel charcoal (0.05g) recovered from fill C32 of pit C85 in Structure 2 returned an AMS result of 3190+/-40 BP (SUERC 29332). The 2 Sigma calibrated result for this was 1540–1390 BC, indicating a date in the middle Bronze Age for this

structure (SUERC, Appendix 2.9). This dating was further supported by a fragment of ash charcoal (*Fraxinus* sp.)(0.57g) recovered from a sample of fill C10 from pit C90 which was chosen for AMS dating. The sample returned an AMS result of 3065+/-24 BP (UBA 12058). The 2 Sigma calibrated result for this was 1408–1269 BC (QUB, Appendix 2.9), indicating a date in the middle to late Bronze Age period for this activity. Charcoal analysis also identified alder (*Alnus* sp.), ash (*Fraxinus* sp.), hazel (*Corylus avellana* sp.), holly (*Ilex aquifolium* sp.) and pomaceous (*Maloideae* sp.) from the sample of C10 and ash, hazel and pomaceous charcoal were identified from a sample of C32 of pit C85 (O'Donnell, Appendix 2.5) suggesting these species were amongst those used as fuel associated with the structure.

The western perimeter of Structure 2 was cut by a later pit furnace (C114) while the eastern portion of the house was clipped by a modern linear field boundary ditch (C172) (Plate 8). This ditch cut perimeter pits C106 and C116 (and interior posthole C396), potentially completely destroying other features. Moreover, the surface of the structure was severely truncated to the south where the pits were notably shallower.

Charcoal analysis of a sample of C196 of stakehole C197 located within the pit C195 identified a mixture of wood *taxa* consisting mainly of hazel (*Corylus avellana* sp.), with smaller quantities of ash (*Fraxinus* sp.), pomaceous (*Maloideae* sp.) and wild/bird cherry (*Prunus padus/avium* sp.). The variety of wood *taxa* indicates that the stakehole did not burn *in situ*. (O'Donnell, Appendix 2.5).

Charcoal analysis of a sample of C278 of posthole C280 identified four wood *taxa*, with oak and ash representing the highest volumes and lesser amounts of hazel and a single fragment of alder. Two wood *taxa*, with very low volumes of hazel and ash were also identified from a sample of C331 of stakehole C339 (O'Donnell, Appendix 2.5).

2.3.6 Postholes and Stakeholes in Interior of Structure 2

Contexts:

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C16	C163	0.24	0.22	0.12	Loose, mid-brown fill.	Fill of posthole.
C34	C107	0.38	0.36	0.25	Loose, yellow/brown sandy silt.	Fill of posthole.
C35	C216	2.03	0.52	0.22	Loose, dark yellow/brown, sandy clay.	Fill of pit.
C37	C194	0.18	0.18	0.14	Brown sandy silt fill.	Fill of posthole.
C39	C149	0.11	0.11	0.13	Medium compact, brown, silty clay.	Fill of posthole.
C40	C84	0.47	0.47	0.27	Soft, mid-brown, silty clay.	Fill of posthole.
C84	N/A	0.34	0.34	0.51	Posthole.	Cut of posthole.
C107	N/A	0.38	0.36	0.25	Posthole.	Cut of posthole.
C108	C84	0.47	0.47	0.3	Medium compact, brown, clay fill.	Fill of posthole.
C109	C84	0.84	0.34	0.06	Compact, dark grey silt.	Lower fill of posthole.
C149	C39	0.11	0.11	0.13	Stakehole.	Cut of stakehole.
C163	N/A	0.24	0.22	0.12	Posthole.	Cut of posthole.
C194	N/A	0.14	0.14	0.14	Small posthole.	Cut of posthole.
C216	N/A	2.03	0.52	0.22	Rectangular feature.	Cut of feature
C241	C84	0.05	0.06	0.08	Fill of stakehole.	Fill of stakehole.
C395	C396	0.3	N/A	0.3	Medium/loose, dark grey, sandy silt.	Fill of posthole.
C396	N/A	0.3	N/A	0.3	Truncated posthole.	Cut of posthole.
C408	C415	0.17	0.17	0.37	Loose, dark yellow/brown, sandy clay.	Fill of posthole.
C415	N/A	0.17	0.17	0.37	Posthole.	Cut of posthole.
C430	C431	0.06	0.06	0.07	Loose, brown, sandy clay.	Fill of stakehole.
C431	N/A	0.06	0.06	0.07	Stakehole	Cut of stakehole.
C432	C433	0.07	0.07	0.05	Loose, brown, silty clay.	Fill of stakehole.
C433	N/A	0.07	0.07	0.05	Stakehole.	Cut of stakehole.

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C440	C441	0.1	0.08	0.17	Loose, brown, sandy clay.	Fill of stakehole.
C441	N/A	0.1	0.08	0.17	Stakehole	Cut of stakehole.
C458	N/A	0.05	0.05	0.11	Stakehole.	Cut of stakehole.
C459	C460	0.17	0.13	0.18	Loose, dark greyish brown, sandy clay.	Fill of posthole.
C460	N/A	0.17	0.13	0.18	Posthole.	Cut of posthole.
C467	C458	0.05	0.05	0.11	Loose, dark brown, sandy clay.	Fill of stakehole.
C483	C484	~0.14	~0.14	0.49	Loose, dark greyish/brown, silty clay.	Fill of posthole.
C484	N/A	~0.14	~0.14	0.49	Posthole.	Cut of posthole.

Finds:

Context	Find Number	Material	Period	Description
C35	E3123:35:1–4	Pottery	Middle Bronze Age	Bodysherds and fragments
C35	E3123:35:5	Chert	Bronze Age	Platform shatter
C35	E3123:35:6	Chert	Bronze Age	Unworked thermal flake
C35	E3123:35:7a	Pottery	Middle Bronze Age	Bodysherd
C35	E3123:35:7b	Chert	Bronze Age	Angular shatter
C35	E3123:35:8	Pottery	Middle Bronze Age	Rimsherd
C37	E3123:37:1	Pottery	Mid – late Bronze Age	Fragments (x16) , domestic cordoned urn
C40	E3123:40:1	Pottery	Middle Bronze Age	Bodysherd
C108	E3123:108:1a–e	Chert	PH	Abraded angular shatter, 5 pieces
C395	E3123:395:1	Flint	Bronze Age	Abraded bipolar core

Interpretation:

Five postholes, C484, C84, C396, C415, C107 (and possibly C280), were located in the interior of Structure 2 along with two stakeholes (cuts C431 and C433) (Plate 8). One stakehole (C441) lay along the northern exterior of Structure 2. Charcoal analysis from a sample of C408 of posthole C415 identified small amounts of five wood *taxa*; hazel, ash, holly, pomaceous and oak and the variety of wood taxa indicates that the post did not burn *in situ* (O'Donnell, Appendix 2.5).

The finds in Structure 2 were relatively few, in terms of quantity and quality when compared with Structure 1; however, it is significant that finds were retrieved from the two largest interior features. A large pit was located within the western sector of Structure 2 (C216) which yielded sherds of middle Bronze Age domestic cordoned urn (E3123:35:1–4, 7a, 8, Figure 18)(Grogan and Roche, Appendix 2.1) and three pieces of chert (E3123:35:5, 6, 7a). Domestic waste, in the form of a long bone fragment of a medium-sized mammal, was recovered from fill C35 of posthole C216 (McCarthy, Appendix 2.7). The fill of posthole C84 in the interior of Structure 2 contained five pieces of chert shatter (E3123:108:1a–e) (Nelis, Appendix 2.3) and this fill (C40) also yielded a single bodysherd of middle Bronze Age domestic cordoned urn (Grogan and Roche, Appendix 2.1).

Field boundary ditch C172 cut through Structures 1 and 2 and their associated metalled surfaces, notably C54. This linear ditch disturbed the site considerably, as is evident from its related decontextualised prehistoric finds. The presence of truncated posthole (C396), relating to Structure 2, in the eastern side of the ditch cut, in which an abraded bipolar core (E3123:395:1) was found, is particularly significant as it can be deduced, from both the position of the feature and the nature of the find, that the posthole was originally an interior feature of Structure 2.

2.3.7 Stone Spreads/Metalled Surfaces Associated with Structure 2

Contexts:

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C54	N/A	3.2	2.5	0.1	Medium compact, mid-brown sandy clay	Deposit.
C142	N/A	7.2	3.9	0.08	Extensive stone layer/spread.	Metalled working surface.
C142 W	N/A	3.4	2	0.08	Extensive stone layer.	Metalled working surface.
C217	N/A	0.41	0.38	0.1	Clay spread.	Spread.
C218	N/A	0.39	0.25	0.13	Clay spread.	Spread.
C356	C372	0.54	0.51	0.19	Loose black silty sand.	Fill of pit.
C372	N/A	0.54	0.51	0.19	Shallow pit.	Cut of pit.
C373	C374	0.05	0.05	0.17	Black, charcoal-rich fill.	Fill of stakehole.
C374	N/A	0.05	0.05	0.17	Stakehole.	Cut of stakehole.
C380	C381	N/A	0.26	0.26	Loose brown silty clay.	Fill of pit.
C381	N/A	N/A	0.26	0.26	Cut of small oval pit.	Cut of small pit
C419	C428	0.18	0.15	0.12	Fine-grained loose, dark brown sandy clay.	Fill of posthole.
C420	N/A	2.12	0.95	0.06	Stone spread.	Stone spread.
C423	C426	0.18	0.15	0.12	Loose, dark brown sandy clay.	Fill of posthole.
C426	N/A	0.18	0.15	0.12	Posthole.	Cut of posthole.
C428	N/A	0.18	0.15	0.12	Posthole.	Cut of posthole
C454	C455	0.17	0.16	0.2	Fine-grained loose, brown fill.	Fill of posthole.
C455	N/A	0.17	0.16	0.2	Posthole.	Cut of posthole.
C456	C457	0.23	0.14	0.18	Fine-grained loose, brown clay sandy fill.	Fill of posthole.
C457	N/A	0.23	0.14	0.28	Posthole.	Cut of posthole.
C463	C464	0.19	0.11	0.17	Fine-grained loose, dark brown clay sand.	Fill of posthole.
C464	N/A	0.19	0.11	0.17	Posthole.	Cut of posthole.

Finds:

Context	Find Number	Material	Period	Description
C54	E3123:54:1	Flint	Bronze Age	Bipolar flake
C54	E3123:54:2	Pottery	Mid-late Bronze Age	Bodysherd
C54	E3123:54:3	Flint	Early Bronze Age	Flint scraper
C54	E3123:54:4	Pottery	Mid-late Bronze Age	Bodysherd
C54	E3123:54:5–6	Flint	Bronze Age	Platform shatter +pressure flake
C54	E3123:54:7–9	Pottery	Mid-late Bronze Age	Rimsherd + bodysherds
C54	E3123:54:10	Flint	PH	Angular shatter
C54	E3123:54:11	Pottery	Mid-late Bronze Age	Bodysherd
C54	E3123:54:12	Flint	PH	Bipolar flake
C54	E3123:54:13–15	Pottery	Mid-late Bronze Age	Bodysherds + fragment
C54	E3123:54:16	Flint	Early Bronze Age	Flint scraper
C54	E3123:54:17–21	Pottery	Mid-late Bronze Age	Bodysherds + fragments
C54	E3123:54:22	Flint	Bronze Age	Bipolar flake
C54	E3123:54:23	Flint	Bronze Age	Fresh, modified arrowhead
C54	E3123:54:24–35	Pottery	Mid-late Bronze Age	Bodysherds, necksherd + fragments
C54	E3123:54:36	Chert	Bronze Age	Angular shatter
C54	E3123:54:37–41	Pottery	Mid-late Bronze Age	Fragments + bodysherds
C54	E3123:54:42	Flint	Bronze Age	Patinated scraper
C54	E3123:54:43	Pottery	Mid-late Bronze Age	Fragment
C54	E3123:54:44	Flint	Bronze Age	Retouched flake
C54	E3123:54:45–46	Pottery	Mid-late Bronze Age	Bodysherd + rimsherd
C54	E3123:54:47	Flint	Early Bronze Age	Modified scraper
C54	E3123:54:48–51	Pottery	Mid-late Bronze Age	Fragments
C54	E3123:54:52	Flint	Bronze Age	Bipolar flake
C54	E3123:54:53	Flint	Bronze Age	Platform shatter
C54	E3123:54:54–55	Pottery	Mid-late Bronze Age	Bodysherds
C54	E3123:54:56–57	Flint	Bronze Age	Flakes

Context	Find Number	Material	Period	Description
C54	E3123:54:58–65	Pottery	Mid-late Bronze Age	Bodysherds, necksherds + fragments
C54	E3123:54:66a	Pottery	Mid-late Bronze Age	Rimsherd
C54	E3123:54:66b	Flint	Bronze Age	Angular shatter
C54	E3123:54:67–69	Pottery	Mid-late Bronze Age	Bodysherd + fragments
C54	E3123:54:70–71	Flint	Early Bronze Age	Flake
C54	E3123:54:72	Flint	Bronze Age	Arrowhead
C54	E3123:54:73	Chert	Early Bronze Age	Scraper
C54	E3123:54:74–75	Pottery	Mid-late Bronze Age	Fragment + necksherd
C54	E3123:54:76–77	Flint	Bronze Age	Shatter
C54	E3123:54:78	Flint	Bronze Age	Platform flake
C54	E3123:54:79–81	Pottery	Mid-late Bronze Age	Bodysherds + rimsherd
C54	E3123:54:82	Flint	Bronze Age	Platform shatter
C54	E3123:54:83–85	Pottery	Mid-late Bronze Age	Bodysherds
C54	E3123:54:86	Flint	Bronze Age	Bipolar core
C54	E3123:54:87	Pottery	Mid-late Bronze Age	Bodysherd
C54	E3123:54:88	Flint	Bronze Age	Platform flake
C54	E3123:54:89	Pottery	Mid-late Bronze Age	Bodysherd
C54	E3123:54:90	Flint	Early Bronze Age	Scraper
C54	E3123:54:91	Chert	Early Bronze Age	Scraper
C54	E3123:54:92a	Pottery	Mid-late Bronze Age	Anglesherd
C54	E3123:54:93	Flint	Bronze Age	Angular shatter
C54	E3123:54:94–95	Flint	Early Bronze Age	Scrapers
C54	E3123:54:96–100	Pottery	Mid-late Bronze Age	Fragments, rimsherd + bodysherd
C54	E3123:54: 102–103	Flint	Bronze Age	Scrapers
C54	E3123:54: 104	Chert	Bronze Age	Chert assemblage, 181 pieces
C54	E3123:54: 105	Chert	Bronze Age	Bipolar flake
C54	E3123:54: 106	Chert	Bronze Age	Platform flake
C54	E3123:54: 107	Chert	Bronze Age	Platform shatter
C54	E3123:54: 108–109	Chert	Bronze Age	Platform flakes
C54	E3123:54:110–113	Pottery	Mid-late Bronze Age	Fragments + bodysherd
C54	E3123:54: 114	Chert	Bronze Age	Platform shatter
C54	E3123:54: 115	Chert	Bronze Age	Bipolar flake
C54	E3123:54: 116	Chert	Bronze Age	Platform shatter
C54	E3123:54: 117	Chert	Bronze Age	Unworked
C54	E3123:54: 118	Chert	Bronze Age	Platform shatter
C54	E3123:54: 119	Chert	Bronze Age	Unworked
C54	E3123:54: 120–21	Chert	Bronze Age	Angular shatter
C54	E3123:54: 122	Chert	Bronze Age	Platform shatter
C54	E3123:54: 123	Chert	Bronze Age	Unworked abraded lump
C54	E3123:54: 124	Chert	Bronze Age	Platform shatter
C54	E3123:54: 125–26	Chert	Bronze Age	Angular shatter
C54	E3123:54: 127–28	Chert	Early Bronze Age	Modified scrapers
C54	E3123:54: 129	Chert	Bronze Age	Angular shatter
C54	E3123:54:130–133	Pottery	Mid-late Bronze Age	Bodysherds + fragments
C54	E3123:54:134	Chert	Early Bronze Age	Fresh retouched piece
C54	E3123:54:135	Chert	Bronze Age	Bipolar flake shatter
C54	E3123:54:136	Chert	Bronze Age	Platform flake
C54	E3123:54:137	Chert	Bronze Age	Flaked chunk
C54	E3123:54:138	Chert	Bronze Age	Bipolar flake
C54	E3123:54:139	Chert	Bronze Age	Angular shatter
C54	E3123:54:140–41	Chert	Bronze Age	Bipolar flakes
C54	E3123:54:142	Chert	Bronze Age	Flake shatter
C54	E3123:54:143–45	Chert	Bronze Age	Platform flakes
C54	E3123:54:146	Chert	Early Bronze Age	Scraper

Context	Find Number	Material	Period	Description
C54	E3123:54:147	Chert	Bronze Age	Platform flake
C54	E3123:54:148	Chert	Bronze Age	Angular shatter
C54	E3123:54:149	Chert	Bronze Age	Platform flake
C54	E3123:54:150–51	Chert	Bronze Age	Angular shatter
C54	E3123:54:152	Chert	Early Bronze Age	Modified scraper
C54	E3123:54:153–154	Pottery	Mid-late Bronze Age	Fragment + bodysherd
C54	E3123:54:155	Chert	Bronze Age	Bipolar flake
C54	E3123:54:156–160	Pottery	Mid-late Bronze Age	Bodysherds
C54	E3123:54:161–63	Pottery	Mid-late Bronze Age	Fragments
C420	E3123:420:1	Pottery	Mid-late Bronze Age	Fragment

Interpretation:
Metalled area C142 was located immediately south-east of Structure 2 and represents the most extensive metalled surface within the complex (Figure 9; Plates 8 and 10). The clay deposit (C54) (Plate 11) covering this stone spread yielded an abundance of middle to late Bronze Age domestic pottery (80 sherds)(Figures 18–19) (Grogan and Roche, Appendix 2.1) and a high concentration of worked chert (224 pieces) and, to a lesser extent, flint (35 pieces) representing over two-thirds of the stone artefacts recovered from the site (Figures 20–21). The artefacts were predominantly angular debitage with smaller quantities of flake debitage and modified tools. A large proportion of the assemblage was poor quality chert. Evidence for bipolar and platform flaking was identified from some of the finer quality chert pieces producing 43 chert flake debitage and 10 chert tools suggesting that an *in situ* and informal knapping episode had taken place (Nelis, Appendix 2.3).

A small quantity of carbonised barley grain (*Hordeum* sp.; 0.1g) was recovered from a sample of the clay deposit C54 (Lyons, Appendix 2.6). One of these grains was chosen for AMS dating and returned a result of 1518+/-30 BP (UBA 12052). The 2 Sigma calibrated result for this was AD 433–611 (QUB, Appendix 2.9). Given the abundance of finds from this deposit, which indicate a date in the middle to late Bronze Age, it is likely that this grain is a result of later disturbance on the site. A figure of eight kiln (C130) located *c*. 50m west of deposit C54 may have been the source of the grain as it also contained carbonised barley and returned a date range of AD 427–570.

Charcoal analysis of a sample of C54 identified mainly hazel, along with smaller quantities of ash, spindle, pomaceous fruitwood and *prunus* (O'Donnell, Appendix 2.5).

Stone layer C420 probably also represents a working area but only one ceramic sherd was discovered to support this association (Plate 12).

Postholes C455 and C457 were located under the metalled surface C142. Charcoal analysis of samples of the fills of these postholes (C454 and C456) identified small quantities of hazel and pomaceous and C456 also contained a small quantity of ash (O'Donnell, Appendix 2.5).

2.3.8 Outlying Features Associated with Structures 1 and 2

Contexts:

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C14	C122	0.2	0.18	0.13	Loose, dark brown, sandy clay.	Fill of posthole.
C16	C163	0.24	0.22	0.12	Loose, mid-brown fill	Fill of posthole.
C21	C170	1.27	0.44	0.09	Loose dark brown grey sandy clay.	Fill of pit.
C37	C194	0.18	0.18	0.14	Brown sandy silt fill.	Fill of posthole.

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C39	C149	0.11	0.11	0.13	Medium compact, brown, silty clay.	Fill of posthole.
C64	C206	N/A	N/A	0.18	Fine-grained dark brown, silty clay.	Fill of pit.
C79	C153	0.88	0.38	0.09	Mid-brown silty clay.	Fill of pit.
C81	N/A	0.44	N/A	0.02	Friable black silty charcoal spread.	Spread.
C82	N/A	0.36	N/A	0.03	Compact greyish-black silty charcoal.	Spread.
C89	C317	0.13	0.07	0.16	Charcoal-rich fill.	Fill of stakehole.
C93	C157	0.1	N/A	0.05	Charcoal-rich fill.	Fill of stakehole.
C94	C139	0.4	N/A	0.03	Medium compact red/brown burnt clay.	Fill of pit.
C95	C138	0.24	N/A	0.07	Medium compact red/brown burnt clay.	Fill of pit.
C96	C277	0.18	N/A	0.07	Medium compact brown burnt clay.	Fill of pit.
C97	C143	1.45	N/A	0.4	Compact yellow brown sandy silt.	Upper fill of pit.
C99	C132	0.51	N/A	0.15	Compact, mid dark brown sandy silt.	Upper fill of pit.
C102	C211	0.58	N/A	0.2	Soft brown sandy silt.	Fill of pit.
C103	C173	1.97	N/A	0.17	Mid dark brown sandy silt.	Upper fill of pit.
C120	C131	0.28	N/A	0.14	Medium compact, dark brown sandy silt.	Fill of posthole.
C122	N/A	0.2	0.18	0.13	Posthole.	Cut of posthole.
C131	N/A	0.28	N/A	0.14	Posthole.	Cut of posthole.
C138	N/A	0.24	N/A	0.07	Pit.	Cut of pit.
C139	N/A	0.4	N/A	0.03	Shallow burned pit.	Cut of pit.
C143	N/A	1.1	N/A	0.35	Sub-circular pit.	Cut of pit.
C147	C143	1.45	N/A	0.34	Compact brown silty clay.	Middle fill of pit.
C148	C143	1.45	N/A	0.34	Central/lower fill of sub-circular pit.	Middle fill of pit.
C149	C39	0.11	0.11	0.13	Stakehole.	Cut of stakehole.
C152	C281	0.04	0.04	0.08	Loose dark greyish brown sandy clay	Fill of stakehole.
C153	N/A	0.83	0.38	0.17	Irregular pit.	Cut of pit.
C157	N/A	0.1	N/A	0.05	Stakehole.	Cut of stakehole.
C158	C159	0.15	N/A	0.06	Charcoal-rich fill of pocket/stakehole.	Fill of stakehole.
C159	N/A	0.15	N/A	0.06	Stakehole.	Cut of stakehole.
C160	C161	0.3	N/A	0.03	Charcoal-rich fill of pocket/stakehole.	Fill of stakehole.
C161	N/A	0.3	N/A	0.03	Stakehole.	Cut of stakehole.
C163	N/A	0.24	0.22	0.12	Posthole.	Cut of posthole.
C170	N/A	1.27	0.44	0.09	Oval irregular pit.	Cut of pit.
C173	N/A	2	N/A	0.37	Large pit with stone packing.	Cut of pit.
C180	C153	~0.8	0.11	0.11	Loose dark brown-black, silty clay.	Fill of pit.
C181	C173	1.6	N/A	0.15	Middle/lower fill of large pit, stone packing.	Lower fill of pit.
C182	C173	0.45	N/A	0.12	Loose mid brown sandy silt.	Basal fill of large pit.
C189	C153	~0.52	0.19	0.1	Compact red/orange, silty clay.	Fill of pit.
C194	N/A	0.14	0.14	0.14	Small posthole.	Cut of posthole.
C206	N/A	N/A	N/A	0.18	Small pit.	Cut of pit.
C211	N/A	0.58	N/A	0.2	Circular pit.	Cut of pit.
C212	N/A	0.31	N/A	0.27	Circular cut.	Cut of spread.
C213	C212	0.31	N/A	0.29	Soft dark brown sandy silt.	Fill of spread.
C214	C173	1.88	N/A	N/A	Compacted stone fill.	Upper fill of pit.
C230	C270	0.38	N/A	0.38	Loose dark brown charcoal-rich sandy.	Fill of posthole.
C248	C282	0.08	0.05	0.06	Loose mid- brown/grey sandy clay.	Fill of pit.
C253	C254	1.7	N/A	0.14	Compact grey sandy silt.	Fill of oval feature.
C254	N/A	1.7	N/A	0.14	Elongated oval feature.	Cut of oval feature.
C266	N/A	0.45	N/A	0.22	Shallow burnt pit.	Cut of pit.
C270	N/A	0.38	N/A	0.38	Cut of posthole/pit.	Cut of posthole/pit
C271	C272	0.35	N/A	0.09	Brownish-red charcoal-rich sandy clay.	Spread.
C272	N/A	0.35	N/A	0.09	Burnt pocket.	Cut of burnt pocket.
C276	C266	0.54	N/A	0.2	Light grey charcoal-rich sandy clay.	Fill of pit.
C277	N/A	0.18	N/A	0.07	Cut of circular/oval posthole.	Cut of posthole.
C281	N/A	0.04	0.04	0.08	Cut of stakehole.	Cut of stakehole.

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C282	N/A	0.08	0.05	0.06	Cut of small rectangular stakehole.	Cut of stakehole.
C317	N/A	0.13	0.07	0.16	Cut of small oval stakehole.	Cut of stakehole.
C318	C405	0.19	0.16	0.1	Loose mid greyish brown sandy clay.	Fill of stakehole.
C322	C323	0.05	0.03	0.08	Loose dark greyish brown sandy clay.	Fill of stakehole.
C323	N/A	0.05	0.03	0.08	Cut of stakehole.	Cut of stakehole.
C366	N/A	1.8	N/A	N/A	Shallow, sub-rectangular depression/cut.	Cut of depression.
C367	C366	1.8	N/A	N/A	Loose brown/yellow sandy clay.	Fill of pit.
C384	N/A	0.53	N/A	0.37	Cut of posthole.	Cut of posthole.
C385	C384	0.53	N/A	0.37	Medium compact, dark brown silty clay.	Fill of posthole.
C388	C391	0.28	N/A	0.3	Dark brown charcoal-rich silty sand.	Fill of posthole.
C389	N/A	0.41	N/A	0.15	Cut of posthole.	Cut of posthole.
C390	C389	0.41	N/A	0.15	Medium compact, orange brown silty clay.	Fill of posthole.
C391	N/A	0.28	N/A	0.3	Cut of relatively isolated posthole.	Cut of posthole.
C405	N/A	0.19	0.16	0.1	Cut of small oval stakehole.	Cut of stakehole.
C409	C413	0.08	0.05	0.06	Dark brown sandy clay.	Fill of stakehole.
C410	C414	0.05	0.04	0.08	Dark brown grey sandy clay.	Fill of stakehole.
C413	N/A	0.08	0.05	0.06	Cut of stakehole.	Cut of stakehole.
C414	C410	0.05	0.04	0.08	Cut of stakehole.	Cut of stakehole.
C421	C422	0.08	0.05	0.2	Loose dark greyish brown sandy clay.	Fill of stakehole.
C422	N/A	0.08	0.05	0.2	Triangular stakehole, rounded corners.	Cut of stakehole.
C442	C443	0.09	0.07	0.14	Dark brown grey sandy clay.	Fill of stakehole.
C443	N/A	0.09	0.07	0.14	Cut of stakehole.	Cut of stakehole.
C458	N/A	0.05	0.05	0.11	Stakehole.	Cut of stakehole.
C459	C460	0.17	0.13	0.18	Loose, dark greyish brown, sandy clay.	Fill of posthole.
C460	N/A	0.17	0.13	0.18	Posthole.	Cut of posthole
C467	C458	0.05	0.05	0.11	Loose, dark brown, sandy clay.	Fill of stakehole.

Finds:

Context	Find Number	Material	Period	Description
C14	E3123:14:1	Chert	Bronze Age	Platform flake
C21	E3123:21:1	Flint	Bronze Age	Modified flint
C21	E3123:21:2	Pottery	Mid-late Bronze Age	Fragment
C21	E3123:21:3–5	Flint	Bronze Age	Platform flakes
C21	E3123:21:6	Pottery	Mid-late Bronze Age	Bodysherd
C21	E3123:21:7	Flint	Bronze Age	Pressure flake
C37	E3123:37:1	Pottery	Mid-late Bronze Age	Fragments (x16) , domestic cordoned urn
C103	E3123:103:1	Stone	Bronze Age	Grinding stone / quernstone
C154	E3123:154:1	Pottery	Mid-late Bronze Age	Bodysherd
C230	E3123:230:1a–f	Chert	Bronze Age	Angular shatter and platform flakes
C230	E3123:230:2	Stone	Bronze Age	Possible grinding/polishing stone
C230	E3123:230:3	Pottery	Mid-late Bronze Age	Bodysherd
C253	E3123:253:1	Pottery	Mid-late Bronze Age	Fragment
C253	E3123:253:2	Flint	Early Bronze Age	Modified scraper
C253	E3123:253:3–4	Stone	Bronze Age	Grinding stones/querns
C253	E3123:253:5	Chert	Bronze Age	Chert platform shatter

Interpretation:

Pit C170 was located directly to the south-west of Structure 2 and contained middle to late Bronze Age pottery (E3123:21:2, 6) and flint (E3123:21:1, 3–5, 7). Consequently, this feature (and its associated stakeholes) has a strong association with Structure 2 (Figure 9). A very small volume (0.1g) of carbonised nutshell (*Corylus avellana*) was identified from a sample of the fill of this pit (C21)(Lyons, Appendix 2.6). A large pit to the south of this feature (C254) also yielded a fragment

of middle to late Bronze Age pottery, flint, chert and two grinding stones / querns (E3123:253:3–4). There were eight stakeholes within, and adjacent to, pit C170 and 30 fragments of oak charcoal were identified from a sample of the fill of stakehole C317 (C89) indicating that this stake was made from oak (O'Donnell, Appendix 2.5).

A cluster of stakeholes and postholes was also located immediately to the west of Structure 2 and may represent a small auxiliary structure associated with pit C195 at this point (incorporating cuts C458, C460, C194, C149, C163 and C122). These features may also represent additional support for the structure. Charcoal analysis of a sample of C14, from the fill of stakehole C122, identified a mixture of alder (*Alnus* sp.), hazel (*Corylus avellana* sp.), ash (*Fraxinus* sp.), spindle (*Euonymus* sp.), pomaceous (*Maloideae* sp.), willow (*Salix* sp.) and gorse (*Ulex* sp.) (O'Donnell, Appendix 2.5).

The charcoal-rich pit in the south-east corner of the site (C132)(Figure 7) and the charcoal-rich fill of a posthole/pit (C270), located due south of a cremation pit (C275), both yielded pottery while the large shallow pit, C173, to the west of the structures also contained a possible grinding stone (E3123:103:1) and pieces of chert consisting of angular shatter and platform flakes (Nelis, Appendix 2.3). Particularly charcoal-rich fills were located in several features which could be tentatively linked with the structures i.e. pits C266 and C153. Charcoal analysis identified 49 fragments of hazel (*Corylus avellana* sp.) and a single fragment of *Prunus* sp. from a sample of C276 from pit C266 and fifty fragments of oak (*Quercus* sp.) from a sample of C93 of stakehole C157 suggesting that this stake was made from oak (O'Donnell, Appendix 2.5).

Two deposits, C103 (fill of C173) and C253 (fill of C254), associated with activity outside the houses produced 23 burnt fragments of unidentifiable bone (McCarthy, Appendix 2.7). C253 also contained a modified flint scraper (E3123:153:2), two grinding stones / querns (E3123:153:3–4) and a piece of chert shatter (E3123:253:5) (Nelis, Appendix 2.3). Charcoal analysis of a sample of C95, from pit C138, identified fifty fragments of oak (*Quercus* sp.*)* and the initial interpretation that this pit may have been associated with a cremation pit, C203, located 5m to the south are now thought to be unlikely by virtue of the difference in the charcoal results from the two features (O'Donnell, Appendix 2.5).

2.4 Phase 3: Middle–Late Bronze Age Activity (Ring-ditch and Linear Ditches)

Middle–late Bronze Age funerary activity on the site consisted of a substantial ring-ditch, with an external diameter of 16.5m. The ditch measured up to 4m wide x 1.3m deep and the area enclosed by the ditch had a diameter of 9.5m. Four substantial postholes (or small pits) were situated within the enclosed area and the lower fills of the ditch contained large quantities of animal bone and antler. A cluster of pits and postholes and a spread located *c*. 25m to the south of the ring-ditch may also have been associated with this activity. Two parallel linear ditches oriented south-west to north-east and an associated ditch oriented north-west to south-east (C400, C327 and C397), which were located *c.* 130m to the south-east of the ring-ditch, also date to this period. The ring-ditch had two clear episodes/phases of use: it was established in the middle Bronze Age (Phase I) while a substantial re-cut marked a second phase (Phase II) of use in the late Bronze Age.

2.4.1 Ring-ditch C503

Contexts:

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C503	N/A	N/A	4	1.3	Sharp break of slope at top, curving base. External diameter of *c.* 16.5m.	Cut of ring-ditch.
C504	C503	N/A	3	1	Loose, medium-brown silt. External diameter of *c.* 16.5m	Upper fill of ring-ditch.
C505	C503	N/A	1.62	0.5	Stone packing/concentration. External diameter of *c.* 16.5m	Stony fill of ring-ditch.
C507	C503	N/A	2	0.5	Loose grey-brown sandy silt.	Basal fill of ring-ditch.
C514	N/A	1.5	0.8	0.1	Loose, grey-black silt.	Upper fill ring-ditch.
C517	C503	N/A	0.8	0.5	Stone concentration in ring-ditch.	Ring-ditch fill.
C520	C503	N/A	2	0.5	Loose grey-brown sandy silt.	Basal fill of ring-ditch.
C521/534	N/A	N/A	0.9	1.3	Secondary cut of ring-ditch, interior edge.	Secondary cut.
C522	C534	~2.56	~1.08	~1.1	Compact, hard light-brown silty sand	Primary fill of ring-ditch.
C525	C503	N/A	N/A	0.8	Hard compact light grey-brown silt.	Fill of ring-ditch.
C526	C503	≥0.48	~0.3	~ 0.34	Medium compact, mid-brown clay.	Ring-ditch fill.
C545	C503	2.3	1.1	0.2	Dark grey brown silt.	Ring-ditch fill.
C546	C503	2.1	1.75	0.2	Yellow/brown-grey/brown silty clay.	Ring-ditch fill.
C547	C503	N/A	1.45	0.5	Medium compact, brown silty clay.	Ring-ditch fill.
C558	C503	4	0.4	0.4	Medium compact mid-brown clay.	Ring-ditch fill.

Finds:

Context	Find Number	Material	Period	Description
C504	E3123:504:1	Flint	Early Bronze Age	Flint scraper
C504	E3123:504:2	Pottery	18th–19th century	Rim fragment
C504	E3123:504:3	Chert	Bronze Age	Abraded, edge retouched flake
C504	E3123:504:4	Baked clay	Iron Age	Possible fragment of furnace lining
C504	E3123:504:5	Chert	Bronze Age	Bipolar flake
C504	E3123:504:6	Chert	Bronze Age	Angular shatter
C504	E3123:504:7	Flint	Bronze Age	Bipolar shatter
C504	E3123:504:8–9	Chert	Bronze Age	Angular shatter
C504	E3123:504:10	Chert	Bronze Age	Platform flake
C504	E3123:504:11	Chert	Bronze Age	Bipolar flake
C504	E3123:504:12	Chert	Bronze Age	Bipolar flake shatter
C504	E3123:504:13	Pottery	Medieval	Body fragment
C505	E3123:505:1	Flint	Bronze Age	Bipolar flake
C505	E3123:505:2	Flint	Bronze Age	Platform flake
C505	E3123:505:3	Flint	Bronze Age	Bipolar core
C507	E3123:507:1	Chert	Bronze Age	Angular shatter
C507	E3123:507:2a-b	Chert	Bronze Age	Platform flake and angular shatter
C507	E3123:507:3	Flint	Bronze Age	Angular shatter
C522	E3123:522:1	Chert	Bronze Age	Modified chert
C525	E3123:525:1	Chert	Bronze Age	Angular shatter
C525	E3123:525:2	Chert	Bronze Age	Bipolar blade
C545	E3123:545:1	Flint	Bronze Age	Flake shatter

Interpretation:

A substantial ring-ditch, C503, with an external diameter of 16.5m, was located in the north-western corner of the site (Figures 10 and 14; Plates 13–15, 18–22 and 47–49). At the top of the ditch its width ranged from 2.75m (in the west) to 4m (in the east). The ditch was partially cut into the bedrock at its base (notably in the east where the outcropping bedrock was higher).

Ring-ditch Phase I

Fill C507 represents the lowest/primary fill of the ditch and yielded a total of 158 animal bones representing the remains of cattle, sheep/goat, pig and red deer. The most commonly identified species was red deer with 82 small fragments of antler as well as fragmented portions of a scapula and tibia. Traces of crude butchery were evident and indicated that red deer existed in nearby areas of woodland and was hunted for its meat and its secondary product in the form of antler (McCarthy, Appendix 2.7). Three pieces of chert shatter and one piece of flint shatter (E3123:507:1, 2a, 2b, 3) were also recovered from this fill.

Fill C522 was one of the earliest fills of the ring-ditch, located along the interior edge and possibly representing slump from an interior bank. A fragment (0.05g) of alder/hazel charcoal (*Alnus* sp./*Corylus avellana)* identified from this deposit was chosen for AMS dating. The sample returned an AMS result of 3001+/-22 BP (UBA 12054). The 2 Sigma calibrated result for this was 1372–1131 BC, indicating a date at the end of the middle Bronze Age towards the start of the late Bronze Age for the earliest use of the ring-ditch (QUB, Appendix 2.9).

Ring-ditch Phase II

A second phase of activity occurred with a secondary cut within the ditch, C521=C534. There was a stone seam, C505 at the base of this cut, thereby sealing all layers beneath (Figure 14, Plates 18–20). A flint core (E3123:505:3, Figure 21) was discovered in this compacted stone layer. C505 yielded a large sample of 252 animal bones which were extremely weathered and eroded with cattle representing the dominant species. The range of elements present in the fill indicated local slaughter and consumption of the animals (McCarthy, Appendix 2.7). A horse tibia (64.5g) recovered from fill C505 was chosen for AMS dating. The sample returned an AMS result of 2753+/-26 BP (UBA 12053). The 2 Sigma calibrated result for this was 974–828 BC, indicating a date firmly in the late Bronze Age for the second phase of use of the ring-ditch (QUB, Appendix 2.9).

The upper fills along the eastern arc consisted of charcoal-rich soil, containing burnt bone and flint shatter (E3123:545:1) while worked chert was also retrieved from the upper strata in this area. The upper fill C504, along the northern arc of the ditch represents a late disturbed fill as it yielded an eclectic body of finds, which included sherds of medieval and post medieval pottery. A low volume (4.3g) of carbonised cereal grains was also identified from a sample of fill C504 and these were predominantly hulled barely (*Hordeum vulgare*) with occasional oat grains (*Avena sativa*) (Lyons, Appendix 2.6). Barley grains were also recovered from a figure of eight kiln located 18m to the east (C596) which was probably early medieval in date, and, as such, the grains in the upper fill of the ring-ditch are probably related to that phase of activity (Cf. Section 2.7.1).

A small assemblage of iron slag (1.63kg) from the top fill of the ring-ditch C504 was recovered, and the material is believed to post-date the ring-ditch (Wallace and Anguilano, Appendix 2.10). Included in this material were a possible furnace bottom and a piece of possible furnace lining or mould fragment. This material is likely to have been associated with smelting activity for which there is evidence on the site during the Iron Age (Cf. section 2.6.1). Nine pieces of flint and chert were also recovered from fill C504 (E3123:504:1, 3, 5–12, Figure 21) (Nelis, Appendix 2.3) and small quantities of burnt bone were recovered from the upper fills C504 (20.9g) and C545 (32.5g); however, the majority of this was undiagnostic, with a small number of animal or, at least, possible animal bone, fragments identified in the deposits (Coughlan, Appendix 2.8). The disturbance of the ring-ditch did not extend throughout the upper fills of the entire ring-ditch and was mostly detected along the

northern arc. Charcoal analysis identified mainly oak, with smaller amounts of ash and hazel from a sample of upper fill C504 and mainly hazel, with smaller amounts of alder and oak from a sample of C514 (O'Donnell, Appendix 2.5).

Ring-ditches/ring barrows are sometimes found in close proximity to Bronze Age houses (Cleary 2005) but are not always contemporary with the structures, as seems to be the case at Grange 3. It has been suggested that the presence of these monuments can be taken to represent territorial boundaries on edges of settlement territory (Cooney & Grogan 1999).

2.4.2 Interior Features of Ring-ditch

Contexts:

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C501	C502	0.45	0.4	0.19	Soft mid-brown sandy clay.	Fill of pit/posthole.
C502	N/A	0.45	0.4	0.19	Oval pit/posthole, flat base.	Cut of pit/posthole.
C506	N/A	0.56	0.55	0.49	Posthole, flat narrow base.	Cut of posthole.
C508	C506	0.56	0.55	0.49	Compact light grey-brown sandy silt.	Fill of posthole.
C509	C515	0.6	0.44	0.41	Loose dark brown clay silt.	Fill of pit or posthole.
C515	N/A	0.6	0.44	0.41	Oval pit/posthole, vertical sides, flat base.	Cut of pit/posthole.
C551	C552	0.32	0.29	0.14	Dark brown sandy clay fill	Fill of pit/posthole.
C552	N/A	0.32	0.29	0.14	U-shaped cut of posthole.	Cut of posthole.

Finds:

Context	Find Number	Material	Period	Description
C501	E3123:501:1	Pottery	Mid-late Bronze Age.	Necksherd.
C508	E3123:508:1	Chert	Bronze Age	Possible hollow scraper.
C509	E3123:509:1	Chert	Bronze Age	Angular shatter.

Interpretation:

The interior area enclosed by ring-ditch C503 had a diameter of 9.5m–10m and contained four substantial postholes (or small pits), C502, C506, C515, and C552 (Figures 10 and 14). The interior represented a small area relative to the width of the surrounding ditch. Single pieces of chert were recovered from the fills C508 and C509.

The four large postholes (or small pits) located within the interior of the ring-ditch formed a rectangular arrangement measuring approximately 2.5m north–south x 3.5m east–west (Plates 16 and 17). The absence of any further internal features suggested that these features were pits; however, if the postholes represented a rectangular structure then this structure would occupy a large part of the interior. It is likely that these internal features were contemporary with the lower fills of the ditch as they contained comparable artefactual evidence, including worked chert and middle to late Bronze Age pottery.

Charcoal analysis identified 2 fragments of hazel from a sample of fill C501 of posthole C502 (O'Donnell, Appendix 2.5).

2.4.3 Postholes to the South of the Ring-ditch

Contexts:

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C499	C548	0.54	0.24	0.1	Soft brown-grey silty sand.	Fill of oval pit.
C548	N/A	0.54	0.24	0.1	Shallow convex cut of shallow oval pit.	Isolated feature.
C573	C574	0.55	0.37	0.25	Charcoal-rich dark brown sandy clay.	Fill of burnt pit.
C574	N/A	0.55	0.37	0.25	Cut of small burnt pit.	Cut of burnt pit.
C575	C576	0.36	0.3	0.16	Light brown sandy clay.	Fill of pit/posthole.

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C576	N/A	0.36	0.3	0.16	Cut of small pit/or possible posthole.	Cut of pit/posthole.
C579	C580	0.1	N/A	0.12	Compact, light brown, silty clay.	Fill of stakehole.
C580	N/A	0.1	N/A	0.12	Cut of stakehole.	Cut of stakehole.
C581	N/A	0.1	0.06	0.12	Cut of posthole.	Isolated posthole.
C582	C581	0.1	0.06	0.12	Dark brown/reddish clay.	Fill of posthole.
C588	C589	1.75	1.4	0.3	Compact brownish grey silty sand.	Fill of irregular pit.
C589	N/A	1.75	1.4	0.3	Cut of shallow irregular pit.	Cut of pit.
C602	N/A	0.6	0.39	0.03	Soft greyish brown silt	Spread.
C628	C629	0.5	1.5	0.3	Charcoal-rich sandy clay fill.	Fill of pit.
C629	N/A	0.5	1.5	0.3	Cut of small oval pit.	Cut of pit.

Finds:

Context	Find Number	Material	Period	Description
C602	E3123:602:1	Chert	Bronze Age	Bipolar flake.
C628	E3123:628:1	Chert	Bronze Age	Platform flake.

Interpretation:

A concentration of pits and postholes (C574, C629, C576, C580 and C589), and charcoal spread C602, were located on a low rise to the south of the ring-ditch and may represent some associated structure/activity (Figure 11). This series of postholes and pits was located in a heavily truncated area, which was further disturbed by a series of linear drainage ditches traversing the area (see below). A small furrow in this vicinity (C578) yielded two fragments of middle to late Bronze Age pottery (E3123:577:1–2)(Grogan and Roche, Appendix 2.1) and it is likely that this represents disturbed material which can be associated with this concentration. A single chert bipolar flake (E3123:602:1) was recovered from the spread C602 and a single chert platform flake (E3123:628:1) recovered from the fill C628 of pit C629 (Nelis, Appendix 2.3).

2.4.4 Late Bronze Age Linear Ditches

Contexts:

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C299	C397	5	0.5	0.2	Stone packing in narrow linear ditch.	Fill of shallow ditch.
C327	N/A	67.4	0.5	0.18	Cut of eastern part of linear ditch.	Cut of ditch.
C328	C327	67.4	0.5	0.18	Mid-brown compacted silt	Fill of ditch.
C397	N/A	26.5	0.55	0.3	Cut of linear ditch.	Cut of ditch.
C398	C397	26.5	0.55	0.3	Compact dark brown silty clay.	Fill of ditch.
C399	C400	68.6	0.55	0.24	Light brown sandy clay.	Fill of ditch.
C400	N/A	68.6	0.55	0.24	Cut of western part of linear ditch.	Cut of ditch.

Finds:

Context	Find Number	Material	Period	Description
C328	E3123:328:1	Chert	Bronze Age	Platform flake.

Interpretation:

The two parallel ditches (C400 and C327) traversed the site on a north-east to south-west axis (Figure 7; Plate 23). Their associated counterpart (C397) joined C327 at an acute angle along its southern extent (Plate 24). These three ditches were shallower than the modern ditches on the site. Their shallowness suggested that they were distinctive in date from (and possibly pre-dated) the modern ditches and that the site's ground surface was considerably truncated in antiquity. The three shallow ditches (C400, C327 and C397) were cut by a modern, black, linear ditch (C268) which was considerably deeper. Ditch C327 also seemed to be cut by a figure-of-eight kiln (C273) which would establish a *terminus ante quem* for the ditch's

construction, possibly in the early medieval period (Plate 35). A single chert platform flake was recovered from fill C328 of ditch C327 (E3123:328:1) (Appendix 2.3).

Charcoal analysis of a sample C399 from ditch C400 identified small quantities of ash (*Fraxinus* sp), hazel (*Corylus avellana)* and pomaceous fruitwood (*Maloideae* spp.)(O'Donnell, Appendix 2.5). A fragment of *Maloideae* charcoal (0.05g) recovered from C399 was selected for AMS dating and returned an AMS result of 2810+/-40 BP (SUERC 29329). The 2 Sigma calibrated result for this was 1090–840 BC, indicating a date in the late Bronze Age for this ditch (SUERC, Appendix 2.9).

2.5 Bronze Age Cremations and Associated Features

Contexts:

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C67	C203	0.7	0.57	0.12	Charcoal-rich fill, burnt bone.	Fill of cremation pit.
C203	N/A	0.7	0.57	0.12	Shallow convex gently sloping sides.	Cremation pit.
C229	C275	0.33	0.26	0.27	Dark brown charcoal-rich fill, burnt bone.	Fill of cremation pit.
C246	C289	0.25	0.15	0.08	Charcoal-rich silty sand fill.	Fill of pit.
C247	C290	0.8	0.57	0.09	Medium loose black charcoal-rich fill.	Lower fill of cremation pit
C264	C336	0.24	0.25	0.09	Burnt brown/red sandy fill of shallow pit.	Isolated burnt features.
C265	C335	0.4	0.51	0.1	Dark brown silty clay.	Fill of pit.
C275	N/A	0.33	0.26	0.27	Circular, vertical sides and flat-base.	Cremation pit.
C289	N/A	0.25	0.15	0.08	Oval pit, concave base, curving sides.	Cut of pit.
C290	N/A	0.8	0.57	0.12	Shallow pit with gently sloping sides	Cut of cremation pit.
C293	N/A	0.32	0.26	0.03	Orange/reddish burnt spread.	Burnt spread.
C300	C290	0.8	0.57	0.03	Loose grey silty ash.	Upper fill of cremation pit
C319	C330	0.54	0.54	0.11	Loose dark brown sandy fill.	Fill of cremation pit.
C330	N/A	0.54	0.54	0.11	Shallow cremation pit, gently sloping sides.	Cut of cremation pit.
C335	N/A	0.4	0.51	0.1	Cut of shallow pit filled with burnt clay.	Cut of pit.
C336	N/A	0.24	0.25	0.09	Cut of shallow pit filled with burnt clay.	Cut of pit.

Finds:

Context	Find Number	Material	Period	Description
C229	E3123:229:1	Stone	Bronze Age	Small sub-cuboid hammerstone
C229	E3123:229:2–5	Pottery	Mid-late Bronze Age	Necksherds
C229	E3123:229:6–7	Pottery	Mid-late Bronze Age	Bodysherds

Interpretation:

Four cremation pits were identified in the broader area outlying Structures 1 and 2 (C203, C290, C330 and C275) (Figures 7 and 12, Plates 25–27). Three of the pits (C203, C290 and C330) were shallow concave cuts with gently sloping sides while C275 had vertical sides and a flat base, being similar in section to a large posthole. Each of these pits contained burnt bone; however, analysis indicated that none of the four pits contained identifiable human remains with two (C275 & C330) found to contain small fragments of burnt animal bone. While it is possible that some or all of these features represented token burial deposits associated with funerary activity, it is also possible that they may have served a non-funerary function (Coughlan, Appendix 2.8).

Cremation pit C275 yielded a hammerstone (E3123:229:1) (Plate 27) which was identical to another such stone found in a perimeter pit of Structure 1 (E3123:4:3). These almost identical finds serve to connect these features together in terms of chronology, related activity and ritual deposition. Carlin notes the clear symbolic significance attached to saddle querns and hammerstones as they are often found deposited in cremation pits or in significant locations (2006). A number of necksherd

and bodysherds of middle to late Bronze Age pottery were also recovered from the fill of this cremation pit (Grogan and Roche, Appendix 2.1)(Figure 18).

Charcoal was identified from the four cremation pits. The main wood type identified in three of them was pomaceous fruitwood, the Maloideae type (Pits C203, C290 and C330). This includes crab apple (*Malus sylvestris*), wild pear (*Pyrus pyraster*), rowan (*Sorbus aucuparia*), whitebeam (*Sorbus aria*) and hawthorn (*Crataegus monogyna).* It may be the case that this was selected for the cremation pyre because of the aromatic smells some of the wood species within the pomaceous fruitwood grouping emit, such as apple. Pomaceous fruitwood has been identified in similar quantities from Bronze Age cremation pits on other large infrastructural schemes (O'Donnell, Appendix 2.5). Most cremation pits from Bronze Age contexts in Ireland, however, are dominated by oak, which is the case with pit C275. This predominance is probably due to oak's ability of producing the high temperatures required for cremation. Based on the charcoal signature from the pits O'Donnell (Appendix 2.5) is of the opinion that the charcoal remains do represent pyre material, as oak and pomaceous fruitwood are the two most frequently identified wood *taxa* from funerary contexts in Bronze Age Ireland.

A very low volume (0.1g) of unidentified carbonised cereal grains was recovered from a sample of fill C247 of the pit C290 (Lyons, Appendix 2.6).

Fragments of undiagnostic burnt bone recovered from samples of fills C67 and C229 of cremation pits C203 and C275 were chosen for AMS dating. The samples returned AMS results of 3083+/-24 BP (UBA 12942) and 2726+/-37 BP (UBA 15475) respectively. The 2 Sigma calibrated results for these were 1420–1294 BC and 971–807 BC, indicating dates in the middle to late Bronze Age and the late Bronze Age, and an association with middle Bronze Age Structures 1 and 2 and the middle/late Bronze age ring-ditch (QUB, Appendix 2.9). Based on these dates it is not clear which period the other features belong to but it is probable that they are Bronze Age.

Isolated burnt pits C335 and C336 did not yield burnt bone but have been tentatively placed in this category.

2.6 Phase 4: Iron Age Activity

This phase of activity consists of ten pits interpreted as furnace pits where smelting or smithing activity was conducted. These pit furnaces generally consisted of a shallow, bowl-shaped cut which was fired red, whereby fills contained frequent charcoal with some of them contained slag. Four dated furnace pits, ranged between 390 BC – AD 30, and the other furnace pits are also likely to date to this period.

2.6.1 Pit Furnaces

Contexts:

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C36	C114	1.47	1.02	0.18	Mid brown, charcoal-rich, sandy fill.	Upper fill of pit furnace.
C92	C114	0.79	0.74	0.09	Charcoal-rich black/dark brown sand.	Fill of pit furnace.
C114	N/A	1.39	1.16	0.24	Pit furnace.	Cut of pit furnace.
C115	C114	1.47	1.02	0.18	Mid brown sandy silt.	Fill of furnace.
C236	C251	0.8	0.77	0.01	Brown sandy clay.	Upper fill pit furnace.
C239	C291	0.6	0.65	0.06	Mid-brown silty fill.	Upper fill of pit furnace
C251	N/A	0.84	0.78	0.15	Cut of circular furnace.	Cut of furnace.
C252	C251	0.84	0.78	0.03	Lower red baked fill.	Fill of pit furnace.
C267	C251	0.76	0.64	0.04	Dark brown black charcoal-rich sandy silt.	Middle fill of pit furnace.
C291	N/A	0.81	0.76	0.21	Cut of circular pit furnace.	Cut of pit furnace.
C302	C291	0.75	0.7	0.06	Grey/black charcoal-rich fill.	Middle fill of pit furnace.

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C303	C291	0.8	0.74	0.04	Red baked compact layer.	Basal fill of pit furnace.
C310	N/A	0.4	0.1	0.08	Dark brown loose clay.	Spread.
C311	C291	0.18	0.12	0.06	Loose dark brown gravely clay.	Basal fill of pit furnace.
C312	C313	0.1	0,1	0.13	Loose dark brown clay silt.	Fill of stakehole.
C313	N/A	0.1	0.1	0.13	Cut of stakehole.	Cut of stakehole.
C448	C473	1.01	1.09	N/A	Loose brown sandy clay.	Upper fill of pit furnace.
C473	N/A	1.01	1.09	0.25	Circular pit furnace.	Cut of pit furnace.
C474	C473	1.01	1.09	N/A	Loose black charcoal-rich middle fill.	Middle fill of pit furnace.
C475	C473	1.01	1.09	N/A	Red baked clay.	Lowest fill of pit furnace.
C495	C497	1.28	0.7	0.18	Charcoal-rich, medium compact, sandy.	Fill of pit furnace.
C497	N/A	1.28	0.7	0.18	Oval, Gradual break of slope at base.	Cut of pit furnace.
C498	C497	1.28	0.7	0.09	Compact red burnt clay.	Lowest fill of pit furnace.
C550	C497	1.28	0.7	0.18	Brown fine-grained sandy clay.	Fill of pit furnace.
C553	C555	0.7	N/A	0.24	Brown/orange/red baked clay.	Upper fill of burnt pit.
C554	C555	0.55	0.48	0.2	Dark brown/red sandy clay.	Lower fill of burnt pit.
C555	C555	1m	N/A	N/A	Concave cut of burnt pit.	Cut of burnt pit.
C556	C555	0.18	0.16	0.11	Dark/black charcoal-rich, medium sand.	Fill of burnt pit.
C559	C555	N/A	N/A	N/A	Dark red/orange/brown clay sand.	Lower fill of burnt pit.
C600	C601	0.5	0.39	0.09	Charcoal-rich fill of small pit.	Fill of possible pit.
C601	N/A	0.5	0.39	0.09	Cut of small pit.	Cut of pit.
C606	C601	0.5	0.39	0.03	Red burnt clay, black slag.	Fill of pit furnace.
C608	N/A	0.15	0.1	0.08	Pocket of charcoal near pit.	Spread of burning activity
C609	C610	1.3	0.38	0.18	Loose light black/Brown/reddish silty clay.	Spread of burning activity
C610	N/A	1.3	0.38	0.18	Irregular concave cut of burnt small pit.	Cut of pit.
C617	C631	2.85	0.53	0.31	Baked red clay.	Fill of pit.
C630	C632	1.04	1m	0.7	Dark brown silty sand.	Fill of pit/furnace.
C631	N/A	2.85	0.53	0.31	Cut of irregular elongated burnt feature.	Cut of possible furnace.
C632	N/A	1.1	~0.97	0.15	Shallow cut of circular fired pit/furnace.	Cut of pit/furnace.
C633	C632	0.97	~1m	0.13	Black charcoal-rich silty clay.	Middle fill of pit/furnace.
C634	C632	0.68	~0.57	0.05	Red baked lower fill.	Fill of pit/furnace.

Finds:
No finds were retrieved although samples of iron slag were found in four of the pit furnaces.

Interpretation:
Ten pit furnaces were identified on the site which had evidence for high temperature activities being carried out, i.e. scorched soil and charcoal (Figures 11 and 15, Plates 28–35)(C291, C251, C473, C114, C497, C632, C555, C601, C610 and C631). Of these ten pits only four had associated slag (C114, C251, C473 and C601) (Wallace and Anguilano, Appendix 2.10).

Examination of the material from pit C601 indicates that it was probably used as a smelting furnace. The evidence from the feature is indicative of an above ground low-shaft furnace with a sunken pit at the base, which is quite a different morphology to the nearby sunken shaft furnace at Grange 2 (Kelly 2010a). The two small black-grey drippy slags from this pit are typical of iron smelting or high-temperature smithing activity (Wallace and Anguilano, Appendix 2.10). Charcoal analysis identified a single fragment of alder from a sample of C600 from pit C601 (O'Donnell, Appendix 2.5). This fragment of alder (0.55g) was chosen for AMS dating and returned a result of 2082+/-29 BP (UBA 12057). The 2 Sigma calibrated result for this was 191–5 BC, indicating a date in the Iron Age for this furnace pit (QUB, Appendix 2.9).

Pit furnace C601 was unusual in terms of its relatively small size, uniformity of fill and its high concentration of black slag which may represent specific metalworking activity on the site (Plates 33–34). The presence of black slag in this pit was similar to the contents of the large furnace (C16) at Grange 2 (Kelly 2010a) which contained a ceramic cylindrical shaft furnace.

Pit furnace C473 cut through the stone spread C221 associated with Structure 1 (Plate 35) while pit furnace C114 cut through one of the perimeter pits that defined Structure 2 (Plate 30). This sequence demonstrates that the pit furnaces were later than both Structure 2 and the metalled working area associated with Structure 1. Charcoal analysis identified 22 fragments of alder (*Alnus* sp.) and 28 fragments of willow (*Salix* sp.) from the sample of fill C92 of furnace pit C114 (O'Donnell, Appendix 2.5) suggesting these species were amongst those used as fuel within the furnace. A sample of willow charcoal (0.38g) recovered from fill C92 of pit furnace C114 returned an AMS result of 2235+/-40 BP (SUERC 29330). The 2 Sigma calibrated result for this was 390–200 BC, indicating a date in the Iron Age for this furnace pit (SUERC, Appendix 2.9). The material from pit C114 has the appearance of smithing slag lumps (SSL's) which are formed during primary (refining of the bloom) and secondary (manufacture and repair of artefacts) smithing (Wallace and Anguilano, Appendix 2.10).

A fragment (0.27g) of ash charcoal (*Fraxinus* sp.), was recovered from a sample of the fill C633 from pit/furnace C632. This fragment of charcoal was chosen for AMS dating. The charcoal returned an AMS result of 2132+/-21 BP (UBA 12056) and the 2 Sigma calibrated result for this was 346–60 BC, indicating a date in the Iron Age for this furnace pit (QUB, Appendix 2.9).

A low volume (0.3g) of carbonised hulled barley grains (*Hordeum vulgare)* was identified from a sample of fill C495 of furnace pit C497 (Lyons, Appendix 2.6). A sample of alder charcoal (0.3g) recovered from C495 returned an AMS result of 2060+/-40 BP (SUERC 29333). The 2 Sigma calibrated result for this was 190 BC–AD 30, indicating a date in the Iron Age for this furnace pit (SUERC, Appendix 2.9).

Four of the ten pit furnaces could be confidently associated with iron smelting / smithing as four pits yielded iron slag, while the size, shape and fill-sequence of most of the ten features were closely comparable. These pit furnaces generally consisted of a shallow, convex, bowl-shaped cut which was fired red, a middle layer of charcoal and an upper layer of mid-brown charcoal-rich clay. Some of the pits were likely to have been used as smithing hearths. There is a difficulty in distinguishing between smelting and smithing hearths in the archaeological record unless there are diagnostic slags associated. As only three of the pits had associated metallurgical material, the function of the remaining pits cannot be definitively determined. They may have been used as simple hearths, or for ore roasting, smithing, smelting or any other high temperature activities (Wallace & Anguilano, Appendix 2.10).

Brown iron slag was retrieved from fills in the pit furnaces C251 C473 and C114. The material from C251 had an unusual morphology and is possibly more closely linked to smelting than smithing (Wallace & Anguilano, Appendix 2.10).

An irregular elongated burnt feature (C631) surrounded by red baked clay to the west of pit furnace C601 may also represent a furnace pit. It is possible that the circular pit furnaces represent a distinct phase or step in a protracted metalworking process which also involves the cylindrical shaft furnace, at Grange 2 (Kelly 2010a).

The fact that the four dated furnace pits, which were spread across the site ranged between 390 BC – AD 30, is an indication that the other furnace pits are also likely to date to this period and it places smithing / smelting activity at the site firmly in the Iron Age. Similar contemporary activity was excavated on the adjacent site at Grange 2 where a furnace pit was dated to 396–202 BC (Kelly 2010a).

2.6.2 Features Possibly Related to Furnace Activity

Contexts:

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C31	N/A	1.58	0.99	0.15	Pit cut containing charcoal-rich fill.	Cut of pit.
C234	C31	1.58	0.99	0.15	Compact, dark brown charcoal-rich fill.	Fill of pit.
C235	C292	1.35	0.31	0.1	Dark brownish/red silty sand.	Fill of linear cut.
C238	C287	0.3	0.34	0.08	Charcoal-rich compacted fill.	Fill of pit.
C287	N/A	0.3	0.34	0.08	Shallow circular cut.	Cut of shallow feature.
C292	N/A	1.35	0.31	0.1	Cut of irregular linear feature.	Cut of linear feature.
C305	N/A	2.1	0.48	0.22	Cut of pear-shaped feature.	Cut of possible furnace.
C324	C305	2.1	0.48	0.22	Compact, dark brown/grey, charcoal-rich.	Fill of possible furnace.
C496	C549	5	1.3	0.25	Brown silty clay.	Fill of burnt spread.
C549	N/A	5.5	1.5	0.7	Cut of irregular burnt spread/feature.	Cut of burnt spread.
C557	C549	1.7	0.7	0.4	Red/orange and black burnt fill.	Fill of burnt spread.
C562	C549	4.1	1.05	0.5	Yellow/grey and light brown silt.	Fill of burnt spread.

Finds:

Context	Find Number	Material	Period	Description
C496	E3123:496:1	Pottery	Mid-late Bronze Age.	Bodysherd.

Interpretation:

It is possible that pits C305 and C549 may have been associated with furnace activity due to their burnt fills. They also lay approximately 10m to the west of small figure-of-eight kiln C491 which was dated to the early Bronze Age (Figure 11). Nonetheless, the fact that feature C549 seems to cut the linear ditch C397 would suggest that this burning post-dates the ditch (a sequence which does not concur with the presence of a bodysherd of middle to late Bronze Age domestic pottery (Grogan and Roche, Appendix 2.1) in the upper layer of the burnt feature – although this might represent a disturbed find, originally from the ditch). An associated ditch was dated to the late Bronze Age (Cf. section 2.4.4). A large volume (3.1g) of carbonised cereal grains were identified from a sample of fill C324 (Lyons, Appendix 2.6) of possible furnace pit C305. The grains were predominantly hulled barely (*Hordeum vulgare*) and also oat grains (*Avena sativa*). Barley was also the dominant cereal identified in two kilns C130 and C273 located 24m and 29m to the west, one of which was dated to the start of the early medieval period (AD 427–570) and it is possible that the cereal recovered from pit C305 may have been related to that activity.

Pit C31 appeared to be associated with nearby furnace pits C251 and C291. The fill was charcoal rich C234 and produced seven indeterminate fragments of burnt bone (McCarthy, Appendix 2.7). Shallow irregular linear feature C292 and shallow circular pit C287 were also located close to the above features and are likely to have been associated with them.

2.7 Phase 5: Early Medieval Activity

Early medieval activity on the site consisted of three figure of eight cereal drying kilns and a possible sub-rectangular ditched enclosure in the north-western area of the site.

2.7.1 Figure-of-Eight-Shaped Kilns and Related Activity

Contexts:

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C59	C130	2.25	1.06	0.1	Grey, charcoal-rich sandy clay fill.	Upper fill of kiln.
C99	C132	0.51	N/A	0.15	Compact, mid dark brown sandy silt.	Upper fill of pit.
C130	N/A	2.35	1.1	0.49	Figure-of-eight-shaped kiln	Cut of kiln.
C132	N/A	1.42	N/A	0.56	Irregular pit.	Cut of pit.
C140	C130	2.22	0.8	0.05	Compact, red sandy silt.	Lower fill of kiln.
C154	C132	0.53	N/A	0.21	Mid brown charcoal-rich sandy silt.	Middle fill of pit.
C155	C132	0.56	N/A	0.23	Compact red/brown burnt middle fill.	Middle fill of pit.
C156	C132	1.42	N/A	0.56	Compact, dark brown sandy silt.	Lower fill of pit.
C243	C273	2.63	1.32	0.29	Dark brown/black charcoal-rich sandy silt.	Basal fill of kiln.
C273	N/A	2.63	1.32	0.76	Figure-of-eight-shaped kiln.	Cut of kiln.
C274	C273	2.63	1.32	0.47	Compact brown sandy silt.	Fill of kiln.
C308	C130	0.51	0.45	0.14	Fill (natural redeposit) of kiln	Fill of kiln.
C309	C130	1.73	0.68	0.09	Black compact silt fill.	Fill of kiln.
C314	C130	0.6	0.74	0.04	Compact grey/dark red silty fill.	Fill of kiln.
C315	C130	2.1	0.5	0.05	Compact black silty fill.	Fill of kiln.
C326	C130	1.73	1.01	0.26	Compact fine grained dark brown.	Fill of kiln.
C362	C130	1.5	0.58	0.05	Red/orange clay fill.	Fill of kiln.
C500	N/A	~2.90	~1.50	0.28	Moderately loose brown-grey silty ash.	Spread.
C570	N/A	1.7	1	0.2	Charcoal spread/patch.	Spread.
C596	N/A	2.6	1.1	0.3	Cut of a figure-of-eight-shaped kiln.	Cut of kiln.
C597	C596	0.9	1.1	0.2	Firm, brown, fine-grained silty sand.	Upper fill of kiln.
C622	C596	1.1	0.68	0.2	Firm, fine-grained sand, dark brown.	Upper fill of kiln.
C623	C596	1.28	1.1	0.12	Brown/red charcoal-rich stony lower fill.	Lower fill of kiln.
C624	C596	0.84	1.1	0.1	Dark brown charcoal-rich middle fill.	Fill of kiln.
C625	C596	0.9	0.6	0.8	Firm, greyish brown fine-grained silty sand.	Fill of kiln.

Finds: None

Interpretation:

Three figure-of-eight-shaped kilns (C130, C596 and C273), measuring 2.35m, 2.6m and 2.63m in length, were identified on the site. All three kilns yielded evidence of intense burning, containing charcoal-rich fills and heat-effected cuts (Figures 11 and 16; Plates 36–43 and 50).

A high volume (11.5g) of carbonised cereal grains was identified from a sample of the fill C243 of kiln C273 and the dominant cereal type was barley (*Hordeum vulgare*) with lesser volumes of wheat and oat (Lyons, Appendix 2.6). Kiln C273 was oriented north-west to south-east and contained 11 indeterminate fragments of burnt bone (McCarthy, Appendix 2.7). Charcoal analysis identified six wood *taxa* from a sample of fill C243, with oak (*Quercus* sp.) and hazel (*Corylus avellana* sp.) representing the largest volume of fragments and then pomaceous (*Maloideae* sp.), *Prunus* sp., ash (*Fraxinus* sp.) and a single fragment of alder (*Alnus* sp.). A sample of a second fill C274 from kiln C273 also contained hazel, ash, pomaceous, *prunus* sp., oak and willow charcoal. And a sample of the basal fill of the kiln C243, contained mainly hazel with lesser volumes of oak, alder and pomaceous. It is suggested that these species, particularly hazel, oak, ash and willow, were amongst those used as fuel within the kiln (O'Donnell, Appendix 2.5).

Kiln C130 was located 4.5m north-west of kiln C273. It was oriented north-south and contained eight fills (C59, C140, C308, C309, C314, C315, C326 and C362) (Plates 36–40). Carbonised cereal grains consisting mainly of barley grains (*Hordeum vulgare*) were identified from samples of fills C309, C314 and C315 (Lyons, Appendix 2.6). A barley grain (0.1g) from C315 was chosen for AMS dating and returned an AMS result of 1522+/-28 BP (QUB 12073). The 2 Sigma calibrated result for this was AD 427–570, indicating a date at the beginning of the early medieval period for this kiln (QUB, Appendix 2.9).

Charcoal analysis of samples of fills C362, C309 and C315 of kiln C130 identified oak (*Quercus* sp.) as the dominant species along with smaller quantities of alder (*Alnus* sp.), ash (*Fraxinus* sp.), hazel (*Corylus avellana* sp.) and elm (*Ulmus* sp.). It is suggested that these species, particularly oak, were amongst those used as fuel within the kiln (O'Donnell, Appendix 2.5). Fragmented and calcined animal bone was also recovered from fills C140, C314 and C315 and presumably represents incidental finds in the backfill of the kiln (McCarthy, Appendix 2.7).

Kiln C596 was located in the vicinity of an early medieval enclosure in the north-west of the site and like kiln C130 it was oriented north-south (Plate 41). Three fills of kiln C596 all contained low volumes of carbonised cereal grains (C624, C623 and C622) and like the other two kilns (C130 and C273) the predominant grain type was barley (*Hordeum vulgare*) (Lyons, Appendix 2.6), which may imply an association. One of the upper fills of this kiln (C625) contained an animal bone identified as the proximal portion of a cow radius representing an individual that was over two and a half years of age at death (McCarthy, Appendix 2.7). Charcoal analysis identified seven fragments of oak from a sample of fill C624 suggesting this species was used as fuel within the kiln (O'Donnell, Appendix 2.5).

Based on the similarities between the three figure of eight kilns in terms of size and shape and the dominance of barley grains in each of them, it is thought that these three kilns are likely to have been associated and probably all date to the early medieval period. Kiln C273 seemed to cut the narrow linear ditch C327 which would establish a relatively early date for the ditch and attribute to it a potential association with the prehistoric complex to the east (Plates 42–43). This is supported by the late Bronze Age date returned for ditch C400 which was parallel, and likely to be associated with ditch C327.

A low volume (0.1g) of carbonised barley grains (*Hordeum vulgare*) was identified from a sample of the lower fill C156 of pit C132 (Lyons, Appendix 2.6). Based on the fact that the grains were recovered from the lower fill of the pit, they are not thought to be intrusive and as such this pit may be contemporary with the early medieval kilning activities on the site.

2.7.2 Early Medieval Land Division Ditches, Possible Sub-Rectangular Ditched Enclosure

Contexts:

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C468	C487	*c.* 12	1.47	0.31	Medium-compact-soft brown/yellow fill.	Fill of linear ditch.
C487	N/A	*c.* 12	1.47	0.31	Ditch cut.	Cut of ditch.
C583	C656				=C655	Fill of ditch.
C584 = C611	N/A	35	3	1	Cut of ditch running east-west.	Cut of ditch.
C585 (=C640)	C611=C584	*c.*19	*c.* 2	0.4	Upper fill.	Upper fill of ditch.
C598	C611=C584	7.3	1.2	0.3	Dark brown silty sand.	Fill of ditch.

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C603	C611=C584	15	0.6	0.05	Red/brown charcoal-rich lens.	Fill of ditch.
C612	C611=C584	*c.* 13.5	2.2	0.8	Mid-brown silty sand.	Fill of ditch.
C615	C611=C584	2	0.8	0.1	Red/brown charcoal-rich lens.	Fill of ditch.
C616	C611=C584	34	1.2	0.7	Red/brown charcoal-rich fill.	Fill of ditch.
C635	C611=C584	2	0.6	0.2	Grey silty sand.	Fill of ditch.
C641	C584=C611	7	0.90	0.3	Compact yellow brown silty sand.	Fill of ditch.
C644	C584=C611	1	0.88	0.3	Dark grey silty fill.	Upper fill of ditch.
C645	C584=C611	0.5	0.26	0.12	Greyish/brown silty fill.	Upper fill of ditch.
C646	C584=C611	8	1.3	0.4	Brown/yellow silty fill.	Upper fill of ditch.
C649	C584=C611	2	2.8	0.6	Medium compact yellow brown silty sand.	Middle fill of ditch.
C650	584=611	3.6	1.2	0.35	Light brown silty fill.	Upper fill of ditch.
C651	C584=C611	2.6	1	0.3	Light brown silty sand.	Basal fill of ditch.
C652	C584=C611	1.2	1.5	0.25	Mid brown/grey silty sand.	Basal fill of ditch.
C653	C656	>31	3.25	0.7	Mid grey silty sand.	Upper fill of ditch.
C654	N/A	2.2	0.3	0.4	Low stone wall	Stone wall.
C655 (=C583)	C656	3.5	3.5	0.8	Mid/dark brown silty clay.	Upper fill of ditch.
C656	N/A	>35	3.5	1	U-shaped cut of ditch.	Cut of ditch.
C657	C656	>35	2m	0.4	Mid grey silty sand.	Lower fill of ditch.
C658	C656	1.5	1	0.3	Stone concentration in ditch.	Fill of stones in ditch.
C659	C656	~2	~2	~0.25	Stone concentration in ditch.	Fill of stones in ditch.
C660	C656	2.7	~0.35	0.48	Grey brown sandy soil bonding stones.	Stone wall.

Finds:

Context	Find Number	Material	Period	Description
C583	E3123:583:1	Pottery	18th–19th Century.	Body fragment.
C583	E3123:583:2	Pottery	Not Prehistoric.	Fragment.
C583	E3123:583:3	Iron	Uncertain date.	Nail fragment.
C585	E3123:585:1	Iron	Early medieval	Ring-pin.
C585	E3123:585:2	Iron	Early medieval	Pin shank.
C640	E3123:640:1	Pottery	18th–19th Century.	Body fragment.
C640	E3123:640:2	Pottery	Mid-late Bronze Age.	Bodysherd.
C655	E3123:655:1	Pottery	18th–19th Century.	Body fragment.
C655	E3123:655:2	Copper alloy	Early medieval.	Pin or needle shank fragment.
C657	E3123:657:1	Iron	Uncertain date.	Nail fragment.

Interpretation:

Two substantial linear ditches were located to the east of the ring-ditch (Figures 11 and 17; Plates 45 and 49). The earlier of the two ditches (C584/C611) ran on an east–west axis and clearly represents a similar anomaly detected by the geophysical survey of the area (see Figure 5).

The upper fill of ditch C584 (C585) contained the head of an iron ring-pin or ring brooch with a penannular scrolling ring (E3123:585:1) (Figure 24; Plate 55). The ring pin most likely dates to between 7th and 9th centuries AD. A second iron pin fragment consisting of the lower portion of a pin shank (E3123:585:2) (Figure 24; Plate 55) was also recovered and is likely to fall within the same date range (Mac Dermott, Appendix 2.4.1). A very low volume (<0.1g) of carbonised cereal grains were identified from a sample of fill C646 (Lyons, Appendix 2.6) of the ditch C584/C611. All of the grains were hulled barely (*Hordeum vulgare*) and one of these grains was chosen for AMS dating. The barley grain returned an AMS result of 1388+/-20 BP (UBA 12055). The 2 Sigma calibrated result for this was AD 617–666, indicating a date in the early medieval period for this ditch (QUB, Appendix 2.9). This date could also be an indication of the date of the figure of eight kiln (C596) which

was located 5m to the north of ditch C584 and also contained carbonised barley grains.

Samples taken from ditch C584/C611 contained a total of 2759 animal bones. Preservation of the material was quite poor which resulted in high fragmentation rates and consequently a high incidence of material that can only be classified into size categories and have to remain indeterminate. Cattle (68%) dominated the identified assemblage followed by considerably smaller but equal amounts of sheep/goat (14%) and pig (14%). Skeletal element analysis for cattle indicated that a variety of cranial and post-cranial elements were present indicating local slaughter and consumption of the animals. Ageing evidence suggested meat production was significant with most individuals (78%) being slaughtered when they had reached their maximum age for meat production i.e. 2–3 years of age. In addition to the mammalian remains, the fills of this early medieval ditch also produced evidence for a range of bird species including two domestic fowl long bones, a goose humerus and a sample of 18 crow*, (Corvus corone),* bones representing a single adult individual. A humerus of teal, (*Anas crecca)*, a small species of wild duck, was also identified (McCarthy, Appendix 2.7).

Ditch C584 tapered out to the east where it became shallower and narrower and there was evidence of burning in the mid sections of the ditch, where charcoal and fire-baked clay was found. This could also be an indication that ditch C584 and kiln C596 may have been in use at the same time.

A second ditch (C656) appeared to form a sub-rectangular enclosure, with the north part located outside of the land-take. This ditch enclosed an area measuring 37m north-west to south-east x 32m south-west to north-east, however its full extent outside of the landtake to the north-east is unknown. Ditch C656 cut the earlier east–west aligned ditch, C584/C611. A copper alloy pin or needle shank fragment (E3123:655:2) was located in the upper fill of ditch C656 and was dated to the early medieval period (Mac Dermott, Appendix 2.4.1). A low stone wall was built along the eastern edge of the ditch at the point at which it cut C584/C611, effectively blocking this ditch. The ditch's trajectory complied with an anomaly detected by the geophysical survey of the site; however, it was difficult to excavate the feature further south due to the sterile redeposited nature of the fill and the water-logged nature of this part of the site.

Ditch C656 produced a relatively small sample of 246 animal bones, the majority of which came from the main fill C653. The bulk of the assemblage consisted of the remains of cattle with pig and sheep/goat being only nominally represented. The sample of 42 cattle bones represented a mixture of meat-bearing and peripheral elements indicating that the animals were slaughtered nearby with the remains from primary butchery as well as food waste being disposed into the ditch. Traces of butchery were quite common and there was evidence for considerable axial division of the long bones associated with the extraction of marrow. Four sheep/goat bones were present including two loose teeth and butchered fragments of a pelvis and a scapula. A single adult pig was represented by a portion of a mandible and a lower molar and horse was attested by fragmented proximal and distal portions of a radius from an adult individual (McCarthy, Appendix 2.7).

Despite the fact that the ditch C656 was the later of the two, the similar shape, dimensions and fill of the two ditches would suggest a close time sequence while the presence of the ring-pin would establish an early medieval date as a *terminus ante quem* for their construction. The overall pattern of the two ditches matches that of anomalies discovered during the geophysical survey of the area (Figure 5).

A fragment of animal bone identified as a cow ulna (7.36g) was recovered from fill C653 of ditch C656 and was selected for AMS dating. This bone sample returned an AMS result of 1287+/-25 BP (UBA 15476). The 2 Sigma calibrated result for this was AD 669–772, confirming a date in the early medieval period for this ditch (QUB, Appendix 2.9).

A number of badly corroded nails were recovered from several of the contexts (E3123:583:3 and E3123:657:1) and are of an uncertain date (Mac Dermott, Appendix 2.4.1).

2.7.3 Features within the Possible Sub-Rectangular Enclosure C656

Contexts:

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C604	N/A	0.56	0.21	0.05	Cut of burnt feature.	Cut of burnt feature.
C605	C604	0.56	0.21	0.05	Reddish lower fill.	Lower fill of burnt feature.
C607	C604	0.56	0.71	0.1	Brownish/red upper fill.	Upper fill of burnt feature.
C613	N/A	0.15	0.2	0.05	Cut of charcoal pocket.	Cut of charcoal pocket.
C614	C613	0.15	0.2	0.05	Fill of charcoal pocket.	Fill of charcoal pocket.
C618	C621	1.5	1.6	0.08	Light brown/yellow fill.	Fill of pit.
C621	N/A	1.5	1.6	0.08	Cut of shallow pit.	Cut of shallow pit.
C642	C643	2.96	0.43	0.16	Brownish grey silt.	Fill of depression.
C643	N/A	2.96	0.43	0.16	Cut of shallow depression.	Cut of depression.
C647	C648	1.26	1.18	0.29	Fill of shallow depression.	Fill of depression.
C648	N/A	1.26	1.18	0.3	Cut of shallow depression.	Cut of depression.

Finds: None

Interpretation:
Four shallow irregular pits (C604, C643, C648 and C621) were located within the area enclosed by ditch C656 and in close proximity to ditch C584 (Figure 11). These features were probably contemporary with the ditches and / or the figure of eight kiln C596 given their proximity and the inclusion of burnt material and animal bone in some of their fills.

The fills of three of these pits (C643, C648 and C621) produced a total sample of 203 animal bones with the bulk of these being found in C618, the fill of pit C621 (91%). Cattle were the only species present in this pit and the fills of the other two pits (C642, C647) collectively yielded just 17 bones of which two were identified as fragments of a cow scapula (McCarthy, Appendix 2.7). A large quantity of animal bone was also recovered from ditch C584 and the dominant species identified from that features was also cattle, which may further indicate a relationship between pit C621 and ditch C584.

The pocket of charcoal, C613 may relate to figure-of-eight-shaped kiln C596 in the vicinity, although this remains unconfirmed.

2.8 Undated Activity

Undated activity consisted of various pits dispersed across the site and linear ditches which could not be definitively associated with any of the phases or groups of activity.

2.8.1 Relatively Isolated Pits

Contexts:

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C198	C427	3	0.75	0.4	Redeposited natural subsoil.	Fill of pit.
C316	C321	0.74	0.29	0.07	Fill of a small pit.	Fill of pit.

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C320	C334	1.5	0.75	0.2	Fill/spread with charcoal inclusions.	Fill of pit.
C321	N/A	0.07	0.29	0.07	Cut of small pit.	Cut of pit.
C325	C338	0.95	0.45	0.12	Compact dark brown clay.	Fill of pit.
C329	C337	0.77	0.41	0.15	Fill of oval pit.	Fill of pit.
C334	N/A	1.5	0.75	0.2	Cut of irregular pit.	Cut of pit.
C337	N/A	0.77	0.41	0.15	Cut of oval pit.	Cut of pit.
C338	N/A	0.95	0.45	0.12	Convex cut of oval pit.	Cut of pit.
C427	N/A	3	0.75	0.4	Cut of shallow oblong feature	Isolated pit.
C465	N/A	0.84	0.8	0.12	Sterile deposit.	Sterile deposit.

Finds: None

Interpretation:
A variety of burnt pits were located in the central area of the site and could either be related to the pit furnaces or even the cremation features due to their relatively isolated position. None of the pits yielded any finds which could confirm such an association.

2.8.2 Linear Ditch C637

Contexts:

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C636	C637	8.6	0.96	0.27	Dark brown silty sand.	Fill of ditch.
C637	N/A	8.6	0.96	0.27	Cut of linear ditch.	Cut of ditch.

Finds: None

Interpretation:
An assemblage (309.3g) of burnt human bone was recovered from the fill C636 of a linear ditch, C637. This was the only assemblage which had identifiable human remains on the site and it consisted of skull, dental fragments and upper and lower limb fragments. The identification of human remains within the assemblage may indicate that this feature related to a prehistoric period of funerary activity (Coughlan, Appendix 2.8). The feature was located in the north-west of the site and the full extent was not established as it extended outside the land-take to the north.

2.8.3 Linear Features Cutting the Ring-ditch

Contexts:

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C510 = C536	N/A	16.4	1.3	0.5	Narrow ditch, concave base.	Cut of narrow ditch.
C511	N/A	~2	1	0.29	Linear gully/ditch, vertical sides.	Cut of gully.
C512	C516	2.76	0.63	0.15	Medium soft black/brown sandy clay.	Fill of linear feature.
C516	N/A	2.76	0.63	0.15	Shallow, irregular, linear feature.	Cut of linear feature.
C518	N/A	N/A	0.56	0.13	Cut of linear furrow/ditch.	Cut of furrow.
C519	C518	N/A	0.55	0.13	Loose red-brown sandy clay.	Fill of furrow.
C523	C638=C528 =C540	N/A	N/A	N/A	Sterile yellow fill.	Fill of linear feature.
C524	C541	1.65	1.5	0.23	Compacted stones set in mid-brown silt.	Fill of pit.
C527	C541	5.5	3.5	0.2	Dark brown sand clay.	Fill of pit.
C529 (=C539)	C638=C528 =C540	>20m	3.9	0.9	Light brown/yellow silty clay.	Fill of ditch.
C530	C511	~2	1	0.29	Dark brown sandy silt.	Fill of ditch.
C531	C532	2	0.4	0.12	Loose grey/brown silty sand.	Fill of drain.
C532	N/A	N/A	0.4	0.12	Cut of small concave linear drain	Cut of linear gully.

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C533	C638=C528 =C540	>20	1.83	0.54	Medium compact, mid brown, silty clay.	Fill of ditch.
C535	C638=C528 =C540	N/A	N/A	N/A	Stony packing in wide ditch.	Fill of linear cutting.
C537	510 = 536	18	0.5	0.48	Stony fill of narrow ditch.	Fill of narrow ditch.
C538 (= C513)	C510 = C536	18	1.43	0.48	Compact yellow-brown clay.	Fill of narrow ditch.
C540 (=C638=C528)	N/A	N/A	3	0.7	Cut of wide linear ditch.	Cut of ditch.
C541	N/A	2.95	2.4	0.3	Cut of shallow pit, flat/irregular base.	Cut of pit.
C542	C543	4	0.79	0.18	Dark brown silty sand.	Fill of linear gully.
C543	N/A	5	0.79	0.18	Cut of narrow linear feature.	Narrow linear gully.
C544	C543	5	0.6	0.15	Compacted stony layer.	Fill of linear gully.
C565	N/A	18.5	2.5	0.4	Cut of wide shallow linear ditch.	Cut of linear ditch.
C566	C565	18.5	2.5	0.4	Medium compact, mid-brown, sandy clay.	Fill of linear ditch.

Finds:

Context	Find Number	Material	Period	Description
C513	E3123:513:1	Bone	Medieval	Bone pin
C527	E3123:527:1	Stone	Bronze Age	Perforated stone
C527	E3123:527:2	Chert	Bronze Age	Bipolar blade
C527	E3123:527:3	Flint	Bronze Age	Modified edge retouch
C531	E3123:531:1	Iron	Uncertain date.	Nail fragment
C538	E3123:538:1	Chert	Bronze Age	Chert modified
C538	E3123:538:2–3	Chert	Bronze Age	Chert bipolar blades
C538	E3123:538:4	Chert	Bronze Age	Chert angular shatter
C538	E3123:538:5	Chert	Bronze Age	Chert bipolar flake
C538	E3123:538:6–7	Chert	Bronze Age	Chert angular shatter
C538	E3123:538:8	Chert	Bronze Age	Chert bipolar shatter
C538	E3123:538:9a–b	Chert	Bronze Age	Bipolar flake + angular shatter
C538	E3123:538:10	Chert	Bronze Age	Bipolar core
C538	E3123:538:11	Flint	Bronze Age	Angular shatter
C539	E3123:539:1	Chert	Bronze Age	Bipolar flake
C539	E3123:539:2	Chert	Bronze Age	Angular shatter
C539	E3123:539:3	Iron	Uncertain date.	Nail fragment
C539	E3123:539:4	Chert	Early Bronze Age	Chert thumb-nail scraper

Interpretation:

A wide linear ditch (C540 (=C638/C528) cut the ring-ditch on an east–west axis (Figure 10; Plate 44) and may be related to the early medieval ditches to the east of the ring-ditch as it was similar in terms of scale. The narrower ditch (C510/C536) which also bisected the ring-ditch yielded a fragmentary bone needle (E3123:513:1, Figure 24) produced from a pig fibula with the head cut from the distal end of the bone. Bone needles produced from pig fibulae are common implements of the early medieval period in Ireland (Riddler and Trzaska-Nartowski, Appendix 2.4.2). Eleven pieces of chert were also recovered from fill C538 of ditch C536 (E3123:538:1–11) (Nelis, Appendix 2.3).

The fills of linear ditch C510, linear gullies C532 and C543 and pit C541 contained large volumes of animal bone. The recovered faunal material had clearly undergone a considerable erosion of the surface, due to post-depositional taphonomic processes and most fragments were brittle and flaky. The bones represented the remains of cattle, pig and other indeterminate fragments (McCarthy, Appendix 2.7). Both the late Bronze Age ring-ditch and the early medieval ditches to the east

contained large quantities of animal bone and as such the bone in these features could be an indication of an association with either phase of activity

Linear ditch C565 was oriented roughly north-south and contained one fill (C566). This ditch may have been part of an enclosure associated with the ring-ditch or it may have been associated with the early medieval activity.

Several nodules of slag were recovered from the fill C531 of the narrow linear gully C532 and a number of fragments of baked clay lining were recovered from the fill C539 of the wide linear ditch C540 (Wallace and Anguilano, Appendix 2.10).

The shallow pit (C541) to the east of the ring-ditch yielded some lithic material, a chert bipolar blade and a flint modified edge retouch and, consequently, may be contemporary with the early use of the ring-ditch itself (Nelis, Appendix 2.3).

A number of badly corroded nails were recovered from the fills of ditch C540 and gully C532 (E3123:531:1, E3123:539:3) and are of an uncertain date (Mac Dermott, Appendix 2.4.1).

Charcoal analysis identified 45 fragments of pomaceous (*Maloideae* sp.) and 5 fragments of oak (*Quercus* sp.) from a sample of C538 from the ditch C510 (O'Donnell, Appendix 2.5).

2.9 Phase 6: Modern Activity

Modern activity on the site consisted of linear ditches and a stone drain and a cluster of linear ditches and furrows to the south of the ring-ditch.

2.9.1 Linear Cuts to the South of the Ring-ditch

Contexts:

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C560	C561	N/A	0.75	0.29	Medium compact, mid-brown, sandy clay.	Fill of linear feature.
C561	N/A	N/A	0.75	0.29	Cut of linear feature.	Narrow linear feature.
C568	C569	4.1	0.33	0.1	Medium compact, light brown silt.	Fill of narrow furrow.
C569	N/A	4.1	0.33	0.1	Concave cut of shallow furrow.	Narrow linear furrow.
C571	C572	N/A	0.77	0.15	Medium compact, light brown, sandy fill.	Fill of linear ditch.
C572	N/A	N/A	0.77	0.15	Concave cut of linear ditch.	Cut of linear ditch.
C577	C578	3.6	0.42	0.13	Medium compact, brown sandy clay.	Fill of linear furrow.
C578	N/A	3.6	0.42	0.13	Cut of narrow linear furrow.	Narrow linear furrow.
C586	C587	*c.* 17.5	3	0.5	Medium compact, mid-brown, sandy clay.	Fill of linear feature.
C587	N/A	*c.* 17.5	3	0.5	Cut of wide linear feature.	Cut of linear ditch.
C592	C593	N/A	1	0.3	Medium compact, dark brown, sandy clay.	Fill of linear ditch.
C593	N/A	N/A	1	0.3	Cut of narrow linear furrow.	Linear drainage ditch.
C594	C595	N/A	0.56	0.27	Medium compact, brown clay silt.	Fill of furrow.
C595	N/A	N/A	0.56	0.27	Concave cut of narrow linear furrow.	Narrow linear furrow.
C619	C620	~8	0.9	0.3	Medium compact, mid-brown, sandy clay.	Fill of linear ditch.
C620	N/A	~8	0.9	0.3	Cut of linear ditch.	Linear ditch.

Finds:

Context	Find Number	Material	Period	Description
C560	E3123:560:1	Chert	Bronze Age	Bipolar flake
C577	E3123:577:1	Pottery	Mid-late Bronze Age	Fragments
C577	E3123:577:2	Pottery	Mid-late Bronze Age	Bodysherd
C619	E3123:619:1	Flint	Bronze Age	Platform shatter

Interpretation:
A series of linear furrows, narrow gullies and drainage ditches (C572, C620, C565, C587, C593, C561, C578, C595, C569) which possibly represent modern agricultural activity, traversed the area to the south of the ring-ditch. A small furrow C577 yielded middle to late Bronze Age domestic pottery (Grogan and Roche, Appendix 2.1) and it is likely that this represents a disturbed find from one of the various pits and postholes which litter the area. A single piece of chert (E3123:560:1) was recovered from the fill C560 of linear feature C561 and a single piece of flint platform shatter (E3123:619:1) was recovered from the fill C619 of linear ditch C620 (Nelis, Appendix 2.3).

Three loose cattle teeth and 21 indeterminate fragments were recovered from two modern linear ditches C572, C620 (McCarthy, Appendix 2.7).

2.9.2 Modern Ditches Traversing the Site

Contexts:

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C100	C172	59m	~0.9	~0.55	Compact medium brown silty sand.	Fill of field boundary.
C172	N/A	59m	~0.9	~0.55	Cut of linear ditch.	Cut of field boundary.
C237	C268	51m	~1.2	~0.17	Black charcoal-rich fill.	Upper fill of ditch
C268	N/A	51m	0.9	0.33	U-shaped cut of linear ditch.	Cut of field boundary.
C269	C268	51m	~0.9	~0.19	Stone packing.	Fill of field boundary.
C294	C434	N/A	0.5	0.25	Compacted stony fill.	Fill of drainage ditch.
C434	N/A	N/A	0.5	0.25	Straight-sided cut of modern stone drain.	Modern drainage ditch.
C590	C591	25m	0.75	0.29	Brown medium compact silty sand.	Fill of modern ditch.
C591	N/A	25m	0.75	0.29	Cut of shallow narrow modern ditch.	Cut of modern ditch.

Finds:

Context	Find Number	Material	Period	Description
C100	E3123:100:1–2	Pottery	13th–14th Century	Body fragments
C100	E3123:100:3	Chert	Bronze Age	Angular shatter
C100	E3123:100:5	Chert	Bronze Age	Platform and angular shatter
C100	E3123:100:6	Chert	Bronze Age	Bipolar flake.

Interpretation:
A modern charcoal-rich linear ditch C268, aligned on a north–south axis, cut the three shallow ditches (C400, C327 and C397) which obviously pre-date this modern linear feature (Figure 11).

A stone-lined drain (C434) ran through the western extent of the site on a south-west–north-east axis (Figure 11). The drain traversed a slight hollow in the ground-level which was prone to flooding in winter.

Field boundary ditch C172 cut through Bronze Age Structures 1 and 2 and their associated metalled surfaces, notably C54 (Figure 11, Plate 10). The ditch bisects several features and potentially completely destroyed others. The degree of disturbance caused by the linear ditch is illustrated by its related de-contextualised prehistoric finds and the presence of a truncated posthole (C396) containing a flint core (E3123:395:1, Figure 21), relating to Structure 2, visible in the eastern side of the ditch's cut. The ditch yielded lithic material which should be attributed to the two structures and a slag sample may relate to the circular pit furnaces in the area. Three pieces of chert consisting of angular shatter and a bipolar flake were recovered from fill C100 of ditch C172 (Nelis, Appendix 2.3). Two body fragments of 13th–14th Century Meath-type ware (E3123:100:1, E3123:100:2) were also recovered from the fill of ditch C172 (Doyle, Appendix 2.2).

Linear ditch C591 was located within the possible early medieval sub-rectangular enclosure. It was oriented east-west and was traced for *c*. 25m.

2.9.3 Modern pit C626

Contexts:

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C626	N/A	2	1.3	0.1	Cut of modern feature.	Modern feature.
C627	C626	2	1.3	0.1	Concentration of compacted stones.	Fill of modern feature.

Finds: None

Interpretation:
This feature consisted of a shallow cut filled with a deposit of compacted stones which appeared to be modern in date.

2.9.4 Topsoil

Contexts:

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C1	N/A	N/A	N/A	0.3	Garden clay.	Topsoil.

Finds:

Context	Find Number	Material	Period	Description
C1	E3123:1:1	Iron	Modern	Base fragment of pot or dish
C1	E3123:1:3	Flint	Bronze Age	Modified arrowhead
C1	E3123:1:4	Chert	Bronze Age	Platform flake
C1	E3123:1:5	Flint	Bronze Age	Platform flake
C1	E3123:1:6	Chert	PH	Modified scraper
C1	E3123:1:7a–b	Chert	PH	Bipolar blade and angular shatter
C1	E3123:1:8	Flint	PH	Complete bipolar blade
C1	E3123:1:9	Flint	PH	Angular shatter
C1	E3123:1:10	Pottery	Medieval	Bodysherds (x3)
C1	E3123:1:11	Flint	PH	Bipolar flake, burnt
C1	E3123:1:12	Flint	PH	Platform shatter
C1	E3123:1:14	Chert	PH	Bipolar flake
C1	E3123:1:15	Chert	PH	Platform shatter
C1	E3123:1:17	Flint	PH	Bipolar shatter
C1	E3123:1:18	Pottery	18th–19th Century	Body fragment

Interpretation:
Topsoil, consisting of garden clay, lay over the natural subsoil which was comprised of silts and sands. The degree and quality of the finds in the topsoil indicated that the area had been heavily truncated and the upper tiers of archaeological contexts considerably disturbed. Included in the topsoil finds was a modified flint arrowhead (Figure 21).

3 SYNTHESIS

The synthesis presents the combined results of all of the archaeological analysis carried out at Grange 3. This includes the analysis of the physical and archaeological landscape, the compilation of information gathered during research into the site type, date, and function, and the results of the excavation and specialist analysis of samples taken during the course of on-site works.

3.1 Landscape Setting

The topography from Navan to Kells is generally flat and gently undulating lowland. The area is characterised by a patchwork pattern of high quality agricultural fields as well as mature hedgerows. The River Tolka and its tributaries drain much of southern part of County Meath. The Blackwater drains most of north Meath, flowing just east of Kells and is fed by a number of significant tributaries such as the Moynalty River and Yellow River.

The geology of Meath consists of solid and glacial geology. The solid geological formations are mostly of Palaeozoic age dating between 545–290 million years ago (Finch *et al*. 1983, 9). The solid geology of the area through which the road traverses is dominated principally by carboniferous limestone, which provides the basis for the nourishing, calcium-rich pastures that are seen throughout much of County Meath. The outcome of geological activity from other periods can be seen in the Namurian shales, which form a number of the hills in the area, such as the Hill of Tara and Skreen, and the Ordovician and Silurian shale and sandstones, which form the underlying geology of Kells and the surrounding area.

The overburden in this area consists of stiff silts overlying glacial till. Bedrock is likely to be found *c.* 5 m below ground level and to be limestone. Generally, the area surrounding Kells is characterised by relatively low ice marginal ridges, eskers, and kame and kettle topography (Finch *et al*. 1983; Meehan 1999) dominated by sand and gravel units. Overall, this area is very hummocky with some interspersed peat bogs and badly drained hollows (Meehan 1999).

The overlying soils of County Meath are mostly classified as grey-brown podzolics which are good all-purpose, well drained soils used for both arable and pastoral farming. The overlying soil of the Kells area is brown earths, which are well-drained, mature soils which are generally ideally suited to arable farming. A detailed survey of the soils of County Meath is provided by Finch *et al*. (1983).

Grange 3 was located at 70m above sea level in a sub-rectangular gently sloping field in pasture. The field was bounded on three sides by mature hedgerows and on the northern boundary by a modern farmhouse (which faces onto a third class road). The nearest watercourse, a stream, was located *c.* 400m to the north-east. There are recorded monuments in the vicinity that are likely to date to the early medieval or medieval periods.

3.2 The Archaeological Landscape – Bronze Age, Iron Age and Early Medieval

As part of the general research relating to sites along the scheme and the specific research relating to Grange 3, the known archaeology within the surrounding landscape was assessed in order to establish the level and type of activity in the surrounding area in the past. This included a review of information from the Record of monuments and places, previous excavations and other relevant documentary sources including mapping and other sites excavated as part of the M3 scheme. The excavated archaeology at Grange 3 has been identified as being Bronze Age, Iron Age and early medieval in date.

3.2.1 General Bronze Age landscape of the Scheme

Activity dating to the Bronze Age period (2500–800 BC) along Contract 4 of the M3 Clonee–North of Kells Road Scheme was represented in the form of funerary and settlement activity.

Funerary Activity

Bronze Age funerary sites, such as ring-ditches and barrows are a common feature of the Bronze Age, occur throughout Co. Meath where 48 of these site types have been listed as recorded monuments in the county. Ring-ditches are circular ditches or gullies that are associated with prehistoric funerary activities and sometimes contain deposits of cremated human bone within their ditch fills. In some cases the ring-ditch may encircle a central pit containing a cremation deposit, and they are sometimes found in association with Bronze Age cemeteries. Ring-barrows are similar funerary features; however, the circular ditch surrounds a low earthen mound. A cluster of such monuments occurs at the Tara complex, to the south of Navan, in the townlands of Castletown Tara and Castleboy, while barrows are recorded at Kilmainham (ME017:020) and Commons of Lloyd (ME016:014) to the west of Kells. Additional barrows recorded within the vicinity of Contract 4 of the M3 Clonee–Kells Road Scheme include those at Hurdlestown (ME017:028) and Ardbraccan (ME024:013). Most notably, barrows are located to the north-west at the Loughcrew complex. Further Bronze Age funerary sites worthy of note in the county include the cemetery at Keenoge (Mount 1995), the early Bronze Age flat cemetery at Bettystown (Eogan 2000), the ring-ditch with burial urns at Staleen (Campbell 2007) and the Bronze Age cist cemetery at Donaghmore, Blackcastle Demesne (Roche 1994). At the Mound of the Hostages, Tara, Co. Meath, approximately fifty secondary burials were inserted in the earth-covering of the mound, but only a single, poorly constructed cist was noted (Raftery 1969, 13) while Bronze Age burials, including cists, were recorded at Fourknocks (Waddell & Ríordáin 1993, 123–124). Cist burials are also common throughout Co. Meath with 22 listed as recorded monuments; one of which is located at Commons of Lloyd (ME016:049). Settlement activity pertaining to this period is represented by enclosures and houses as well as widespread evidence for activity associated with burnt mounds.

Two Bronze Age ring-ditches were excavated on Contract 4 of the M3 Clonee–Kells Road Scheme. At Grange 3 a large ring-ditch was established in the middle Bronze Age (1372–1131 BC) and re-cut in the late Bronze Age (974–828 BC). Four cremation pits were also excavated at the site and are likely to be contemporary with this Bronze Age monument. An early Bronze Age ring-ditch was tentatively identified (2137–1965 BC) at Kilmainham 3 (Whitty 2010b), located near recorded monument ME017:020 (a possible barrow). Bronze Age pottery was also recovered from a number of sites. The types of pottery consisted of cinerary urns and included cordoned urns, vase urns and a fine bipartite vase that was recovered from Phoenixtown 3 (Lyne 2010a). In addition to this, a cordoned urn recovered from Kilmainham 1C (Walsh 2010) has been identified as a possible disturbed burial. The remainder of the Bronze Age vessels, although they are most commonly associated with burial, have been associated with domestic use.

Bronze Age ring-ditches have been excavated along Contract 1, 2, 3 & 5 of the M3 Clonee–North of Kells Road Scheme and occur at Johnstown 4 (Elder & Ginn 2009b), Raynestown 1 (Elder, O'Connor & Owen 2009), Ardsallagh 2 (Clarke & Carlin 2008a), Garretstown 2 (Rathbone 2009a), Lismullin 1 (O'Connell 2009) while a circular enclosure representing a possible ring-ditch was excavated at Boyerstown 3 (Clarke 2009). A flat cemetery was also excavated at Ardsallagh 2 (Clarke & Carlin 2008a) and urn burials were discovered at Ardsallagh 1 (Clarke & Carlin 2008b), Collierstown 2 (Linnane 2008c) and Lismullin 1. Bronze Age pottery sherds were

plentiful throughout the scheme whereby the corpus included food vessels, collared and cordoned urns and Bronze Age domestic ware. Such sherds were recovered from Ardsallagh 1 (Clarke & Carlin 2008b), Ardsallagh 2 (Clarke & Carlin 2008a), Dunboyne 4 (Elliott & Ginn 2008a), Boyerstown 3 (Clarke 2009), Pottlebane 1 (Rathbone & Ginn 2008), Johnstown 3 (Elder & Ginn 2009a), Johnstown 4 (Elder & Ginn 2009b), Chapelbride 4 (O'Hara, Gallagher & Ginn 2009) and Macetown 1 (Martin 2009b). Similar collections of Bronze Age pottery have been retrieved from Site 10, Rathmullan (Bolger 2003), Stamullin (Ní Lionain 2008) and Colp West (Clarke & Murphy 2003) further east in Co. Meath.

Settlement Activity

Settlement sites dating to the Bronze Age period along Contract 4 of the M3 Clonee–Kells Road Scheme have yielded substantial evidence for Bronze Age houses. The most common type in Ireland is circular or almost circular in plan (Doody 2000, 139) and, similarly, the majority of the structures excavated along Contract 4 conform to this design. Burnt mound activity is also a common feature of the Bronze Age and a number of these sites were excavated along Contract 4 of the M3 Road Scheme. The most enduring explanation for the function of burnt mound sites is that they were used for cooking joints of meat in a trough of boiling water (O'Kelly 1954). These sites are identified by deposits of heat shattered stones and trough features. Water was an essential element for the function of these sites and, consequently, they are often located in wetland/boggy areas or close to watercourses.

As part of the excavations for Contract 4 of the M3 Clonee–North of Kells Road Scheme Bronze Age, structures were excavated at Grange 3 (Structure 1: 1499–1415 BC – and Structure 2: 1408–1269 BC), Nugentstown 1 (Structure 3: 1186–978 BC; Lynch 2010c), Phoenixtown 3 (Structure 1: 1503–1415 BC – 1435–1303 BC; Lyne 2010a), Cakestown Glebe 2 (Structure 1: 1122–939 BC and 993–838BC, Structure 2: 1215–1013 BC; Lynch 2010d), Kilmainham 1A (Structure 3: 1436–1314 BC – 1419–1269 BC; Lyne 2010c), and Town Parks 3 (late Bronze Age structure: 1019–906 BC; Gleeson 2010b). In addition to these, two small 'D shaped' structures were excavated at Cookstown Great 3 (McLoughlin 2010) which dated to the early Bronze Age while some small Bronze Age huts were identified at Kilmainham 1C (Walsh 2010).

A number of Bronze Age enclosures were excavated as part of the M1 Northern Motorway–Drogheda Bypass in Co. Meath to the west of Drogheda town. Bronze Age enclosures were uncovered at Sheephouse (Nelis 2002), Kilsharvan, site 16 (Russell 2003b) and at site 17, Lagavooren (Murphy 2003). Several Bronze Age houses have been excavated throughout the county and structures have been identified as part of Contract 1, 2, 3 & 5 of the M3 Clonee–North of Kells Road Scheme excavations at Chapelbride 4 (O'Hara, Gallagher & Ginn 2009) and Skreen 3 (O'Neill 2005) that date to the late Bronze Age. Possible Bronze Age structures have been excavated at Bennetstown 3 (Elliott & Ginn 2008b), Dunboyne 2 (O'Hara 2009a) and Boyerstown 3 (Clarke 2009), all of which are part of the excavations of Contracts 1, 2, 3 & 5 of the M3 Clonee–North of Kells Road Scheme. Bronze Age houses were also excavated at Kilsharvan 5 (Russell 2003a) and Rathmullan site 15/16 (Stafford 2003), west of Drogheda town, as part of the M1 Motorway, while further structures have also been identified in other parts of Co. Meath; at the lakeshore settlement at Moynagh Lough, Brittas (Bradley 2005) and Colp West (Clarke & Murphy 2003).

Burnt Mound Activity

As part of the archaeological investigations conducted in advance of the construction of the M3 Clonee–North of Kells Road Scheme 41 sites exhibiting evidence for hot

stone technology were excavated (O'Connor 2007, 2). In addition to these, burnt mound activity was present at 15 of the sites excavated along Contract 4 of the scheme. Nine of these have been identified as dating to the Bronze Age. One of two burnt mounds excavated at Kilmainham 1C (Walsh 2010) was dated to the late Neolithic/early Bronze Age (2 Sigma Cal 2573–2472 BC) and a late Neolithic/early Bronze Age date was also recovered for burnt mound activity at Nugentstown 2 (Lynch 2010b) (2 Sigma Cal 2575–2475 BC). Similar activity was also recorded at Town Parks 6 (Whitty 2010a); however, this has been dated to the Neolithic and dates were not recovered from three of the remaining sites. The River Blackwater is located to the east of this part of the M3 scheme and meanders on a north-west, south-east axis. Many of its tributaries traverse the M3 road scheme providing an ideal landscape and ready water source for these burnt mound sites. Within the vicinity of Contract 4 of the M3 Clonee–Kells Road Scheme a burnt spread (ME025:044019) and a burnt mound (ME025:044015; *fulacht fiadh*) listed as recorded monuments are located at Abbeyland South in Navan, and a cluster of *fulachta fiadh* are located approximately 5km east of Nugentstown.

An increase of development in recent years has exposed numerous sites displaying burnt mound activity in Co. Meath; twelve sites presenting such activity were excavated as part of the M1 Northern Motorway Drogheda Bypass, three similar sites were uncovered as part of the N2 Ashbourne Bypass and five sites with burnt mound activity were excavated in Co. Meath, as part of the Dunshaughlin–Castletown Tara Sewerage Scheme.

Lithic finds were also recovered throughout Contract 4 of the M3 Clonee–Kells Road Scheme. A number of these artefacts have a wide date range from the Neolithic to the historic period. Lithics recovered from Phoenixtown 1 (Lyne 2010b) included thumbnail scrapers diagnostic of the Bronze Age period and flint artefacts recovered from Nugentstown 3 (Lynch 2010a), Ballybeg 3 (Coughlan 2010) and Town Parks 2 (Gleeson 2010a) have been identified as late Neolithic/Bronze Age in date.

The funerary and settlement activity excavated along Contract 4 of the M3 Clonee–North of Kells Road Scheme has uncovered additional elements of Co. Meath's Bronze Age heritage and further contributes to our knowledge and understanding of these communities.

3.2.2 General Iron Age Landscape of the Scheme

A small number of features dating to the Iron Age period (800 BC–AD 500) were excavated in advance of Contract 4 of the M3 Clonee–North of Kells Road Scheme. This was primarily comprised of industrial activity including metalworking furnaces and cereal drying kilns while possible funerary evidence in the form of two ring-ditches was also identified. Within the wider landscape there are important Iron Age foci, most notably Tara. The Tara complex dates as far back as the Neolithic and includes the passage tomb known as the Mound of the Hostages. The site was occupied throughout prehistory as a place of burial and ritual and continued in use into the Iron Age when it became the seat of the high Kings of Ireland. The complex served as a Royal site during the Iron Age and consisted of a hilltop enclosure known as Ráth na Rígh (Roche 2002). This site played a major political and ceremonial role in Ireland during this period.

To the east Brú na Bóinne was also a major Iron Age centre. A large Iron Age ditch surrounds one of the Passage Tombs at Knowth (Eogan 1995) and a house/houses were constructed in the centre of the large tumulus at the site (Eogan 1971). Further afield Iron Age occupation has also been recorded at Site 17, Lagavooren (Murphy & Clarke 2003) and at Site 2, Sheephouse, Co. Meath (Moore 2003), both of which had

evidence of occupation prior to this period and were excavated in advance of the M1 Drogheda Bypass. A semi-circle of postholes indicate the presence of a hut at Claristown 2 (Russell 2003c) approximately 40km ESE of Kells and similarly, a circular hut structure also dating to the Iron Age was excavated at Colp West, located just outside Drogheda town (Clarke & Murphy 2003).

Other important sites dating to the Iron Age that have been excavated in Co. Meath include the double banked earthwork at Teltown (Waddell & O'Brien 1998); which is located approximately 3km east of Nugentstown, significantly close to the Contract 4 excavations. Kells has been recognised in the Iron Age as a *dun* settlement; however, it is also believed that it is more likely that a prehistoric *dun* was located on the Hill of Lloyd, immediately west of the town, where a trivallate ringfort (ME017:054) is positioned. The location of the Contract 4 M3 Road-Scheme excavations coincides with the location of an old thoroughfare in the region. Kells is located along an ancient route-way known as the Slí Assail. The Slí Assail is one of five *Slíte* or main highways which, according to the Annals of the Four Masters, all led to Tara (Geissel 2006, 9). This road travelled on an east–west axis from Drogheda towards Rathcroghan (Geissel 2006, 10).

Settlement and Industrial Activity

Along Contract 4 of the M3 Clonee–Kells Road Scheme Iron Age activity was identified at the multi-phase site of Kilmainham 1C (Walsh 2010) in the form of a ditch, and cereal drying kilns. A pit also dating to the Iron Age was excavated at nearby Kilmainham 2 (Bayley 2010b) (2 Sigma cal 510–387 BC) and further evidence of rural industrial activity was excavated at Grange 3 in the form of a furnace pit and associated pits. Similarly, extensive metalworking activity was also excavated at Grange 2 (Kelly 2010a) (possible shaft furnace: 2 Sigma cal AD 257–409 and 427–554). Pits of unknown function were excavated at Cookstown Great 1 (Lynch 2010f) and a posthole at Kilmainham 3 (Whitty 2010b) has also been dated to this period (2 Sigma cal 51 BC–AD 52). A waterhole associated with burnt mound activity was excavated at Cookstown Great 3 (McLoughlin 2010) and returned an early Iron Age date; however, Bronze Age dates were also recorded at the site indicating a continuity of use of these features over a long time span. Similar to this, a burnt mound was excavated at Colp West approximately 35km east of Kells which also returned an Iron Age date (Clarke & Murphy 2003). Additional Iron Age industrial activity was excavated along Contract 1, 2, 3 & 5 of the M3 Clonee–North of Kells Road Scheme in Co. Meath. Kilns and bowl furnaces were excavated at Dunboyne 2 (O'Hara 2009a) and a bowl hearth was uncovered at Ballinter 1 (Linnane 2008b). A middle Iron Age metal working area was recorded at Rath Hill 1 (Elder & O'Hara 2009) and iron working features were excavated at Chapelbride 1 (Danaher & Ginn 2008). Kilns, pits and hearths were excavated at Johnstown 2 (Schweitzer & Ginn 2008a), kilns dating to the late Iron Age/early medieval period were excavated at Skreen 3 (O'Neill 2009) and some activity including a kiln dating to this period, was uncovered at Pace 1 (Elliott, Clarke & Ginn 2008). A series of large enclosures and associated features dating to the Iron Age were recorded at Garretstown 2 (Rathbone 2009a) and pits including ephemeral features also dating to this period were excavated at Roestown 4 (Linnane 2008a), Kennastown 2 (Martin 2009a) and Macetown 1 (Martin 2009b).

Funerary Activity

Three sites on the present section of the M3 Clonee–North of Kells Road Scheme had evidence of funerary activity. A ring-ditch (384–207 BC) was excavated at Commons of Lloyd (Whitty 2010c) close to the Iron Age ring-fort ME017:054 while cremation pits were also recorded at Grange 1 (Lynch 2010e) and Grange 2 (Kelly 2010a) (2 Sigma cal 46 BC–AD 56). A glass bead was recovered from one of the

tentatively identified cremations excavated at Grange 2 (*ibid*.). A large ring-ditch at Cakestown Glebe 2, close to the commons of Lloyd example may also date to the Iron Age (AD 28–128). In addition to these sites, funerary activity dating to this period is evident throughout the county. Two unprotected inhumations associated with grave goods including glass beads were excavated at Knowth (Eogan 1977) while at Raffin Fort a structure surrounded by circular pits has been interpreted as having a ceremonial function (Newman 1993). An Iron Age cemetery was excavated at Bettystown (Meenane 2000) and a late Bronze Age/early Iron Age ring-ditch was discovered at Ninch Laytown (Eogan & Reid 2002); the upper fills of this feature have been dated to the Iron Age indicating re-use of this monument. An Iron Age double ring-ditch was also excavated at Cookstown (Clutterbuck 2007a), approximately 30km to the south-east of Kells, and a small ring-barrow uncovered at Harlockstown (O'Connor 2007), located approximately 5km further to the south-east of Cookstown, has also been dated to this period. A number of sites excavated as part of the Contracts 1, 2, 3 & 5 of the M3 Clonee–North of Kells Road Scheme also yielded evidence of Iron Age funerary activity. Ring-ditches with associated pits and possible cremations were excavated at Ardsallagh 1 (Clarke & Carlin 2008b) and Castlefarm 1 (O'Connell & Clarke 2009). Similar activity was excavated at Johnstown 4 (Elder & Ginn 2009b), although this activity has been dated to the late Bronze Age/early Iron Age. Ring-ditches dating to the Iron Age were recorded at Lismullin 1 (O'Connell 2009) and Collierstown 1 (O'Hara 2009c), and the ring-ditches excavated at Ardsallagh 2 showed signs of re-use throughout the Iron Age (Clarke 2008). A small amount of funerary activity was dated to the Iron Age at Knockmark 1 (Schweitzer & Ginn 2008b) and a penannular gully, which has been identified as a possible ring-ditch dating to the Iron Age was excavated at Chapelbride 4 (O'Hara, Gallagher & Ginn 2009).

Excavations along Contract 4 of the M3 Clonee–North of Kells Road Scheme have mainly uncovered evidence of rural industrial activity. The small amount of funerary activity and lack of settlement evidence along the route is intriguing. It is possible that Contract 4 of the M3 Clonee–Kells Road Scheme merely by coincidence avoided settlement activity dating to the Iron Age. Much of the activity uncovered can be described as ephemeral and it is possible that other sites in the region such as Teltown and Kells sustained at least some, if not the majority, of the population at this time.

3.2.3 General Early Medieval Landscape of the Scheme

The early medieval period (AD 500–AD 1100) was a significant period of social, ideological, environmental and economic change in Ireland (O'Sullivan, McCormick, Kerr, Harney 2008, 1). Settlement activity was widespread throughout the county and much of this activity is still visible in the landscape today, typically in the form of ringforts and enclosures. The town of Kells, the placename being derived from Ceanannas meaning principal residence, is situated on a prominent ridge south of the river Blackwater whereby the town is likely to have been a fording point from early times and would have been a nucleus of activity in the region during this period. The Book of Kells was created by the monks of Iona who in AD 806 fled their monastery following a Viking raid. The Columban monks took refuge in a new monastery at Kells, and it is possible that the Book of Kells was written here in Co. Meath. As a result St. Columbas Church, a round tower and high crosses were also constructed; demonstrating the wealth of this monastic community at the time. A market cross is recorded in Kells and, as the appearance of such monuments at the periphery of settlements emerged in the tenth century (O'Sullivan, McCormick, Kerr, Harney 2008, 151), its presence underpins a definite early medieval date for the town.

Evidence of early medieval settlement activity along the M3 Clonee–North of Kells Contract 4 Road Scheme, however, was less forthcoming; the majority of the early medieval activity excavated was either industrial or funerary in nature. It is possible that the town of Kells would have acted as the principal settlement centre for this part of the county.

Settlement

No settlement sites were excavated although numerous ring-forts and enclosures are recorded in the region, of which a significant number are located in close proximity to the M3 Clonee–North of Kells Contract 4 Road Scheme excavations. Ring-forts are listed at Cakestown Glebe (ME017:002-), Newrath Big (ME016:023001-) and Commons of Lloyd (ME016:015-). In addition to these, four enclosures are recorded at Commons of Lloyd (ME016:057-, ME016:012-, ME016:016-, ME016:056-) and two are recorded at Grange (ME024:008-, ME031:041-). A number of noble sites dating to this period are also located in Co. Meath. Knowth was treated as a royal site, first mentioned in AD 788 as the seat of the tribe of the Gallenga, and later associated with the Kings of the Northern Brega (Edwards 1990, 43) and Tara was used for early medieval inaugurations amongst the Uí Néill (*ibid.* 44). The crannóg settlements at Lagore and Moynagh Lough constitute other sites in the county of considerable importance. The early medieval crannóg of Lagore, Co. Meath (Hencken 1950–1), could certainly be interpreted as the island residence of kings or nobles (O'Sullivan, McCormick, Kerr, Harney 2008, 82) while Moynagh Lough in Co. Meath (Bradley 1991), has been viewed as a probable lordly crannóg, particularly during its mid-eighth century occupation phase, when it was clearly a place where various specialist craft workers resided and worked (*ibid.*). A variety of settlement sites dating to this period have been excavated throughout Co. Meath, particularly in recent years. Ringforts have been recorded at Raffin Fort (Newman 1990) and Cookstown 6 (Clutterbuck 2007b) while enclosures have been excavated at Raystown (Cotter 2007), Knowth (Stout 2004), Augherskea (Baker 2004a) and Ninch, Laytown (McConway 2003). Similar sites have also been uncovered as part of the M3 Clonee–North of Kells Contracts 1–3 & 5 Road Scheme excavations. Early medieval enclosures and associated features were excavated at Johnstown 1 (Elder & Ginn 2009c), Castlefarm 1 (O'Connell & Clark 2009), Dowdstown 2 (Cagney, O'Hara, Kelleher & Morkan 2009), Garretstown 2 (Rathbone 2009a), Roestown 2 (O'Hara 2009b), Boyerstown 3 (Clarke 2009), Calliaghstown 1 (Reilly, Kinsella & Ginn 2009) and Collierstown 1 (O'Hara 2009c).

Trade and Communication

An ancient road known as the *Slíghe Assail* is located close to the M3 Clonee–North of Kells, Contract 4 excavations and would have facilitated trade and communication in the early medieval period. This road travelled on an east–west axis from Drogheda towards Rathcroghan (Geissel 2006, 10). Teltown was one of three important locations of an aonach, or fair held every three years (Geissel 2006, 43; Bradley 1998, 47), and was located approximately 3km east of Nugentstown along this ancient route-way. It is mentioned that once in the eleventh century a tailback of six miles (ten kilometres) of chariots and vehicles was caused by people going to the fair there, not counting people travelling on foot (Geissel 2006 43; Joyce 1903, 409). The *Slíghe Assail* also passed through Kells, another prominent market settlement and would have supported the trade and communication networks between these sites and those further to the west.

Funerary Activity

Funerary activity was identified along the M3 Clonee–North of Kells Contract 4 Road Scheme in the form of eight grave cuts dating to this period (5th–6th centuries AD) which were uncovered at Grange 2 (Kelly 2010a). Various funerary sites dating to the

early medieval have been recorded in Co. Meath. A burial ground containing up to 80 inhumations was excavated at Ninch Laytown (McConway 2003) and a similar cemetery containing up to 187 inhumations was recorded at Augherskea (Baker 2004a), as part of the Bórd Gáis Pipeline to the West excavations. A ring-ditch excavated at Cloncowan (Baker 2004b) showed evidence of reuse in the early medieval period and an inhumation cemetery associated with a settlement enclosure was excavated at Raystown (Cotter 2007). Four slab lined cist burials dating to the early medieval period were excavated on the western perimeter of the passage grave monument at Knowth (O'Brien 2009, 5; Eogan forthcoming) while a penannular enclosure containing burials was recorded at Colp West (Gowen 1989). More recently, a previously unknown early Christian settlement site was also excavated at Colp West (Murphy 2002) which may have associations with the aforementioned cemetery.

Funerary activity was also excavated as part of the M3 Clonee–North of Kells Contracts 1–3 & 5 Road Scheme excavations. Inhumations associated with a ring-ditch were recorded at Ardsallagh 1 (Clarke & Carlin 2008b) which pertained to the transitional late Iron Age/early medieval period while an early medieval *ferta* cemetery was excavated at Collierstown 1 (O'Hara 2009c). At Pottlebane 1 (Rathbone & Ginn 2008) a pit containing charred human remains was also dated to the early medieval period.

This period also saw the introduction of Christianity to Ireland and a number of monasteries and ecclesiastical centres were established. In Co. Meath the Abbey of Kells was founded *c*. AD 804 by monks from Colmcille's foundation in Iona. An early medieval ecclesiastical enclosure is also recorded in the vicinity of Kells town at Town Parks (ME017:044025). It is also evident from the literature that in the late seventh and early eighth centuries in Ireland, burial in formal Christian cemeteries was not yet the norm and that pagan burial practices were still in use and were even tolerated to some extent (O'Brien 1992, 133).

Industrial and Domestic Activity

The remainder of the activity excavated along the M3 Clonee–North of Kells Contract 4 Road Scheme was industrial in nature. Early medieval metalworking was recorded at Grange 3 and Grange 2 (Kelly 2010a) and kilns were excavated at Gardenrath 2 (Bayley 2010a), Kilmainham 1A (Lyne 2010c), Grange 3 and at Kilmainham 1C (Walsh 2010) where eleven figure of eight cereal drying kilns dating to the Iron Age and early medieval period were recorded. Some ephemeral activity in the form of pits was also excavated at Cookstown Great 3 (McLoughlin 2010).

Similar activity has previously been recorded in the wider area of Co. Meath. Industrial activity in the form of charcoal burning kilns was recovered at Hardwood 2 (Murphy 2004a) while kilns and hearths were excavated at Hardwood 3 (Murphy, 2004b). Metalworking activity was recorded at a settlement site at Duleek Road, Platin (Lynch 2003) and wells and metal working activity was also recorded at Killegland/Ballybin (McGowan 2007) while industrial and domestic activity was also excavated at Raystown (Cotter 2007). Pits, kilns and metal working activity was recorded along the M3 Clonee–North of Kells, Contract 1, 2, 3 & 5 at Bennetstown 1 (Elliott & Ginn 2008c), Pace 1 (Elliott, Clarke & Ginn 2008), Castlefarm 1 (O'Connell & Clark 2009), Berrillstown 1 (Rathbone 2009b), Blundelstown 1 (Danaher 2009), Clowanstown 3 (Mossop 2008), Chapelbride 4 (O'Hara, Gallagher & Ginn 2009), and Pottlebane 3 (Gallagher, Ginn & Kelleher 2008). A field system and well were also excavated at Merrywell 1 (O'Connell & Ginn 2009) and some ephemeral activity, dating to the early medieval period, was excavated at Pottlebane 1 (Rathbone & Ginn 2008).

Of note is the lack of early medieval settlement sites, and of further interest is the obvious re-use of sites along the M3 Clonee–North of Kells, Contract 4. The aforementioned excavations exhibiting early medieval activity each had evidence of previous site occupation. Iron Age cremations and industrial activity were recorded at Grange 2 (Kelly 2010a) and similar activity also excavated at this site has been dated to the early medieval period; however, the burial rite altered from cremation to inhumation. These excavations distinguish developments in the domestic and funerary practices of these communities in the early medieval period, from those of the Iron Age. A socio-economic system that was based on reciprocity and clientship was gradually transformed into one that was based on feudal labour services to a lord (O'Sullivan, McCormick, Kerr & Harney 2008, 1) and the slow conversion from paganism to Christianity transformed people's religious beliefs, ideologies of personhood and burial practices (*ibid.*).

3.2.4 Archaeological Landscape of site Grange 3

Grange 3 was a multi-period site spanning the Bronze Age, the Iron Age and the early medieval period. There were several sites with contemporary activity in the vicinity of Grange 3, including a circular post built structure *c*. 2km to the north-west from which a series of dates ranged between *c.* 1500–1300 BC (Phoenixtown 3) (Figure 2) (Lyne 2010a). Closer to Grange 3, pits dated to the middle Bronze Age (1493–1326 BC) were excavated at Grange 4, *c*. 150m to the south-east (Duffy 2010), and further pits dating to the early Bronze Age (2335–2148 BC) were excavated at Grange 5, *c.* 400m to the south-east (Kelly 2010b). A pit dated to the middle Bronze Age was located *c*. 500m to the north-west at Grange 1 (1613–1459 BC) (Lynch 2010e).

Iron Age metalworking furnace pits were excavated on the adjacent site at Grange 2 (Kelly 2010a) and these were, most likely, directly associated with the activity on Grange 3. Early medieval burials were also excavated at Grange 2 (AD 424–568, AD 431–571, AD 432–591) and may have been associated with cereal drying kiln activity at Grange 3, where one of the kilns returned a date of AD 427–570. An early medieval pit at Grange 4, *c*. 150m to the south-east, also returned a date contemporary with the early medieval possible sub-rectangular enclosure at Grange 3 (AD 666–772). It appears that there was continuity of activity in the Grange area from the Bronze Age through to the early medieval period.

There are also a number of recorded monuments in the vicinity of Grange 3. A church site (ME024:007) is located *c*. 300m to the south-west and a rectilinear enclosure (ME024:008) is located *c*. 300m to the south-south-west. An enclosure site (ME024:003) was also located *c*. 1km to the north-east.

3.3 Typological Background of Bronze Age Houses

The evidence for Bronze Age domestic activity generally comes in two main forms. The first, and most obvious, consists of house structures, while the second consists of more ephemeral evidence in the form of post-, stake-holes, pits and hearths. It is often difficult to decipher the true nature of the latter group of features, as they often occur in isolation. Whatever the nature of these features, they are highly significant as they can be linked with known domestic structures and, consequently, their presence is indicative of a potentially more extensive catchment area that was being exploited during the Bronze Age, thus providing a more extensive understanding of the settlement patterns within a wider landscape.

The more easily defined structures or house sites often occur in isolation but can be found in nucleated groups, such as Corrstown, Co. Londonderry (Conway *et al.* 2008). On occasion, they may be enclosed by ditches, banks or palisades, such as at

Chancellorsland, Co. Tipperary (Doody 2000) and Ballybrowney, Co. Cork (Cotter 2005). The enclosures are not always defensive and, in some cases, may have been used to delimit the occupational area. There is a considerable variation in site locations of Bronze Age houses which include lowland, uplands, wetlands and hillforts. The domestic structures of the early and middle Bronze Age are not as common as those of the late Bronze Age, which indicates that during this period there was a significant population surge. This is verified by the increase in the number of late Bronze Age burnt mound and ring-ditch sites.

Circular ground-plans are the most common type in Bronze Age structures, with oval and rectilinear structures occurring on occasion (Doody 2000, 137). Both Doody (*ibid.*) and Carlin (2006) have attempted to classify the excavated Bronze Age structures into a series of categories on the basis of those with slot trenches, rings of posts, or components of both. Typologies identified include: external penannular slot trench with internal ring of posts; external interrupted slot trenches and internal ring of posts; external slot trench without any internal postholes; circular or oval ring of freestanding postholes; mixture of freestanding posts and slot trenches; and internal and external ring of freestanding posts.

The diameters of Bronze Age roundhouses vary from 3m–15m, with the majority occurring between 5–9m (Doody 2000, 139). Where the entrance is identifiable, it most commonly occurs on the south-east, east, north-east, north and south, in decreasing frequency (Carlin 2006, 10). The entrance is usually identifiable as a gap in the slot or posts, often defined by larger posts on either side, or parallel postholes inside or outside the circle of posts defining the house and representing internal or external porched entrance.

Since the research outlined by Doody, Grogan, Carlin, and others, there has been a further surge in the number of Bronze Age settlements uncovered in Ireland. This includes a large number of buildings identified in advance of road construction in Munster (McQuade *et al.* 2009; Tierney and Johnston 2009).

3.4 Typological Background of Ring-ditches

Ring-ditches are one of the monument types classified under the general barrow label. Newman has identified five main types in the Tara area based mainly on morphological differences between monuments (1997). They include the ring-ditch, the embanked ring-ditch, the ring barrow, the bowl barrow and the bowl barrow lacking an external bank. Two additional barrow types, the stepped barrow and the enclosure barrow have been identified by Farrelly and Keane (2002). Ring-ditches generally consist of a single ditch enclosing an area, however, examples with two, and even three, enclosing ditches have been noted, such as at Tankardstown, Co. Limerick (Gowen and Tarbett 1988), Raynestown, Co. Meath (O'Connor 2006) and Creevy, Co. Donegal (Waddell, 1988, 366). The incorporation of an entrance into the enclosed area, generally a simple undug causeway, appears to be more common in later monuments.

Ring-ditches and barrows became common burial monuments in the middle to late Bronze Age. These could contain central cremation pits or cremated bone/funeral pyre debris in or beneath a mound or in the ring-ditch fill. While there is not always direct funerary evidence, frequently the monuments were located within a prehistoric cemetery complex (Daly and Grogan 1993). It can be difficult to ascertain whether ring-ditches represent stand-alone funerary monuments or constitute the remnants of flattened barrows, and, in the case of those with no associated burials, whether they were cemetery markers or non-funerary in nature.

The manner of the deposition of human remains in the ring-ditch varies from site to site. While burial depositions consist of both inhumations and cremations, the latter represents the most dominant rite. The burials were generally interred in cists, stone lined pits and, more commonly, in simple unlined pits. The ring-ditch usually encloses the burial area, although in some case burials can be found outside this enclosed area. It is also common to find cremated deposits in simple spreads within the enclosure or within the enclosing ditch. In many cases, a variety of burial forms may be found in one ring-ditch. In general, the burials only represent a small proportion of the population and, therefore, they may represent the burials of high ranking individuals. Nonetheless, the complete absence of burials in ring-ditches is a trend which is becoming increasingly common, as more ring-ditch sites are being excavated.

Ring-ditches are generally located on higher ground and are often found in proximity to streams or rivers. Sites may cluster, along with other barrow types, to form barrow cemeteries. The construction of ringditches appears to have continued, or earlier monuments re-used, during the Iron Age and early medieval periods, such as Ardsallagh 1, Co. Meath (Clarke and Carlin 2008b) and Cherrywood, Area A, Site 4, Co. Dublin (O'Neill 2001).

3.5 Typological Background of Metalworking Features

Furnaces, used for the smelting of ores into an iron bloom prior to the smithing stages, survive in the archaeological record as small shallow heat-scorched pits, usually oval or hemispherical in shape, containing fills of iron slag, charcoal and, in many cases, oxidised clay. Dense blocks of slag commonly form at the bottom of the furnace which have been termed plano-convex or 'furnace-bottoms' (Scott 1990, 155–6). A total of 30 furnaces – with approximate diameters of between 0.4m and 0.7m with depths not exceeding 0.2m – were identified in advance of the M4 road scheme and survived as bowl-shaped pits, with heat-reddened sides and bases, which contained slag and, in many examples, vitrified clay fragments (Carlin *et al.* 2008, 94). A recent summary of furnaces associated with raths has revealed similar morphological characteristics and deposits whereby they all constituted heat-scorched small pits containing charcoal, slag and burnt clay in many instances (Comber 2008, 115–7).

Much of the technology associated with the primary stages of iron production, such as charcoal production kilns, furnaces and smithing hearths, during the bloom smithing process, were located close to natural resources such as wood and bogland. This is not surprising since oak was the preferred fuel for charcoal production as it is denser and burns for longer than softer woods (Raftery 1994, 148; Tylecote 1962). Bog ore, however, was more readily available and required less work to extract, relative to mining, and was also a regularly renewable resource (Mytum 1992, 230). The primary stages of ironworking generally took place away from dwellings due to the dangers associated with production, such as fire hazards and the toxic nature of the process. The results from recent excavations along the M4 (Carlin *et al.* 2008) and the M7/M8 (Kenny 2007) testify to this aloofness as the majority of furnaces were located in marginal zones, thereby benefiting from the limited drier and sloping ground, close to bog and woodland and away from settlements. Furnaces do occasionally occur, however, within enclosed early medieval settlements, such as attested at Killickaweeny, Co. Kildare (Walsh 2008), which suggests that iron smelting could sometimes be practised within enclosures, possibly in controlled safe environments and away from the dwellings.

By virtue of the fact that ironworking processes remained largely static until the 17th century, the surviving archaeological remains, pertaining to the centuries from late

prehistory to the later middle-ages, are similar in form. Diagnostic artefacts are also mainly absent so radiocarbon dating is vital for determining the age of various metallurgical features, including smelting furnaces. Radiocarbon-dated examples of furnaces from the M4 show that, despite their morphological similarities, they were in use from the beginnings of the fifth century BC until the late medieval period, with the majority dating to the early middle ages (Carlin *et al* 2008, 104). A number of possible furnaces along the M7/M8 (specialist metallurgical reports are awaited) have also produced dates spanning the middle Iron Age through to the later medieval period (Kenny 2007).

Debates have recently focused on the arguments for (Carlin *et al* 2008; Crew and Rehren 2002, 96; Mytum 1992, 231) and against (Pleiner 2000; Scott 1990; Raftery 1994, 148) the existence of the low-shaft furnace in Ireland. Those in favour argue that the low-shaft furnace, in contemporary use in Britain, was more efficient than the bowl furnace. This view is based, to a large extent, on the experimental work on bowl furnaces by O'Kelly (1961), and, subsequently, by Tylecote (1986). Bowl furnaces consisted of pits, containing charcoal (concentrated around an air hole) and ore, that were sometimes clay-lined and may have had a low dome-shaped clay roof (Scott 1990, 159). Low-shaft furnaces differed in that they were clay-lined with clay sides constructed above ground to create a conical or a cylindrical-shaped chimney (Carlin *et al* 2008, 92). They also differed from the bowl furnace in that the charcoal and ore formed alternating layers (Mytum 1992, 231). Archaeologically, however, it is difficult to distinguish between the two because both survive as heat-scorched pits containing charcoal and slag deposits and, in many cases, vitrified clay fragments. The presence of the latter cannot be used as evidence for the existence of the low-shaft furnace because bowl furnaces may also have been clay-lined or roofed by a clay dome. Regardless of the debate over the existence, or not, of the low-shaft furnace, the large number of furnaces found in excavations across the country demonstrate that iron smelting was an integral part of the iron production process and that it usually occurred in marginal places, in proximity to raw materials, and away from settlements, where the final process – iron forging – was also frequently practised.

3.6 Typological Background of Cereal Drying Kilns

Cereal-drying kilns were used for a variety of purposes, but were mostly related to the drying of cereals and other crops, and in Ireland the two basic purposes for which they were constructed seem to have been to dry grain and to harden it prior to grinding (O'Sullivan and Downey 2005, 32). The Irish 'corn-drying kilns' are frequently keyhole or dumb-bell shaped (*ibid. 33*). The basic kiln was comprised of four main structural components: a *stoke-hole*; *flue*; *bowl* and *drying platform* (*ibid.*). A fire was set at the *stoke hole* (which was either a natural depression or cut) at the mouth of the *flue*. The *flue* extended towards the *bowl/drying platform*. The *drying platform* overlay the *bowl* and typically consisted of heavy timber supports overlain with wattles, carrying a layer of straw and/or straw mat, through which the heat was able to permeate from below to the grain/cereal (*ibid.*).

3.7 Summary of the Excavation Results

Six phases of activity were identified as a result of the excavations at Grange 3. The earliest phase of activity consisted of a figure of eight shaped kiln dated to the early Bronze Age and an associated burnt spread and a pit (2460–2210 BC). Two circular house structures, metalled work areas and various associated pits were dated to the middle Bronze Age and a series of dates from the two structures ranged between 1540–1269 BC. A cremation pit located to the south of the two structures was also dated to this phase (1420–1294 BC).

Middle–late Bronze Age activity on the site consisted of a substantial ring-ditch, with an external diameter of 16.5m (1372–1131 BC, 974–828 BC). A cluster of pits and postholes and a spread located *c*. 25m to the south of the ring-ditch may also have been associated with this activity. Two parallel linear ditches oriented south-west to north-east and an associated ditch oriented north-west to south-east (C400, C327 and C397), located *c.* 130m to the south-east of the ring-ditch, also date to this period (1090–840 BC).

Ten pits dispersed across the site were interpreted as furnace pits where smelting or smithing activity was carried out during the Iron Age. Four of these furnace pits were dated and ranged between 390 BC – AD 30. Activity at the site continued into the early medieval period and consisted of three figure of eight cereal drying kilns, one of which returned a date of AD 427–570, and a series of ditches forming a possible sub-rectangular enclosure in the north-western area of the site (AD 617–666, AD 669–772).

Modern activity on the site consisted of linear ditches, a stone drain and a cluster of linear ditches and furrows to the south of the ring-ditch.

3.8 Summary of the Specialist Analysis

A number of specialists provided analysis of samples and artefacts recovered from the site as part of the post-excavation works. This work in part formed the basis for the dating evidence for the site. The detailed reports on the results of all analysis are in Appendix 2.

Prehistoric Pottery Analysis

The site produced a small assemblage of 109 sherds (plus 89 fragments, weight: 1089.25g) representing at least 21 middle to late Bronze Age domestic vessels. A few sherds of medieval Leinster cooking ware were also recovered (Grogan and Roche, Appendix 2.1).

Medieval and Post Medieval Pottery Analysis

The pottery assemblage from Grange 3 contains nine sherds of pottery including three sherds of 18th–19th century post medieval pottery and six sherds of 13th–14th century locally produced medieval pottery (Doyle, Appendix 2.2).

Lithics Analysis

In total, 365 lithic artefacts were found during excavation, and two pieces of flint micro-debitage were recovered during soil sample processing. A further 13 ground stone artefacts were found, including a saddle quern fragment, grinding/polishing stones, hammerstones and a stone axe. Chert was by far the most commonly found material, accounting for over 81% of the assemblage; the majority of the remaining artefacts are flint (66 pieces; 18%), with a small number of quartz pieces also being found (2 pieces) (Nelis, Appendix 2.3).

Small Finds Analysis

Metal Finds

An early medieval iron penannular ring pin or ring brooch, the broken shank of a pin of similar date and a portion of a bronze pin were recovered from early medieval levels. The remaining objects consisted of badly corroded nails and a fragment of a metal dish or pan, all relatively modern (MacDermott, appendix 2.4.1).

Bone Needle

A fragmentary bone needle (E3123:513:1) was produced from a pig fibula with the head cut from the distal end of the bone. The apex has been neatly trimmed by knife

to provide a spatulate head, pierced by a knife-cut oval perforation. The head tapers evenly to a straight shaft of oval section; the lower part of the needle is missing (Riddler, Appendix 2.4.2).

Worked stone
A perforated stone with decoration on both edges was recovered from C436 and was considered to be early medieval in date by the specialist – although this date conficts with the stratefied sequence. It was a probable disc-shaped spindle whorl of sub–rectangular shape. In shape and decoration it is unique in Irish whorl assemblages (O'Brien, Appendix 2.4.3).

Charcoal and Wood Species Identification
Charcoal was identified from forty eight samples from Grange 3 and thirteen wood *taxa* were identified. The results are dominated by oak, hazel, pomaceous fruitwood and ash. Ash and oak were selected, in some cases, for posts related to Structures 1 and 2. It was not possible, however, to determine what wood *taxa* were used for building these structures. Nearby cremations are dominated by pomaceous fruitwood and oak. The pomaceous fruitwood type may have been selected for its aromatic qualities, while the oak for the high temperatures it can achieve. Mainly oak and hazel were used for fires within the figure of eight kilns. Willow and alder (most likely pre-produced charcoal) were burnt in the Iron Age furnaces. A variety of wood *taxa* were identified from the ring-ditch, probably reflecting on site burning activity (O'Donnell, Appendix 2.5).

Analysis of Plant Remains
Twenty five samples associated with the dated Bronze Age and medieval features and deposits recorded from Grange 3 were selected for archaeobotanical analysis. The low cereal assemblage recorded from the prehistoric deposits makes the exact nature of this material difficult to interpret. The carbonised plant remains assemblage was dominated by barley, followed by much lesser oat and wheat. Collectively these crops are typical of a medieval cereal assemblage, which confirms that medieval crop drying activities were being conducted at the site. These activities would have been carried out within kilns C130, C273, C596 and potentially C305 and C497. Charred kiln debris would have been dumped into open features, such as ditch C503 and eventually become re-deposited across the site, filling other negative features and become mixed with earlier and later deposits. These intrusions are likely to account for the presence of smaller cereal assemblages from many of the Bronze Age structural and funerary deposits, as well as the later medieval field/land division ditches, recorded at the site. The high concentration of cereal grain recorded, along with the number of kilns identified, at Grange 3 serves to illustrate the importance of arable farming at the site and suggests an organized management of crop processing during the medieval period (Lyons, Appendix 2.6).

Animal Bone Analysis
The excavations at Grange 3 resulted in the collection of a relatively large assemblage of animal bones recovered from a wide range of features and stratified to a number of different phases of occupation. The bones seem to represent the food remains of the former Bronze Age and early medieval occupants of the site and can be interpreted as including waste from the initial slaughter and dismemberment of animals to food preparation activities and eventual consumption. The identified species indicate a diet based almost entirely on the exploitation of the three main livestock species. There was a notable preponderance of cattle over other domestic livestock in most of the samples and the rate of consumption of beef at the site seems significant for both phases of occupation. The analysis of the bones also identified the presence of horse, dog and red deer from features associated with the

two main phases of occupation. Red deer was present only in the Bronze Age deposits and the identified sample is dominated by the fragmented remains of antler, an essential raw material for craft-working. While it is possible that this material represents offcuts from naturally shed antler, the recovery of two butchered post-cranial elements from the fill of the ring-ditch indicates that red deer living in nearby areas of woodland were also hunted for their meat during the Bronze Age.

In addition to the main livestock species and the red deer remains, small amounts of bird bones were recovered from the early medieval land divisions including domestic fowl and goose, a small species of wild duck and crow. Horses and cats were also kept and there are no marks on the bones to suggest that horseflesh formed part of the meat diet. In conclusion, the species identified from the various phases of occupation at Grange 3 are precisely those that would be expected on almost any site of the Bronze Age and early medieval periods. Analysis of the bones indicates that the samples are typical domestic assemblages consisting of the remains of meals and carcass preparation and there is no suggestion that any of the bones are ritually derived (McCarthy, Appendix 2.7).

Burnt Bone Analysis

Although a number of features were identified containing burnt bone remains only one of these (C637) contained identifiable human skeletal fragments. All other features contained only small quantities of burnt bone. Although the majority of bone fragments in these deposits were unidentifiable a number of the features also contained small quantities of animal bone. While it is possible that some or all of these features represented token burial deposits associated with funerary activity, it is also possible that they may have served a non-funerary function (Coughlan, Appendix 2.8).

Radiocarbon Dating

A total of 18 samples were sent for AMS radiocarbon dating and returned dates in the early, middle and late Bronze Age, the Iron Age and the early medieval period.

Early Bronze Age

A sample of oak charcoal recovered from a figure of eight kiln (C491) returned an AMS result of 3858+/-24 BP (UBA 12059). The 2 Sigma calibrated result for this was 2460–2210 BC (Appendix 2.9).

Middle Bronze Age

A sample of burnt bone and a sample of hazel charcoal from pits C30 and C228 in structure 1 returned AMS results of 3182+/-25 BP (UBA 12937) and 3155+/-40 BP (SUERC 29331) respectively. The 2 Sigma calibrated results for these were 1499–1415 BC and 1520–1310 BC (Appendix 2.9).

Samples of ash and hazel charcoal recovered from pits C90 and C85 within Structure 2 returned AMS results of 3065+/-24 BP (UBA 12058) and 3190+/-40 BP (SUERC 29332) respectively. The 2 Sigma calibrated results for these were 1408–1269 BC and 1540–1390 BC (Appendix 2.9).

A sample of burnt bone recovered from a possible cremation pit (C203) returned an AMS result of 3083+/-24 BP (UBA 12942). The 2 Sigma calibrated result for this was 1420–1294 BC (Appendix 2.9).

Late Bronze Age

Samples of animal bone and alder/hazel charcoal recovered from the fills of the ring-ditch returned AMS results of 2753+/-26 BP (UBA 12053) and 3001+/-22 BP (UBA

12054) respectively. The 2 Sigma calibrated results for these were 974–828 BC and 1372–1131 BC (Appendix 2.9).

A sample of *Maloideae* charcoal recovered from fill C399 of linear ditch C400 returned an AMS result of 2810+/-40 BP (SUERC 29329). The 2 Sigma calibrated result for this was 1090–840 BC (Appendix 2.9).

A sample of burnt bone recovered from a possible cremation pit (C275) returned an AMS result of 2726+/-37 BP (UBA 15475). The 2 Sigma calibrated result for this was 971–807 BC (Appendix 2.9).

Iron Age
Charcoal samples consisting of alder, ash and willow recovered from the fills of four furnace pits were selected for dating and returned AMS results of 2132+/-21 BP (UBA 12056), 2082+/-29 BP (UBA 12057), 2235+/-40 BP (SUERC 29330) and 2060+/-40 BP (SUERC 29333). The 2 Sigma calibrated results for these were 346–60 BC, 191–5 BC, 390–200 BC and 190 BC–AD 30 respectively (Appendix 2.9).

Early Medieval
A sample of animal bone recovered from fill C653 of linear ditch C656 returned an AMS result of 1287+/-25 BP (UBA 15476) and a sample of hulled barley recovered from land division ditch C584 returned an AMS result of 1388+/-20 BP (UBA 12055). The 2 Sigma calibrated results for these were AD 669–772 and AD 617–666 respectively (Appendix 2.9).

A sample of hulled barley recovered from the fill of a figure of eight kiln C130 returned an AMS result of 1552+/-28 BP (UBA 12073). Another sample of hulled barley recovered from a deposit sealing a metalled surface associated with the middle Bronze Age structures returned an AMS result of 1518+/-30 BP (UBA 12052). The 2 Sigma calibrated result for these were AD 427–570 and AD 433–611 respectively (Appendix 2.9).

Metallurgical Analysis
The overall quantity of material from Grange 3 is quite small, rendering it difficult to make any conclusive statements about metallurgical processes taking place on the site. There is a significant proportion of non-diagnostic material along with the likely smelting evidence from C600, and also some baked clay linings. It is likely a combination of small-scale smelting and smithing took place at this site.

The evidence from C600 is indicative of an above ground low-shaft furnace with a sunken pit at the base, which is quite a different morphology to the nearby sunken shaft furnace at Grange 2. The furnaces/hearths at Grange 3 are dated to Cal 346–60 BC (C633) and Cal 191–5 BC (C600) which are significantly earlier than that at nearby Grange 2 which is dated to Cal AD 257–409. The presence of the two sites in close proximity can be used as a good example of how technology may have changed over this period, when Roman influence may have impacted on iron smelting technology here (Wallace and Anguilano, Appendix 2.10).

4 DISCUSSION AND CONCLUSIONS

The excavation at Grange 3 uncovered multi-period activity at the site spanning the early Bronze Age to the early medieval period. Features excavated included two middle Bronze Age house structures and their associated metalled work areas and a number of possible cremations, a Bronze Age ring-ditch, a series of Iron Age pit furnaces, early medieval land division ditches and early medieval figure-of-eight-shaped kilns. Undated activity consisted of various pits dispersed across the site and linear ditches which could not be definitively associated with any of the phases or groups of activity.

4.1 Discussion

4.1.1 Phase 1 and 2 – The Middle Bronze Age

The significance of the site in the Bronze Age landscape

The early Bronze Age cereal drying kiln, the middle Bronze Age houses and possible cremations and the middle–late Bronze Age ring-ditch at Grange 3 are evidence of continuation of activity at this site throughout the Bronze Age. There were several sites with contemporary activity in the vicinity of Grange 3 including a circular post built structure *c*. 2km to the north-west from which a series of dates ranged between *c.*1500–1300 BC (Phoenixtown 3) (Figure 2) (Lyne 2010a). Closer to Grange 3 pits dated to the middle Bronze Age (1493–1326 BC) were excavated at Grange 4 *c.*150m to the south-east (Duffy 2010) and further pits dated to the early Bronze Age (2335–2148 BC) were excavated at Grange 5 *c.* 400m to the south-east (Kelly 2010b). At Grange 1, *c*. 500m to the north-west, a pit dated to the middle Bronze Age was excavated (1613–1459 BC) (Lynch 2010e) and burnt mounds, dating to the Bronze Age, were also excavated at Phoenixtown 6, 1.5km to the north-west (2119–1895 BC and 1742–1617 BC) (Lyne 2010d) and at Ardbraccan 6, 1.6km to the south-east (2134–1963 BC) (McManus 2010).

The Grange 3 Bronze Age houses - function and form

Structure 1

Structure 1 was located to the east of the site and consisted of a series of 10 interrupted pits, forming a circle with an eastern porch feature. The structure had an internal diameter of *c*. 7m and an external diameter of *c.* 8m. The entrance was a composite feature, opening to the east, formed by a series of pits and a localised metalled spread. The entrance represented a clearly defined porch looking out towards the larger metalled working areas to the east. No hearth or central feature was apparent within the structure and no internal divisions were evident. While the site seemed to be severely truncated (on a horizontal plane), a cluster of stakeholes was identified in the southern half of the structure's interior and may represent some household 'furniture' in this area.

The perimeter pits were flanked internally by a circle of postholes, spaced approximately 2m apart, reminiscent of a Bronze Age house plan. The house type seems to represent Carlin's circular house type (iii) Type A (2006), whereby the inner ring of posts could potentially support a roof. According to this model, these roof supports were flanked externally by interrupted ditches located under the eaves of the roof structure which represent storage areas rather than slot-trenches.

At Grange 3 the perimeter pits yielded evidence for intense burning, perhaps marking the abandonment of the house. Three large lithic artefacts were discovered in the intensely burnt fill of one such perimeter pit (C4) (Plates 3 and 4). These included a large stone axe (E3123:4:1, Figure 22) which was possibly re-used as a percussion implement (i.e. a hammer), a large saddle quern (E3123:4:2) and a hammerstone (E3123:4:3), the latter of which was identical to another example found in an outlying cremation pit (C275; E3123:229:1; Figure 23). Whether these artefacts represent

ritual deposition at the point at which the house was ritually abandoned or represent household waste, left behind when the inhabitants moved on, is unclear. Certainly, Brück contends that saddle querns and hammerstones in unusual contexts (i.e. in the corners or terminals of ditches) represent deliberate deposition (1999, 145–166).

The porched entrance of Structure 1 opened to the east, towards an area peppered with several small contained metalled surfaces and four larger metalled working areas or floors. The larger stone spreads, or metalled surfaces, were set into shallow cuts or natural depressions (including cuts C176, C394, C452 and C439). These clearly represent outdoor working areas, as two quernstones were located within the stone cobbles (E3123:249:1 and E3123:12:1); the latter of which seems to represent an *in situ* feature. The clay deposit (C6), overlying the metalled surface, also yielded numerous sherds of middle Bronze Age cordoned urn, flint and chert.

C221 represented the largest metalled surface relating to Structure 1 (of which, metalled surface C22 may be a western extension). This stone spread was cut by two notable pits, one of which was a later pit furnace (C473) containing iron slag.

Several features pre-dated the metalled surfaces and were discovered once the stone spreads had been removed; one such feature was a charcoal-rich pit (C437) containing a perforated stone object, scored along its edges thought to be a spindle whorl (O'Brien, Appendix 2.4.3)(E3123:436:1; Plates 52–54).

Structure 2

Structure 2, like Structure 1, was comprised of a series of interrupted pits forming a circle (diameter *c.* 8m). The pits were flanked internally by a series of postholes, some of which were spaced approximately 2m apart, but the pattern was not as defined as that in Structure 1. Pit C256, along the south-western perimeter of the structure, represented an unusual feature, the base of which was peppered with stakeholes (Plate 9) which may represent a complex structure or a piece of household furniture. The pit fill also yielded sherds of mid-late Bronze Age pottery (E3123:20:1–4).

A large pit, five postholes and two stakeholes were located in the interior of Structure 2 and stakehole C441 lay along the northern exterior of the structure. A large pit (C216), located within the western sector of Structure 2, contained middle Bronze Age domestic pottery and a lithic core (E3123:35:1–6) while the fill of a circular posthole, also in the interior of Structure 2, contained two pieces of worked chert (E3123:108:1a–e). It is significant that such finds were retrieved from the two largest interior features.

The western perimeter of Structure 2 was cut by a later pit furnace (C114) while the eastern portion of the house was clipped by a modern linear field boundary ditch (C172). Despite this damage, it is likely that their layout complies with Carlin's Type A middle Bronze Age Circular House (2006), although the pattern of the perimeter pits was not as clearly identifiable as in Structure 1.

Metalled area C142 was located immediately south-east of Structure 2 and represented the most extensive metalled surface within the complex. The clay deposit (C54) covering this stone spread contained an abundance of mid-late Bronze Age domestic pottery (over 80 sherds) and a high concentration of worked chert (45 pieces) and, to a lesser extent, flint (32 pieces). Due to this high proportion of lithic artefacts, the area was interpreted as a chert/flint working floor (i.e. a specialised work area for chert / flint knapping).

It is possible that Structure 1 and Structure 2 represent a shift in placement rather than absolute contemporaneity in occupation. At Caltragh, Co. Sligo, excavations revealed that one structure had been built over the location of a previous one (McCabe 2005, 47) and Carlin notes that there is a strong attachment to place in Irish settlements (2006). There was however no clear evidence of this, either from the finds retrieved or from the radiocarbon dating of the two structures at Grange 3. Structure 1 returned calibrated results of 1499–1415 BC and 1520–1310 BC and Structure 2 returned calibrated results of 1408–1269 BC and 1540–1390 BC.

Two similar structures, excavated at Ballydrehid, Co. Tipperary (site 185.5), were also dated to the middle Bronze Age (1492–1304 BC and 1435–1271 BC) (McQuade *et al* 2009). These structures comprised a combination of interrupted slot trenches/pits and postholes and, although there was a variety of pits and postholes in their interiors, they lacked a distinctive inner circle of posts and, as such, may be more similar to Structure 2 at Grange 3. At Ballydrehid Structure A had an internal diameter of 6m and Structure B measured 6m x 7m internally. The radiocarbon dates suggested that Structure B may have post-dated Structure A, although the dates of the two structures do overlap somewhat (*ibid*., 55.)

Similar structures were also excavated at Corrstown, Co. Londonderry (Conway *et al*. 2008), and, in particular, Structures 11, 12, and 45 have similar date ranges and similar layouts, incorporating segmented outer ditches, although the Corrstown examples are slightly larger (Vicky Ginn, pers. comm.). There were also metalled surfaces associated with the structures at Corrstown.

Structure 1 at Phoenixtown 3, Co. Meath, although larger, with a diameter of 10m, is a good parallel for the two structures at Grange 3. It was located *c.* 2km to the north-west of Grange 3 and was defined by a ring of postholes and a series of external elongated pits/segmented slot trench that did not extend to the rear part of the house. Two larger postholes to the south-east of the structure defined an entrance and a series of dates from the structure ranged between *c*. 1500–1300 BC (Lyne 2010a).

4.1.2 Phase 3 – Middle–Late Bronze Age

The Grange 3 Bronze Age ring-ditch - function and form

A substantial ring-ditch was located in the far north-western corner of Grange 3 and adjacent to Grange 2 (Kelly 2010a). The ring-ditch had an external diameter of 16.5m and at the top of the ditch its width ranged from 2.75m (in the west) to 4m (in the east). The interior represented a small area relative to the width of the surrounding ditch. The ditch was partially cut into the bedrock at its base, notably in the east where the bedrock was higher and measured up to 1.3m deep. One of the earliest fills of the ring-ditch returned a date range of 1372–1131 BC, indicating a date in the middle Bronze Age for the earliest use of the ring-ditch (Phase I). A fill contained within a recut of the ditch returned a date range of 974–828 BC, indicating a date firmly in the late Bronze Age for the second phase of use of the ring-ditch (Phase II), thereby demonstarting a continuation of use on the feature from its middle Bronze Age construction.

The interior area enclosed by the ditch had a diameter of 9.5m–10m and contained four substantial postholes (or small pits). These features, located within the interior of the ring-ditch, formed a rectangle measuring approximately 2.5m north–south x 3.5m east–west. The absence of any further internal features suggests that these features were pits, rather than being representative of an architectural structure; however, if they were postholes, they could represent a rectangular structure occupying a large part of the ring-ditch's interior. Regardless, it is likely that these internal features were contemporary with the lower fills in the ditch as they contained comparable

artefactual evidence, including worked chert and a sherd of mid-late Bronze Age pottery.

The upper fill of the ditch (C504), along the northern arc, represented a late disturbed fill as it yielded iron slag, a chert reworked plano-convex knife, together with medieval pottery and a fragment of a ceramic furnace. This secondary disturbance did not extend throughout the upper fills of the entire ring-ditch and was mainly detected along the northern arc. The upper fills along the eastern arc yielded worked chert while fills in the upper strata in this area consisted of charcoal-rich soil, containing burnt bone and a piece of flint (E3123:545:1). A seam of compacted stone (C505) ran throughout the middle level of the ditch, confirming that any fills below this were undisturbed (Plates 18–20). The stone seam seemed to line the base of a secondary cut within the ditch (C521/534). Under this stone seam, fill C507 represented the lowest/primary fill of the ditch and yielded an abundance of antler, horn, animal bone and four pieces of worked chert and flint (E3123:507:1, 2a–b, 3) (Plate 21).

It is likely that there is some relation between Structures 1 and 2 and this ring-ditch as Cleary maintains that ring-ditches/ring barrows are found in close proximity to Bronze Age houses (Cleary 2005) but are not always contemporary with the structures. It has been suggested that the presence of these monuments can be interpreted as representative of territorial boundaries on edges of settlement territory, as may be the case at Grange 3.

Parallel ditches C400 and C327 traversed the site on a north-east south-west axis while their associated counterpart (C397) joined C327 at an acute angle along its southern extent. These three ditches were shallower than the modern ditches and all three were cut by modern ditch C268. Ditch C327 appeared to be cut by figure-of-eight kiln (C273), establishing a *terminus ante quem* for the ditch's construction and a radiocarbon date returned for ditch C400 (1090–840 BC) suggested that these ditches may have been associated with the late Bronze Age ring-ditch.

A ring-ditch was excavated as part of the M3 Contract 4 at Commons of Lloyd, Co. Meath, *c*. 10km to the north-west of Grange 3, however, this returned an Iron Age date (384–207 BC). This ring-ditch was only partially excavated as approximately 2/3 of the feature extended outside the excavation area. The projected size of the ring-ditch was 20m and although none of the burnt bone from the ring-ditch fills could conclusively be identified as human, it is probable that the remains were linked to some form of ritual activity associated with burial (Whitty 2010c). At Grange 3 there were large quantities of unburnt animal bone and small quantities of burnt bone recovered from the ditch fills. Most of the burnt bone was indeterminate and a small amount was identifiable as animal. While it is possible that some of these deposits may have represented token burial deposits associated with funerary activity, it is also possible that they may have served a non-funerary function (Coughlan, Appendix 2.8).

A similar ring-ditch to that at Grange 3 was excavated at Raynestown 1, south of Dunshaughlin, Co. Meath, however, unlike Grange 3, this consisted of a double ring-ditch enclosure. The outer ditch measured 21.5m (external diameter) and the inner ditch measured 9.5m (external diameter). The two ditches returned a series of dates ranging from 1800 BC–410 BC (1000–810 BC, 920–800 BC, 840–780 BC, 1880–1630 BC and 870–410 BC) suggesting that this site may have been occupied over a prolonged period (Elder *et al.* 2009). In common with Grange 3, at Raynestown 1 a large quantity of animal bone was recovered from the ditches. Antler artefacts and numerous sherds of late Bronze Age pottery were also recovered, along with deposits of cremated bone from the outer ring-ditch, and while much of the bone

could not be identified to species, human bone was identified from a number of the contexts (*Ibid* 2009).

Seven ring-ditches were excavated at Garretstown, north of Dunshaughlin, Co. Meath, and are likley to belong to the middle Bronze Age (Rathbone 2009a). Two of the ring-ditches were substantial and were similar in size to the Grange 3 example while five were smaller ring-ditches, defined by narrow and shallow enclosing ditches. The largest of the ring-ditches had similar dimensions to Grange 3, with a diameter of 18.4m, while the ditch cut was 2.6m wide and 1.3m deep. This ditch was dated using the OSL dating technique due to the lack of environmental remains recovered from the fills, which provided a date of 1653–1392 BC (*Ibid.* 2009). As at Grange 3 and Raynestown, there was no causeway or entrance to either of the substantial ring-ditches at Garretstown, which is otherwise a common feature with this type of monument.

Bronze Age cremation pits

Four cremation pits were identified in the broader area outlying Structures 1 and 2. Each of these pits contained burnt bone, however, analysis indicated that none of the pits contained identifiable human remains and two were found to contain small fragments of burnt animal bone. While it is possible that some, or all, of these features represented token burial deposits associated with funerary activity, it is also possible that they may have served a non-funerary function (Coughlan, Appendix 2.8). The presence of a hammerstone and sherds of middle to late Bronze Age pottery in one of these pits indicates an association with the two structures and burnt bone from one of the possible cremation pits returned a date range of 1420–1294 BC, further supporting this association. Burnt bone from another of the pits returned a date range of 971–807 BC, implying an association with the ring-ditch. The lack of identifiable human bone from this possible cremation pit is reflected in the ring-ditch, from which there was also no identifiable burnt bone.

4.1.3 Phase 4 – The Iron Age

The significance of the site in the Iron Age landscape

The Iron Age furnace pits at Grange 3 provide evidence for contined activity at this site following the middle–late Bronze Age (as represented by the house structures and the ring-ditch). Dates returned from a series of these features ranged between 390 BC – AD 30 while further Iron Age metalworking furnace pits were excavated on the adjacent site at Grange 2 (Kelly 2010a) which were most likely directly associated with the activity on Grange 3. The metalworking features excavated at Grange 2 returned a series of dates ranging from 369 BC – AD 554 (*Ibid.* 2010). The range of dates from both Grange 2 and Grange 3 indicate that metalworking activity was taking place in this area over a lengthy period.

Iron Age furnace pits - function and form

Ten pit furnaces were identified on the site. Four of the ten pit furnaces could be confidently associated with iron smelting / smithing as four pits yielded iron slag (C114, C251, C473 and C601), while the size, shape and fill-sequence of most of the ten features were closely comparable. These pit furnaces generally consisted of a shallow, convex, bowl-shaped cut which was fired red, a middle layer of charcoal and an upper layer of mid-brown charcoal-rich clay. Some of the pits were likely to have been used as smithing hearths. There is a difficulty in distinguishing between smelting and smithing hearths in the archaeological record unless there are diagnostic slags associated. As only four of the pits had associated metallurgical material, the function of the remaining pits cannot be definitively determined. They may have been used as simple hearths, or for ore roasting, smithing, smelting or any other high temperature activities (Wallace & Anguilano, Appendix 2.10).

Pit furnace C601 was unusual in terms of its relatively small size, uniformity of fill and the concentration of black slag in its fill. Examination of the material from pit C601 indicates that it was probably used as a smelting furnace. The evidence from the feature is indicative of an above ground low-shaft furnace with a sunken pit at the base, which is quite a different morphology to the nearby sunken shaft furnace at Grange 2 (Kelly 2010a). The black-grey drippy slags from this pit are typical of iron smelting or high-temperature smithing activity. The material from pit C114 has the appearance of smithing slag lumps (SSL's) which are formed during primary (refining of the bloom) and secondary (manufacture and repair of artefacts) smithing. The material from C251 had an unusual morphology and is possibly more closely linked to smelting than smithing (Wallace & Anguilano, Appendix 2.10).

The fact that one pit furnace (C473) cut through stone spread C221 associated with Structure 1, while another (pit furnace C114) cut through a perimeter pit of Structure 2 confirms that these pit furnaces were later than both Structure 2 and the metalled working area associated with Structure 1.

An impressive kiln, complete with ceramic furnace bowl, was located in the adjacent excavation at Grange 2 (Kelly 2010a). It is possible that the circular pit furnaces in Grange 3 were associated with the large furnace kiln in Grange 2; whereby the different metalworking features represent distinctive stages in an extensive metalworking process.

4.1.4 Phase 5 – The Early Medieval Period

The significance of the site in the early medieval landscape

The early medieval enclosure ditches and cereal drying kilns at Grange 3 are evidence of continuation of activity at this site following on from the middle Bronze Age structures, the middle–late Bronze Age ring-ditch and the Iron Age metalworking activity. Early medieval burials were also excavated at Grange 2 (AD 424–568, AD 431–571, AD 432–591) (Kelly 2010a) and may have been associated with cereal processing at Grange 3 where one of the cereal drying kilns returned a date of AD 427–570. An early medieval pit at Grange 4, *c.*150m to the south-east, also returned a date contemporary with the early medieval possible sub-rectangular enclosure at Grange 3 (AD 666–772)(Duffy 2010). A hearth deposit at Grange 1, 500m to the west north-west returned at date range of AD 428–549 (Lynch 2010e) while a pit at Grange 5, 400m to the east-south-east, returned a date range of AD 424–541 (Kelly 2010b). There was evidence of contemporary early medieval activity spread over a considerable area with a concentrated focus on Grange 2 and 3. It seems probable that this is representative of a much more extensive area of activity in the surrounding landscape during this period.

Early medieval cereal drying kilns - function and form

Three figure-of-eight-shaped kilns (measuring 2.35, 2.6m and 2.63m in length), were identified on the site. Each of the kilns yielded evidence of intense burning, containing charcoal-rich fills and heat-effected cuts. Based on the similarities between the three kilns in terms of size and shape and the dominance of barley grains in each of them, it is thought that these three kilns are likely to have been associated and probably all date to the early medieval period.

Other early medieval kilns were excavated in the cluster of sites resolved in Kilmainham townland, *c*. 6.5km to the north-west, as part of the same scheme. A series of kilns at Kilmainham 1C returned dates ranging from the Iron Age to the early medieval period. Barley from seven of these kilns returned dates very close to the date from the kiln at Grange 3 (AD 412–535, AD 427–538, AD 429–542, AD 427–540, AD 422–537, AD 421–537 and AD 425–562). In addition, a large rectangular

structure and fragmented human skeletal remains excavated at Kilmainham 1C returned similar dates (AD 433–606 and AD 434–598) (Walsh 2010). A further contemporary kiln was excavated at Kilmainham 1A where a hazelnut shell returned a date of AD 423–552 (Lyne 2010c) while further undated kilns were excavated in Kilmainham 1B, *c*. 700m to the east-south-east (Bayley 2010c) and, based on the dates yielded from surrounding features, these too are likely to date to the Iron Age or early medieval period.

Early medieval enclosure - function and form

Two substantial linear ditches were located to the east of the middle–late Bronze Age ring-ditch. The earlier of the two ditches (C584/C611), was oriented east–west and the upper fill contained the head of an iron ring-pin or ring brooch with a penannular scrolling ring which is thought to date to between the 7th and 9th centuries AD. This dating was supported by radiocarbon dating of a sample of barley from one of the fills of the ditch (AD 617–666). A second ditch (C656), appeared to form a sub-rectangular enclosure, with the north projection located outside of the land-take. This ditch enclosed an area measuring 37m north-west to south-east x 32m south-west to north-east; however, its full extent outside of the landtake to the north-east is unknown. A fragment of animal bone recovered from the fill of ditch C656 returned a date range of AD 669–772, confirming a date in the early medieval period for this ditch.

Ditches C584/C611 and C656 contained a large quantity of animal bones, which were dominated by cattle, followed by sheep/goat and pig. The skeletal elements present indicated local slaughter and consumption of the animals and the ageing evidence suggested meat production was significant with most individuals being slaughtered when they had reached their maximum age for meat production i.e. 2–3 years of age.

A multi-period site was excavated at Boyerstown 3, *c*. 4.5km to the south-east of Grange 3, and the activity was dominated by at least two large early medieval enclosures with a series of annexes extending off them, a small circular enclosure and a portion of a possible ringfort. The large enclosures were sub-rectangular in plan and measured 23m x 60m (Structure 1) and 22m x 43m (Structure 2) (Clarke 2009) and provide possible parallels for the sub-rectangular enclosure at Grange 3. A radiocarbon determination was not recovered from any of the ditches in Structure 1; however, it post-dated AD 460–650 and pre-dated Enclosure 2, which was dated to AD 687–937 (*Ibid.* 2009). Early medieval cereal drying kilns were also excavated at Boyerstown 3 and would have been associated with the sub-rectangular enclosures.

The surrounding environment in the Bronze Age, Iron Age and early medieval period

The charcoal results indicate that Grange was located close to a mosaic of different woodland types when the site was in use, including canopy, shrub/scrub and wet woodlands. Oak was the most frequently identified wood *taxa*. Some scrub or shrub trees were also represented at Grange 3, by the presence of pomaceous fruitwood, spindle, cherry, *Prunus* sp and gorse while the presence of alder indicates nearby wetlands. Charcoal from settlement activity at the nearby site of Grange 4, dating to the Neolithic, middle Bronze Age and early medieval period, was also examined by O'Donnell (2010) where alder, hazel, ash, pomaceous fruitwood, oak and elm were identified (oak is the dominating taxa) - a suite which compares well to Grange 3 (Duffy 2010).

4.2 Conclusions

The excavation at Grange 3 uncovered multi-period activity at the site spanning the early Bronze Age to the early medieval period, whereby four major phases of activity were identified. Further contemporary activity was excavated within 500m north-west and 500m south-east in the same townland. The excavated remains from this site, and other sites in the Grange townland, indicate that this area was the focus of activity over a prolonged period of time, an intensity which is underscores a significance of place, thereby ensuring its longevity in terms of settlement, ritual and industrial activity.

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Topographical Files of the National Museum of Ireland, Kildare Street, Dublin 2.

APPENDIX 1 CATALOGUE OF PRIMARY DATA

Appendix 1.1 Context Register

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C1	N/A	N/A	N/A	0.3	Topsoil.	Garden clay.
C2	N/A	N/A	N/A	N/A	Natural subsoil.	Silt/sand.
C3	C30	0.2	0.55	0.9	Fill of pit along perimeter of structure 1.	Charcoal-rich upper fill of curving pit along the northern perimeter of structure 1.
C4	C174	1.6	1.2	0.3	Fill of pit along perimeter of structure 1.	Upper charcoal-rich fill of pit along the north-west perimeter of structure 1. The fill contained an axe (E3123:4:1), a grinding stone / quernstone (E3123:4:2) and a hammerstone (E3123:4:3).
C5	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C6	C176	3.3	1.4	0.13	Clay deposit of metalled working area.	Medium compact grey sandy gravel with occasional charcoal clay fill/spread overlying stone spread C12 which contains saddle quern (E3123:12:1). C6 contained flint and pottery.
C7	C124	0.4	0.48	0.2	Fill of posthole in interior of structure 1, possible roof support.	Light brown sandy silt fill of posthole in interior of structure 1.
C8	C228	~2.2	~1	~0.25	Fill of pit along perimeter of structure 1.	Upper fill of pit along the north-eastern perimeter of structure 1.
C9	C88	1.4	0.58	~0.1	Fill of burnt pit/possible outdoor hearth.	Upper charcoal-rich fill within elongated oval pit, possibly representing outdoor hearth feature, located immediately north of Structure 2.
C10	C90	2.2	0.61	0.13	Fill of pit along perimeter of Structure 2.	Black/dark brown sandy charcoal-rich upper fill of pit along northern perimeter of Structure 2.
C11	C112	0.77	0.59	0.47	Fill of pit along perimeter of Structure 2.	Compact, mid-brown sandy clay fill, of sub-circular pit (or possible large posthole) along northern perimeter of Structure 2. Containing charcoal and heat affected stone.
C12	C176	3.3	1.8	0.2	Metalled working area.	Stone spread containing *in situ* lower quernstone (E3123:12:1). Set into a shallow cut - possibly a natural depression (C176) and below clay spread/fill C6.
C13	C195	0.9	0.55	0.08	Fill of pit along perimeter of Structure 2.	Irregular stone-fill of possible pit associated with Structure 2.
C14	C122	0.2	0.18	0.13	Fill of posthole, along south-western perimeter of Structure 2.	Loose, dark brown, sandy clay fill, with frequent charcoal flecks, forming fill of small posthole, south of Structure 2.
C15	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C16	C163	0.24	0.22	0.12	Fill of small posthole, along south-western perimeter of Structure 2.	Loose, mid-brown fill of irregular posthole, with flecks of charcoal. Associated with Structure 2.
C17	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C18	C444	0.82	0.49	0.01	Possible entrance deposit, east side of structure 1.	Stone-packing forming fill of shallow depression.

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C19	C452	6	4	0.05	Clay deposit covering stone spread C221.	Medium compact yellow/brown silty clay irregular spread/deposit/fill containing flecks of charcoal. This spread covered stone spread C221 and contained prehistoric pottery, flint and chert.
C20	C256	1.9	1.08	~0.23	Fill of pit along perimeter of Structure 2.	Medium compact, dark brown, silty clay, with frequent charcoal, (and a small degree of burnt bone) forming the middle fill of pit (with numerous postholes in its base), along southern perimeter of Structure 2. Four sherds of prehistoric pottery and a flint flake were also retrieved from the fill.
C21	C170	1.27	0.44	0.09	Fill of pit C170, associated with a cluster of stakeholes located immediately south-west of Structure 2.	Loose dark brown grey charcoal-rich sandy clay forming fill of oval irregular feature directly south of Structure 2. Contained flint debitage and pottery.
C22	C439	2.7	1.56	0.2	Metalled surface/stone spread representing outdoor working area.	Stone spread/metalled surface embedded in charcoal-rich matrix.
C23	C177	1.86	0.92	0.18	Fill of pit along south-western perimeter of structure 1.	Red fired/burned fill of irregular pit, containing hazelnut shell and pottery (E3123:23:1), along the south-west perimeter of structure 1.
C24	N/A	0.9	0.8	N/A	Shallow stone spread.	Shallow stone spread.
C25	N/A	1.31	0.66	0.35	Pit, possibly forming the eastern entrance to structure 1.	Cut of pit along eastern perimeter of structure 1.
C26	C376	~0.54	N/A	0.44	Fill of pit , possibly forming the eastern entrance to structure 1.	Clay fill of possible pit or large posthole. Fill consists of a clay matrix into which large stacked stones (C377) are set.
C27	C123	1.86	0.46	0.15	Fill of pit along perimeter of structure 1.	Upper fill of a rectangular pit, along south-eastern perimeter of structure 1.
C28	C30	0.1	0.45	1.8	Fill of pit along perimeter of structure 1.	Red baked middle fill of curving pit along the northern perimeter of structure 1.
C29	C30	0.06	0.3	0.8	Fill of pit along perimeter of structure 1.	Lower charcoal-rich fill of curving pit along the northern perimeter of structure 1. One piece of worked flint found (E3123:29:1).
C30	N/A	0.25	0.65	2.3	Pit along perimeter of structure 1.	Cut of curving pit (C30), along the northern perimeter of structure 1.
C31	N/A	1.58	0.99	0.15	Pit, possibly related to nearby pit furnaces (cuts C251 and C291).	Pit cut containing charcoal-rich fill C234. Located just north of irregular burnt feature C235/C292.
C32	C85	1.15	0.55	0.2	Fill of pit along perimeter of Structure 2.	Compact dark grey silt, containing charcoal flecks, forming the fill of a pit along eastern perimeter of Structure 2.
C33	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C34	C107	0.38	0.36	0.25	Fill of posthole in Interior? of Structure 2.	Loose, yellow/brown sandy silt fill, with some large stone inclusions, forming fill of posthole along southern perimeter of Structure 2.
C35	C216	2.03	0.52	0.22	Fill of pit in Interior of Structure 2.	Loose, dark yellow/brown, sandy clay fill, with occasional charcoal flecks, of large rectangular pit in interior of Structure 2 (containing pottery and a chert flake E3123:35:6).
C36	C114	1.47	1.02	0.18	Fill of pit furnace, cutting Structure 2.	Mid brown, charcoal-rich, sandy upper fill of circular pit furnace cutting Structure 2.
C37	C194	0.18	0.18	0.14	Fill of small posthole/stakehole, along south-western perimeter of Structure 2.	Brown sandy silt fill, containing charcoal and small stones, on eastern edge of cut C195, along south-western perimeter of Structure 2.

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C38	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C39	C149	0.11	0.11	0.13	Fill of small posthole/stakehole, along south-western perimeter of Structure 2.	Medium compact, brown, silty clay fill, with occasional charcoal flecks, forming fill of possible stakehole. Associated with Structure 2.
C40	C84	0.47	0.47	0.27	Fill of posthole located in interior of Structure 2.	Soft, mid-brown, silty clay fill, with occasional charcoal flecks and burnt stone, forming the upper fill of circular posthole in interior of Structure 2, containing mid-LBA pottery sherd - E3123:40:1.
C41	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C42	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C43	C201	0.41	0.41	0.31	Fill of pit/posthole along western perimeter of structure 1.	Fill of small pit/possible posthole, along western perimeter of structure 1. Medium firm mid-brown sandy silt with inclusions of small stones and occasional flecks of charcoal.
C44	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C45	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C46	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C47	C168	0.8	0.62	0.21	Fill of pit along perimeter of structure 1.	Lower fill of sub-oval pit along northern perimeter of structure 1. The pit is cut by linear ditch C172/C100.
C48	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C49	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C50	C178	0.3	N/A	0.27	Fill of posthole associated with cluster of stakeholes between metalled areas C12 and C221.	Medium compact mid-brown sandy fill of posthole with occasional flecks of charcoal (stakehole C162/C171 cuts through the upper fill). Due north-east of stone spread C12.
C51	C209	0.09	0.09	0.19	Fill of stakehole associated with cluster of stakeholes between metalled areas C12 and C221.	Medium compact, grey/brown, sandy silt fill of small stakehole, immediately east of stone spread with quernstone (E3123:12:1).
C52	C134	0.11	0.09	0.12	Fill of stakehole associated with cluster of stakeholes between metalled areas C12 and C221.	Dark brown fine grained fill, containing charcoal flecks, of possible posthole - immediately east stone spread with quernstone (C12). Can be associated with C51+ C209.
C53	C141	0.07	0.07	0.1	Fill of stakehole associated with cluster of stakeholes between metalled areas C12 and C221.	Brown sandy silt fill of stakehole, located between two stone spreads C221 and C12.
C54	N/A	3.2	2.5	0.1	Clay deposit over metalled working surface.	Medium compact, mid-brown sandy clay deposit, with occasional flecks of charcoal, = covering stone spread C142. Contains worked chert, flint and pottery. Cut by linear ditch C172/C100.
C55	C488	~0.81	~0.6	~0.02	Fill of pit / depression, possibly part of the eastern entrance to structure 1.	Fill of pit/or natural depression, containing stone packing/spread set in silty soil with occasional flecks of charcoal. Located along the eastern perimeter of structure 1, associated with cut C25.
C56	N/A	N/A	N/A	N/A	N/A	Non-archaeological.

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C57	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C58	C215	3.9	0.9	0.1	Stone deposit.	Irregular shallow stony deposit/spread - possibly a natural depression, *c.* 15m east of structure 1.
C59	C130	2.25	1.06	0.1	Fill of figure-of-eight-shaped kiln.	Grey, charcoal-rich sandy clay fill forming upper fill of figure-of-eight-shaped kiln.
C60	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C61	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C62	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C63	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C64	C206	N/A	N/A	0.18	Fill of pit, peripheral activity associated with circular structures.	Fine-grained dark brown with charcoal flecks, silty clay forming fill of small pit, to extreme east of site.
C65	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C66	C86	1.4	~0.3	~0.19	Fill of pit.	Fill of elongated oval pit containing pottery, located south of structure 1. Located between structure 1 and 2.
C67	C203	0.7	0.57	0.12	Possible cremation pit.	Charcoal-rich fill with high concentration of burnt bone representing the fill of a possible cremation pit.
C68	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C69	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C70	C242	1.05	1.15	0.08	Fill of irregular sterile cut.	Sterile fill of irregular cut C242, containing very occasional flecks of charcoal. Located between structures 1 and 2.
C71	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C72	C126	0.2	0.14	0.15	Fill of posthole associated with cluster of stakeholes and postholes located between structures 1 and 2.	Dark brown, fine, charcoal-rich fill of posthole, north-west of Structure 2. Associated with cluster of stakeholes and postholes (including cuts C387, C164, C75, C127, C126, C179, C188, C186, C185, C191 and C193).
C73	C135	0.57	0.45	0.17	Fill of circular pit.	Dark brown sandy fill of circular pit located north-west of Structure 2.
C74	C186	0.2	0.15	0.03	Stakehole associated with cluster of stakeholes and postholes located between structures 1 and 2.	Loose grey/brown sand, with tiny flecks of charcoal, fill of possible stakehole (small circular pocket). Associated with cluster of stakeholes and postholes (including cuts C387, C164, C75, C127, C126, C179, C188, C186, C185, C191 and C193).
C75	N/A	0.5	0.37	0.04	Baked red surface spread.	Deposit/spread of red burnt sandy clay located between structure 1 and 2.
C76	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C77	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C78	C101	0.85	0.4	0.5	Fill of pit along south-western perimeter of structure 1.	Burnt fill of small (probably truncated) pit containing hazelnut and flint. Located along south-west perimeter of structure 1.
C79	C153	0.88	0.38	0.09	Charcoal-rich fill of pit - associated with circular structure 2.	Mid-brown silty clay with occasional charcoal, forming the lower fill of an irregularly shaped pit. Located 10m due east of Structure 2.
C80	N/A	N/A	N/A	N/A	N/A	Non-archaeological.

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C81	N/A	0.44	N/A	0.02	Spread.	Friable black silty charcoal spread. Peripheral activity associated with circular structures.
C82	N/A	0.36	N/A	0.03	Spread.	Compact greyish-black silty charcoal spread. Peripheral activity associated with circular structures.
C83	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C84	N/A	0.34	0.34	0.51	Posthole located in interior of Structure 2.	Cut of posthole in interior of Structure 2.
C85	N/A	1.15	0.55	0.2	Pit along perimeter of Structure 2.	Cut of pit along eastern perimeter of Structure 2.
C86	N/A	1.4	~0.3	~0.18	Pit with prehistoric pottery.	Cut of elongated oval pit, located south of structure 1. Located between structure 1 and 2.
C87	C88	0.97	0.58	0.06	Fill of burnt pit/possible outdoor hearth.	Light brown, silty clay, with occasional charcoal, lower fill of elongated oval pit, possibly representing a hearth feature, located north of Structure 2.
C88	N/A	1.4	0.58	~0.1	Burnt pit/possible outdoor hearth.	Possible shallow hearth cut, located immediately north of Structure 2.
C89	C317	0.13	0.07	0.16	Fill of stakehole, associated with circular structure 2.	Charcoal-rich fill of oval stakehole. Adjoining stakehole fill C318 and associated with other stakeholes to the south-west of Structure 2.
C90	N/A	2.2	0.61	0.2	Pit along perimeter of Structure 2.	Cut of pit along northern perimeter of Structure 2. Associated with, and cut by, stakehole C117+C121. Also to be associated with superficial burning (C129) due immediately north.
C91	C90	2.2	0.5	0.05	Fill of pit along perimeter of Structure 2.	Orange burnt sandy clay, lower fill of pit along northern perimeter of Structure 2.
C92	C114	0.79	0.74	0.09	Fill of circular pit furnace, cutting Structure 2.	Charcoal-rich black/dark brown sand forming a lower fill of iron-working furnace, cutting Structure 2.
C93	C157	0.1	N/A	0.05	Fill of stakehole, possibly peripheral activity associated with circular structures and potential associated with nearby cremation.	Charcoal-rich fill of stakehole (one of three charcoal-rich stakehole cuts – C157+ C159 + C161 - north-west of cremation pit C203).
C94	C139	0.4	N/A	0.03	Fill of pit, possibly peripheral activity associated with circular structures and potential associated with nearby cremation.	Medium compact red/brown burnt clay fill of shallow burned pit (adjacent to three charcoal-rich stakeholes – C157 C159 + C161 - north-west of cremation pit C203).
C95	C138	0.24	N/A	0.07	Fill of pit, possibly peripheral activity associated with circular structures and potential associated with nearby cremation.	Medium compact red/brown burnt clay fill of pit (possible hearth). Associated with three charcoal-rich stakehole cuts C157+ C159 + C61 - north-west of cremation pit C203).
C96	C277	0.18	N/A	0.07	Fill of posthole, possibly peripheral activity associated with circular structures and potential associated with nearby cremation.	Medium compact brown charcoal-rich burnt clay forming fill of circular/oval posthole, (adjacent to three charcoal-rich stakeholes – C157+ C159 + C161 - north-west of cremation pit C203).
C97	C143	1.45	N/A	0.4	Fill of pit, peripheral activity associated with circular structures.	Compact yellow brown sandy silt with occasional stone inclusions forming upper fill of sub-circular pit (north of cremation C203).

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C98	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C99	C132	0.51	N/A	0.15	Fill of pit, possibly peripheral activity associated with circular structures.	Compact, mid dark brown sandy silt, with frequent charcoal inclusions, forming upper fill of sub-oval pit in south-east corner of site.
C100	C172	whole site	~0.9	~0.55	Fill of modern field boundary.	Compact medium brown silty sand fill of linear ditch which cuts the two structures and their associated working areas. Slag, pottery and worked chert were retrieved from the ditch.
C101	N/A	0.85	0.4	0.5	Pit along south-western perimeter of structure 1.	Cut of small shallow pit (probably truncated) located along south-west perimeter of structure 1.
C102	C211	0.58	N/A	0.2	Fill of pit, peripheral activity associated with circular structures.	Soft brown sandy silt, with occasional small stones and charcoal, forming fill of circular pit south of Structure 2.
C103	C173	1.97	N/A	0.17	Fill of pit , peripheral activity associated with circular structures.	Mid dark brown sandy silt, containing charcoal and burnt bone, forming an upper fill of large pit with stone packing.
C104	C113	0.08	0.07	~0.23	Fill of stakehole associated with burnt pit/possible outdoor hearth.	Intensely charcoal-rich black fill of stakehole (associated with possible hearth cut C88 north of Structure 2). Located between structure 1 and 2.
C105	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C106	N/A	0.5	0.4	0.3	Pit along perimeter of Structure 2.	Cut of small pit feature along northern perimeter of Structure 2. Cut by ditch C172.
C107	N/A	0.38	0.36	0.25	Posthole in Interior? of Structure 2.	Cut of posthole along southern perimeter of Structure 2.
C108	C84	0.47	0.47	0.3	Fill of posthole in interior of Structure 2.	Medium compact, brown, clay fill, with occasional charcoal flecks and burnt stone, forming the middle fill of circular posthole in interior of Structure 2, containing chert - E3123:108:1a-e.
C109	C84	0.84	0.34	0.06	Fill of posthole in interior of Structure 2.	Compact, dark grey silty lower fill of circular posthole in interior of Structure 2.
C110	C111	1.42	0.56	0.32	Fill of pit along perimeter of Structure 2.	Dark brown fill (with frequent charcoal inclusion) of circular pit along north-west perimeter of Structure 2.
C111	N/A	1.42	0.56	0.32	Pit along perimeter of Structure 2.	Straight sided oval pit cut along north-west perimeter of Structure 2.
C112	N/A	0.77	0.59	0.47	Pit along perimeter of Structure 2.	Cut of sub-circular pit (or possible large posthole) along northern perimeter of Structure 2.
C113	C104	0.08	0.07	~0.23	Stakehole associated with burnt pit/possible outdoor hearth.	Stakehole cut (associated with possible outdoor hearth cut C88, north of Structure 2). Located between structure 1 and 2.
C114	N/A	1.39	1.16	0.24	Circular pit furnace, cutting Structure 2.	Red/orange baked cut of iron-working furnace, cutting Structure 2.
C115	C114	1.47	1.02	0.18	Fill of circular pit furnace, cutting Structure 2.	Mid brown sandy silt with frequent charcoal forming upper fill of iron-working furnace cutting Structure 2.
C116	N/A	0.2	0.2	0.1	Small pit/posthole along perimeter of Structure 2.	Convex cut representing the base of posthole/small pit visible in the side of modern linear ditch C172 and C100, which truncates it.
C117	C121	0.21	0.17	0.11	Fill of stakehole in pit along perimeter of Structure 2.	Medium compact dark brown clay fill, containing moderate charcoal flecks, fill of stakehole in base of pit (cut C90) along northern perimeter of Structure 2.
C118	C123	1.86	0.46	0.18	Fill of pit along perimeter of structure 1.	Orange/brown fine powder clay (occasional baked clay patches).

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C119	C116	0.8	0.1	0.6	Fill of small pit/posthole along perimeter of Structure 2.	Compact grey fine-grained clay fill of possible posthole/small pit (containing charcoal flecks), cut by linear ditch C172 and C100.
C120	C131	0.28	N/A	0.14	Fill of posthole possibly peripheral activity associated with circular structures.	Medium compact, mid dark brown sandy silt, forming fill of posthole due south of irregular cut (C132) in the south-east corner of the site.
C121	N/A	0.21	0.17	0.11	Stakehole in pit along perimeter of Structure 2.	Cut of stakehole in base of pit (C90) along northern perimeter of Structure 2.
C122	N/A	0.2	0.18	0.13	Posthole, along south-western perimeter of Structure 2.	Cut of posthole. Associated/due south of Structure 2.
C123	N/A	1.86	0.46	0.22	Pit along perimeter of structure 1.	Cut of rectangular pit, along south-eastern perimeter of structure 1.
C124	N/A	0.4	0.48	0.32	Posthole in interior of structure 1, possible roof support.	Cut of posthole located in interior (along southern edge) of structure 1. Associated with similar postholes (includes cuts C393, C343, C341, C345, C288, C124, C407, C404, C347 and C349) and numerous stakeholes.
C125	C183	2.13	0.68	0.49	Fill of pit along perimeter of Structure 2.	Medium compact, mid-brown, sandy silt fill, with occasional charcoal, forming lower fill of pit along western perimeter of Structure 2. (This pit is cut by iron-working feature C114).
C126	N/A	0.2	0.14	0.15	Posthole associated with cluster of stakeholes and postholes located between structures 1 and 2.	Cut of posthole, north-west of Structure 2. Associated with cluster of stakeholes and postholes to immediate north-east (including cuts C387, C164, C75, C127, C126, C179, C188, C186, C185, C191 and C193).
C127	N/A	0.23	0.23	0.1	Posthole.	Possible posthole cut, north-west of Structure 2. Associated with cluster of stakeholes and postholes to immediate south-east (including cuts C387, C164, C75, C127, C126, C179, C188, C186, C185, C191 and C193).
C128	C106	0.5	0.4	0.3	Fill of pit along perimeter of Structure 2.	Fill of small pit feature along northern perimeter of Structure 2. Cut by ditch C172.
C129	N/A	1.25	0.4	N/A	Superficial burning .	Superficial burning, consisting of charcoal staining, immediately adjacent the northern perimeter of Structure 2 (i.e. due north of C90).
C130	N/A	2.35	1.1	0.49	Figure-of-eight-shaped kiln	Cut of figure-of-eight-shaped kiln, surrounded by layer of red burnt clay.
C131	N/A	0.28	N/A	0.14	Posthole possibly peripheral activity associated with circular structures.	Posthole due south of irregular cut (C132) in the south-east corner of the site.
C132	N/A	1.42	N/A	0.56	Irregular burnt pit, possibly peripheral activity associated with circular structures.	Cut of irregular pit in south-east corner of the site.
C133	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C134	N/A	0.11	0.09	0.12	Posthole associated with cluster of stakeholes between metalled areas C12 and C221.	Posthole cut immediately east of stone flooring containing quernstone (C12).
C135	N/A	0.57	0.45	0.17	Circular pit.	Cut of circular pit located north-west of Structure 2 (between structures 1 and 2).
C136	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C137	N/A	N/A	N/A	N/A	N/A	Non-archaeological.

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C138	N/A	0.24	N/A	0.07	Pit, possibly peripheral activity associated with circular structures and potential associated with nearby cremation.	Cut of pit (possible hearth). Associated with three charcoal-rich stakehole cuts – C157+ C159 + C161 - north-west of cremation pit C203).
C139	N/A	0.4	N/A	0.03	Pit, possibly peripheral activity associated with circular structures and potential associated with nearby cremation.	Cut of shallow burned pit (adjacent to three charcoal-rich stakeholes – C157 + C159 + C161 - north-west of cremation pit C203).
C140	C130	2.22	0.8	0.05	Fill of figure-of-eight-shaped kiln.	Compact, red sandy silt forming the lower fill of figure-of-eight-shaped kiln, containing charcoal and small amount of burnt bone.
C141	N/A	0.07	0.07	0.1	Stakehole, associated with cluster of stakeholes between metalled areas C12 and C221.	Cut of stakehole, located between two stone spreads C221 and C12.
C142	N/A	7.2	3.9	0.08	Metalled working surface.	Extensive stone layer/spread under clay spread C54, interpreted as work/activity area to the south-east of Structure 2. Cut by linear ditch C172/C100. Also incorporates stoneless circular features C217 and C218.
C142 W	N/A	3.4	2	0.08	Metalled working surface.	Westerly extension of C142 which constitutes and extensive stone layer under C54, interpreted as work/activity area near Structure 2.
C143	N/A	1.1	N/A	0.35	Pit, peripheral activity associated with circular structures.	Cut of sub-circular pit (north of cremation C203).
C144	C164	0.34	0.32	0.25	Fill of posthole.	Yellow-mid-brown compact, silty sand fill of posthole, containing occasional charcoal flecks. Located between structures 1 and 2. Associated with cluster of stakeholes and postholes (including cuts C387, C164, C75, C127, C126, C179, C188, C186, C185, C191 and C193).
C145	C127	0.23	0.23	0.1	Fill of posthole.	Hard, compact, light brown, silty fill of possible shallow posthole, north-west of Structure 2. Associated with cluster of stakeholes and postholes (including cuts C387, C164, C75, C127, C126, C179, C188, C186, C185, C191 and C193).
C146	C179	0.06	0.06	0.05	Fill of stakehole associated with cluster of stakeholes and postholes located between structures 1 and 2.	Medium compact, mid-brown silty sand fill of stakehole containing small flecks of charcoal and burnt clay. Located between structures 1 and 2. Associated with cluster of stakeholes and postholes (including cuts C387, C164, C75, C127, C126, C179, C188, C186, C185, C191 and C193).
C147	C143	1.45	N/A	0.34	Fill of pit, peripheral activity associated with circular structures.	Compact brown silty clay forming middle fill of sub-circular pit (north of cremation C203).
C148	C143	1.45	N/A	0.34	Fill of pit, peripheral activity associated with circular structures.	Central/lower fill of sub-circular pit (north of cremation C203).
C149	N/A	0.11	0.11	0.13	Small posthole/stakehole, along south-western perimeter of Structure 2.	Cut of possible stakehole. Associated with Structure 2.
C150	C123	1.86	0.46	0.03	Fill of pit along perimeter of structure 1.	Charcoal-rich powder clay fill of rectangular pit along the south-eastern perimeter of structure 1.
C151	N/A	N/A	N/A	N/A	N/A	Non-archaeological.

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C152	C281	0.04	0.04	0.08	Fill of possible stakehole, associated with circular structure 2.	Loose dark greyish brown sandy clay containing charcoal flecks forming fill of possible stakehole (found in feature C21/C170).
C153	N/A	0.83	0.38	0.17	Cut of charcoal-rich pit – associated with circular structure 2.	Cut of irregular pit containing a large piece of burnt wood/charcoal. Located 10m due east of Structure 2.
C154	C132	0.53	N/A	0.21	Fill of pit, possibly peripheral activity associated with circular structures.	Compact, mid dark brown charcoal-rich sandy silt forming the middle fill of a sub-oval pit located in the south-east corner of site.
C155	C132	0.56	N/A	0.23	Fill of pit, possibly peripheral activity associated with circular structures.	Compact red/brown burnt middle fill of sub-oval pit, cut C132, located in south-east corner of site.
C156	C132	1.42	N/A	0.56	Fill of pit, possibly peripheral activity associated with circular structures.	Compact, dark brown sandy silt, with frequent charcoal and burnt stone forming the lower fill of sub-oval pit, cut C132, located in south-east corner of site.
C157	N/A	0.1	N/A	0.05	Stakehole, possibly peripheral activity associated with circular structures and potential association with nearby cremation.	Cut of stakehole filled by C93.
C158	C159	0.15	N/A	0.06	Fill of stakehole, possibly peripheral activity associated with circular structures and potential association with nearby cremation.	Charcoal-rich fill of pocket/stakehole (one of three charcoal-rich stakehole cuts – C157+ C159 + C161 - north-west of cremation pit C203).
C159	N/A	0.15	N/A	0.06	Stakehole, possibly peripheral activity associated with circular structures and potential association with nearby cremation.	Stakehole cut (one of three charcoal-rich stakehole cuts - C157+ C159 + C161 - north-west of cremation pit C203).
C160	C161	0.3	N/A	0.03	Fill of stakehole, possibly peripheral activity associated with circular structures and potential association with nearby cremation.	Charcoal-rich fill of pocket/stakehole (one of three charcoal-rich stakehole cuts - C157 + C159 + C161 - north-west of cremation pit C203).
C161	N/A	0.3	N/A	0.03	Stakehole, possibly peripheral activity associated with circular structures and potential association with nearby cremation.	Stakehole cut filled by C160 (one of three charcoal-rich stakehole cuts – C157 + C159 + C161 - north-west of cremation pit C203).
C162	C171	0.1	0.1	0.1	Fill of stakehole, associated with cluster of stakeholes between metalled areas C12 and C221.	Medium compact dark brown sandy fill of stakehole within posthole fill C50. Due north-east of stone spread C12.
C163	N/A	0.24	0.22	0.12	Small posthole, along south-western perimeter of Structure 2.	Cut of small posthole on eastern edge of cut C195, along south-western perimeter of Structure 2.
C164	N/A	0.34	0.32	0.25	Posthole.	Cut of posthole located between structures 1 and 2. Associated with cluster of stakeholes and postholes (including C387, C164, C75, C127, C126, C179, C188, C186, C185, C191 and C193).

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C165	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C166	C168	0.82	0.6	0.18	Fill of pit along perimeter of structure 1.	Upper fill (mid-brown - black with charcoal flecks) of sub-oval pit along northern perimeter of structure 1. The pit is cut by linear ditch (C172/C100).
C167	C168	0.32	0.18	0.05	Fill of pit along perimeter of structure 1.	Middle fill (light brown reddish clay) of sub-oval pit along northern perimeter of structure 1. The pit is cut by linear ditch (C172/C100).
C168	N/A	0.88	0.62	0.21	Pit along perimeter of structure 1.	Cut of sub-oval pit along northern perimeter of structure 1. The pit is cut by linear ditch (C172, C100).
C169	C168	0.8	0.6	0.02	Fill of pit along perimeter of structure 1.	Middle fill/charcoal lens of sub-oval pit along northern perimeter of structure 1. The pit is cut by linear ditch (C172, C100).
C170	N/A	1.27	0.44	0.09	Pit associated with circular structure 2.	Cut of oval irregular pit.
C171	N/A	0.1	0.1	0.1	Stakehole, associated with cluster of stakeholes between metalled areas C12 and C221.	Cut of stakehole within posthole fill C50. Due north-east of stone spread C12.
C172	N/A	north-south baulks	~0.9	~0.55	Modern field boundary.	Cut of linear ditch cutting structures 1 and 2.
C173	N/A	2	N/A	0.37	Pit, peripheral activity associated with circular structures.	Convex cut of large pit with stone packing.
C174	N/A	1.6	0.2	0.45	Pit along perimeter of structure 1.	Cut of pit along the north-west perimeter of structure 1.
C175	C174	0.5	0.3	0.02	Fill of pit along perimeter of structure 1.	Lower charcoal-rich fill of pit along the north-west perimeter of structure 1.
C176	N/A	3.3	1.4	0.13	Cut containing metalled working area.	Shallow cut - possibly a natural depression - containing stone spread/fill C12 and upper clay spread/fill C6.
C177	N/A	1.86	0.92	0.18	Pit along south-western perimeter of structure 1.	Irregular shallow cut of pit along the south-west perimeter of structure 1.
C178	N/A	0.3	0.3	0.27	Posthole associated with cluster of stakeholes between metalled areas C12 and C221.	Cut of posthole (stakehole C162/171 cuts through upper posthole fill). Due north-east of stone spread C12.
C179	N/A	0.06	0.06	0.05	Stakehole associated with cluster of stakeholes and postholes located between structures 1 and 2.	Cut of stakehole, located between structures 1 and 2. Associated with cluster of stakeholes and postholes (including cuts C387, C164, C75, C127, C126, C179, C188, C186, C185, C191 and C193).
C180	C153	~0.8	0.11	0.11	Charcoal-rich fill of pit - associated with circular structure 2.	Intense loose dark brown-black charcoal-rich (including large pieces of charcoal) silty clay forming middle fill of irregularly shaped pit. Located 10m due east of Structure 2.
C181	C173	1.6	N/A	0.15	Fill of pit, peripheral activity associated with circular structures.	Middle/lower fill of large pit with stone packing.
C182	C173	0.45	N/A	0.12	Fill of pit, peripheral activity associated with circular structures.	Loose mid brown sandy silt within a pocket at the base of a large pit.

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C183	N/A	2.13	0.68	0.49	Pit along perimeter of Structure 2.	Cut of pit along western perimeter of Structure 2 (cut by iron-working feature C114).
C184	C185	0.15	0.08	0.05	Fill of stakehole associated with cluster of stakeholes and postholes located between structures 1 and 2.	Loose, grey/brown, containing tiny flecks of charcoal, fill of small circular pocket, located between structures 1 and 2. Associated with cluster of stakeholes and postholes (including cuts C387, C164, C75, C127, C126, C179, C188, C186, C185, C191 and C193).
C185	N/A	0.15	0.08	0.05	Stakehole associated with cluster of stakeholes and postholes located between structures 1 and 2.	Cut of small circular pocket, located between structures 1 and 2. Associated with cluster of stakeholes and postholes (including cuts C387, C164, C75, C127, C126, C179, C188, C186, C185, C191 and C193).
C186	N/A	0.15	0.12	0.09	Stakehole associated with cluster of stakeholes and postholes located between structures 1 and 2.	Cut of small circular pocket (possible stakehole), located between structures 1 and 2. Associated with cluster of stakeholes and postholes (including cuts C387, C164, C75, C127, C126, C179, C188, C186, C185, C191 and C193).
C187	C188	0.06	0.06	0.06	Fill of stakehole located between structures 1 and 2.	Medium brown silty clay fill of small stakehole, with tiny flecks of charcoal, north-west of Structure 2. Associated with cluster of stakeholes and postholes (including cuts C387, C164, C75, C127, C126, C179, C188, C186, C185, C191 and C193).
C188	N/A	0.06	0.06	0.06	Stakehole located between structures 1 and 2.	Small stakehole cut, north-west of Structure 2. Associated with cluster of stakeholes and postholes (including cuts C387, C164, C75, C127, C126, C179, C188, C186, C185, C191 and C193).
C189	C153	~0.52	0.19	0.1	Charcoal-rich fill of pit - associated with circular structure 2.	Compact red/orange, with charcoal inclusions, silty clay forming the upper fill of an irregular pit. Located 10m due east of Structure 2.
C190	C191	0.15	0.12	0.09	Fill of stakehole associated with cluster of stakeholes and postholes located between structures 1 and 2.	Loose, grey/brown, containing tiny flecks of charcoal, fill of small stakehole cut C191, located between structures 1 and 2. Associated with cluster of stakeholes and postholes (including cuts C387, C164, C75, C127, C126, C179, C188, C186, C185, C191 and C193).
C191	N/A	0.15	0.12	0.09	Stakehole associated with cluster of stakeholes and postholes located between structures 1 and 2.	Cut of stakehole filled by C190, located between structures 1 and 2. Associated with cluster of stakeholes and postholes (including cuts C387, C164, C75, C127, C126, C179, C188, C186, C185, C191 and C193).
C192	C193	0.21	0.16	0.06	Fill of stakehole associated with cluster of stakeholes and postholes located between structures 1 and 2.	Medium compact, orange/red-brown, containing flecks of charcoal, sandy silt fill of small circular pocket cut C193, located between structures 1 and 2. Associated with cluster of stakeholes and postholes (including cuts C387, C164, C75, C127, C126, C179, C188, C186, C185, C191 and C193).
C193	N/A	0.21	0.16	0.06	Stakehole associated with cluster of stakeholes and postholes located between structures 1 and 2 (to their north-west and south-west respectively).	Cut of small circular pocket, located between structures 1 and 2. Associated with cluster of stakeholes and postholes (including cuts C387, C164, C75, C127, C126, C179, C188, C186, C185, C191 and C193).
C194	N/A	0.14	0.14	0.14	Small posthole/stakehole, along south-western perimeter of Structure 2.	Cut of small posthole/stakehole on eastern edge of cut C195, along south-western perimeter of Structure 2.
C195	N/A	0.9	0.8	0.08	Pit along perimeter of Structure 2.	Cut of possible pit; adjacent cut C256 and associated with Structure 2 (probably forming its south-western perimeter).

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C196	C197	0.12	0.12	~0.19	Fill of stakehole in pit along perimeter of Structure 2.	Medium compact, brown/black silty clay, with frequent charcoal, fill of stakehole in the floor of pit cut C195 (pit which constitutes a western extension of pit cut C256), along south-western perimeter of Structure 2. The stakehole fill is associated with stakehole fill C331.
C197	N/A	0.12	0.12	~0.19	Stakehole in pit along perimeter of Structure 2.	Cut of stakehole in the floor of pit cut C195 (pit which constitutes a western extension of pit cut C256), along south-western perimeter of Structure 2. The stakehole cut is associated with stakehole cut C339.
C198	C427	3	0.75	0.4	Fill of isolated pit.	Fill of shallow oblong feature, due west of C329/C337, redeposited natural with sporadic flecks of charcoal.
C199	C200	0.93	0.89	0.17	Fill of pit along southern perimeter of structure 1.	Dark charcoal-rich fill of pit along southern perimeter of structure 1 (associated with C23/C177).
C200	N/A	0.93	0.89	0.17	Pit along southern perimeter of structure 1.	Cut of pit along south perimeter of structure 1 (associated with C23/C177).
C201	N/A	0.41	0.41	0.3	Pit/posthole along western perimeter of structure 1.	Cut of small pit/possible posthole along western perimeter of structure 1.
C202	C30	0.2	0.4	2	Fill of pit along perimeter of structure 1.	Stone packing in pit cut C30, along the northern perimeter of structure 1.
C203	N/A	0.7	0.57	0.12	Cremation pit.	Shallow convex cut of cremation pit with gently sloping sides.
C204	N/A	0.15	0.14	0.13	Posthole in pit along perimeter of Structure 2.	Cut of posthole in base of cut C183 (pit cut along western perimeter of Structure 2). Feature C183 is cut by iron-working feature C114.
C205	C204	0.15	0.14	0.13	Fill of posthole in pit along perimeter of Structure 2.	Medium compact, grey/dark brown, sandy silt fill, with frequent charcoal, of posthole in base of pit cut C183, located along the western perimeter of Structure 2.
C206	N/A	N/A	N/A	0.18	Pit, peripheral activity associated with circular structures.	Cut of small pit to east of site.
C207	C195	0.9	0.8	0.08	Fill of pit along perimeter of Structure 2.	Stony lower fill of pit, associated with Structure 2 (probably forming its south-western perimeter).
C208	C210	0.08	0.08	0.1	Fill of stakehole, associated with cluster of stakeholes between metalled areas C12 and C221.	Medium compact, light brown, sandy silt fill of stakehole, immediately east of stone spread containing quernstone (C12).
C209	N/A	0.09	0.09	0.19	Stakehole associated with cluster of stakeholes. between metalled areas C12 and C221.	Stakehole, immediately east of stone spread with quernstone (E3123:12:1).
C210	N/A	0.08	0.08	0.1	Stakehole , associated with cluster of stakeholes between metalled areas C12 and C221 (cuts include C171, C178, C141, C134, C210, C219).	Stakehole, immediately east of stone spread with quernstone (C12).
C211	N/A	0.58	N/A	0.2	Pit, peripheral activity associated with circular structures.	Cut of circular pit south of Structure 2, containing brown sand and occasional charcoal.
C212	N/A	0.31	N/A	0.27	Pit, associated with circular structures.	Circular cut, south-west of stone spread C142.

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C213	C212	0.31	N/A	0.29	Fill of pit, peripheral activity associated with circular structures.	Soft dark brown sandy silt, with occasional charcoal flecks and pebbles, forming fill of circular cut, south-west of stone spread C142.
C214	C173	1.88	N/A	N/A	Stone packing? in large pit to west of Structure 2.	Compacted stone fill forming upper fill of large pit.
C215	N/A	3.9	0.9	0.1	Irregular shallow cut.	Possible cut of irregular shallow stony deposit/spread - possibly a natural depression, *c.* 15m east of structure 1.
C216	N/A	2.03	0.52	0.22	Pit in Interior of Structure 2.	Cut of rectangular feature in the central area of Structure 2.
C217	N/A	0.41	0.38	0.1	Clay spread within a metalled surface.	Circular stone-free area in stone floor C142.
C218	N/A	0.39	0.25	0.13	Clay spread within a metalled surface.	Circular stone-free area in spread C054 which overlies stone floor C142.
C219	C174	0.3	0.27	0.1	Fill of pit along perimeter of structure 1.	Orange sandy lower fill of pit along the north-west perimeter of structure 1.
C220	C25	1.31	0.66	0.35	Fill of pit, possibly forming the eastern entrance to structure 1.	Burnt orange fill in pit along eastern perimeter of structure 1.
C221	C452	3.3	3.2	0.1	Metalled surface/stone spread representing outdoor working area.	Large irregular stone spread, under clay deposit C19. Associated with stone spread C22 to the immediate west.
C222	C439	2.7	1.56	0.05	Deposit over working metalled floor.	Silty grey clay deposit, with frequent charcoal, covering stone spread C22.
C223	C25	1.31	0.66	0.35	Fill of pit, possibly forming the eastern entrance to structure 1.	Charcoal-rich fill, with frequent burnt stone along eastern perimeter of structure 1.
C224	C394	3	1.2	0.15	Compact grey sandy clay over stone layer C225 , Located due south of oval-shaped stone spread C12.	Compact grey sandy clay over stone layer C225 and stone concentration C249. Contains chert (E3123:224:5) and pottery (E3123:224:1-4). Cut by modern linear ditch C172/C100.
C225	C394	3	1.2	0.1	Irregular stone spread.	Irregular stone spread. Cut by modern linear ditch C172/C100.
C226	C228	~2.2	~1	~0.25	Fill of pit along perimeter of structure 1.	Stony middle fill of pit along the north-eastern perimeter of structure 1.
C227	C228	~2.2	~1	~0.25	Fill of pit along perimeter of structure 1.	Lower charcoal lens in pit along the north-eastern perimeter of structure 1.
C228	N/A	~2.2	~1	~0.25	Pit along perimeter of structure 1.	Cut of pit located along the north-eastern perimeter of structure 1.
C229	C275	0.33	0.26	0.27	Fill of cremation pit.	Dark brown charcoal-rich fill of cremation pit containing frequent fragments of burnt bone and a flattened spherical rubbing stone (E3123:229:2). Also associated with burnt spread C293.
C230	C270	0.38	N/A	0.38	Fill of posthole, possibly peripheral activity associated with circular structures.	Loose dark brown charcoal-rich sandy fill of posthole/pit.
C231	C435	0.5	0.5	0.25	Circular metalled area due east of entrance of Structure 2.	Compacted circular stone deposit. Located north of stone spreads C22 and C 221: due east of structure 1.
C232	C438	0.17	0.15	0.13	Fill of posthole.	Loose dark brown silty sandy fill of posthole, underneath stone spread C22.
C233	C435	0.5	0.5	0.03	Deposit covering circular metalled area due east of entrance of structure 1.	Loose brown silty sandy deposit covering circular stone spread C231. Located due east of structure 1.
C234	C31	1.58	0.99	0.15	Fill of pit.	Compact, dark brown charcoal-rich fill of pit, containing burnt stone fragments.

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C235	C292	1.35	0.31	0.1	Fill of irregular linear cut.	Dark brownish/red silty sand, with frequent charcoal inclusions, fill of irregular linear cut C292.
C236	C251	0.8	0.77	0.01	Fill of circular pit furnace.	Brown sandy clay with frequent charcoal and a piece of iron slag forming the upper fill of circular pit furnace.
C237	C268	across site	~1.2	~0.17	Fill of modern field boundary.	Black charcoal-rich upper fill, containing substantial pieces of wood, of modern linear ditch transecting the site on a north-south axis.
C238	C287	0.3	0.34	0.08	Fill of pit, possibly related to nearby pit furnaces (cuts C251 and C291).	Charcoal-rich compacted fill of shallow pit.
C239	C291	0.6	0.65	0.06	Fill of circular pit furnace	Mid-brown silty fill, with occasional charcoal, forming upper of circular pit furnace. Associated with burnt spread C310 and interior stakehole C313/ C312.
C240	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C241	C84	0.05	0.06	0.08	Fill of stakehole in posthole in interior of Structure 2.	Fill of stakehole in base of circular posthole. Located in interior of Structure 2.
C242	N/A	1.05	1.15	0.08	Irregular cut.	Irregular cut located between structures 1 and 2.
C243	C273	2.63	1.32	0.29	Fill of figure-of-eight-shaped kiln.	Dark brown/black charcoal-rich sandy silt forming the primary/lowest fill of figure-of-eight-shaped kiln.
C244	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C245	C491	1.75	N/A	0.4	Fill of small figure-of-eight-shaped kiln.	Red burnt silty clay, with a high degree of charcoal, forming upper fill of a small figure-of-eight-shaped kiln. Associated with red baked spread C493 and pit cut C564 (filled by C563 and C567).
C246	C289	0.25	0.15	0.08	Fill of pit, associated with shallow cremation pit.	Charcoal-rich silty sand fill of small oval pit. Located beside (west of) a shallow cremation pit C290.
C247	C290	0.8	0.57	0.09	Fill of cremation pit.	Medium loose black charcoal-rich lower fill of shallow cremation burial pit (due east of small pit C246/C289).
C248	C282	0.08	0.05	0.06	Fill of stakehole, associated with circular structure 2.	Loose mid- brown/grey sandy clay with occasional charcoal forming fill of small rectangular stakehole with rounded corners, within pit cut C170. Next to stakehole cut C323 and associated with four other stakeholes within the same pit (cut C170): C323, C413, C414, and C281.
C249	C250	~1	~1	N/A	Concentrated circular cobbled stone surface/metalled surface.	Concentrated circular cobbled stone surface/metalled surface, containing a smoothed, relatively flat fragment of a saddle quern (E3123:249:1). Covered by fill C224; essentially C249 is a more concentrated area of stone spread C225.
C250	N/A	~1	~1	N/A	Stone spread containing a smooth and relatively flat fragment of a saddle quern.	Cut of shallow depression containing concentrated circular stone spread. Cut C250 is essentially within the large cut C394.
C251	N/A	0.84	0.78	0.15	Circular pit furnace.	Cut of circular furnace.
C252	C251	0.84	0.78	0.03	Fill of pit furnace.	Lower red baked fill (probably representing a lining of the cut) of circular pit furnace.

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C253	C254	1.7	N/A	0.14	Fill of oval pit, peripheral activity associated with circular structures.	Compact grey sandy silt, with charcoal flecks, forming fill of elongated oval cut, C254, associated with Structure 2. Contains two fragments of grinding stones / saddle querns, flint, chert and pottery.
C254	N/A	1.7	N/A	0.14	Elongated oval cut, peripheral activity associated with circular structures.	Cut of elongated oval feature – associated with Structure 2.
C255	C256	~1.23	~1.08	~0.11	Fill of pit along perimeter of Structure 2.	Stone packing forming upper fill in pit with numerous postholes in its base, along southern perimeter of Structure 2.
C256	N/A	1.9	1.08	~0.23	Large pit along perimeter of Structure 2.	Cut of large pit (with numerous postholes in its base) along southern perimeter of Structure 2.
C257	C258	0.12	0.12	0.29	Fill of stakehole in pit along perimeter of Structure 2.	Medium compact, dark brown silty clay fill of stakehole, with moderate charcoal, in base of pit cut C256, along southern perimeter of Structure 2.
C258	N/A	0.12	0.12	0.29	Stakehole in pit along perimeter of Structure 2.	Cut of stakehole in base of pit cut C256, along southern perimeter of Structure 2.
C259	C261	0.12	0.11	0.16	Fill of stakehole in pit along perimeter of Structure 2.	Medium compact, mid-brown silty clay, with occasional charcoal, fill of stakehole in base of pit cut C256, along southern perimeter of Structure 2.
C260	C262	0.11	0.1	0.18	Fill of stakehole in pit along perimeter of Structure 2.	Medium compact, mid-brown silty clay fill of stakehole in base of pit cut C256, along southern perimeter of Structure 2.
C261	N/A	0.12	0.11	0.16	Stakehole in pit along perimeter of Structure 2.	Cut of stakehole in base of pit cut C256, along southern perimeter of Structure 2.
C262	N/A	0.11	0.1	0.18	Stakehole in pit along perimeter of Structure 2.	Cut of stakehole in base of pit cut C256, along southern perimeter of Structure 2.
C263	C288	0.2	0.16	0.11	Fill of posthole in interior of structure 1, perhaps to support a roof structure.	Loose brown sandy fill of posthole located in interior (along eastern edge) of structure 1. Associated with similar postholes (includes cuts C393, C343, C341, C345, C288, C124, C407, C404, C347 and 349) and numerous stakeholes.
C264	C336	0.24	0.25	0.09	Fill of pit.	Burnt brown/red sandy fill of shallow pit. Also associated with feature C265/C335.
C265	C335	0.4	0.51	0.1	Fill of pit.	Dark brown silty clay with charcoal flecks in shallow pit. Also associated with feature C264/C336.
C266	N/A	0.45	N/A	0.22	Shallow pit, possibly peripheral activity associated with circular structures.	Concave cut of shallow burnt pit, filled by C276, due south of C272.
C267	C251	0.76	0.64	0.04	Fill of pit furnace.	Dark brown black charcoal-rich sandy silt forming the middle fill of circular pit furnace.
C268	N/A	58m	0.9	0.33	Modern field boundary.	U-shaped cut of linear ditch transecting the site on a north-south axis.
C269	C268	58m	~0.9	~0.19	Fill of modern field boundary.	Stone packing within modern linear ditch transecting the site on a north-south axis.
C270	N/A	0.38	N/A	0.38	Posthole, possibly peripheral activity associated with circular structures.	Cut of posthole/pit.
C271	C272	0.35	N/A	0.09	Pocket of charcoal-rich sandy clay, possibly peripheral activity associated with circular structures.	Pocket of brownish-red charcoal-rich sandy clay. Located beside posthole cut C270.

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C272	N/A	0.35	N/A	0.09	Pocket filled with C271.	Cut of burnt pocket located beside posthole cut C270.
C273	N/A	2.63	1.32	0.76	Figure-of-eight-shaped kiln.	Cut of figure-of-eight-shaped kiln. Red/pink burning is visible on the western edges of the feature. The kiln seems to cut the narrow linear ditch C327/C328.
C274	C273	2.63	1.32	0.47	Fill of figure-of-eight-shaped kiln.	Compact brown sandy silt with frequent inclusions of charcoal and small stone forming the upper fill of a figure-of-eight-shaped kiln, covering almost all of lower fill C243. The kiln seems to cut the narrow linear ditch C327/C328.
C275	N/A	0.33	0.26	0.27	Cremation pit.	Cut of cremation pit. Circular in plan, vertical sides and flat-based in section. Also associated with burnt spread C293.
C276	C276	0.54	N/A	0.2	fill of pit, possibly peripheral activity associated with circular structures.	Light grey charcoal-rich sandy clay forming fill of burnt pit to the south of C272.
C277	N/A	0.18	N/A	0.07	Posthole, possibly peripheral activity associated with circular structures and potential associated with nearby cremation.	Cut of circular/oval posthole, containing charcoal-rich fill (adjacent to three charcoal-rich stakeholes – C157+C159 + C161 - north-west of cremation pit C203).
C278	C280	0.24	0.21	~0.23	Fill of posthole in pit along perimeter of Structure 2.	Medium compact, dark brown silty clay, with occasional charcoal, fill of posthole in base of pit cut C256, along southern perimeter of Structure 2.
C279	C283	0.08	0.06	0.1	Fill of stakehole in pit along perimeter of Structure 2.	Medium compact, mid-brown silty clay, with occasional charcoal, fill of one of several stakeholes in base of pit cut C256, along southern perimeter of Structure 2.
C280	N/A	0.24	0.21	~0.23	Posthole in pit along perimeter of Structure 2.	Cut of posthole in base of pit cut C256, along southern perimeter of Structure 2.
C281	N/A	0.04	0.04	0.08	Stakehole, associated with circular structure 2.	Cut of stakehole in/under pit C21/C170. Associated with four other stakeholes within the same pit (C170): C323, C413, C414, and C281.
C282	N/A	0.08	0.05	0.06	Stakehole, associated with circular structure 2.	Cut of small rectangular stakehole with rounded corners (adjacent stakehole cut C323), within pit cut C170. Associated with four other stakeholes within the same pit cut C170: C323, C413, C414, and C281.
C283	N/A	0.08	0.06	0.1	Stakehole, located along southern perimeter of Structure 2.	Cut of one of several stakeholes in the base of pit C256, which is located along southern perimeter of Structure 2.
C284	C295	0.1	0.06	~0.13	Fill of stakehole in pit along perimeter of Structure 2.	Medium compact, dark brown, silty clay fill of one of several stakeholes in the base of pit C256, which is located along southern perimeter of Structure 2.
C285	C296	0.15	0.09	0.1	Fill of stakehole in pit along perimeter of Structure 2.	Fill of one of several stakeholes in the base of pit C256, which is located along southern perimeter of Structure 2.
C286	C297	0.14	0.08	0.07	Fill of stakehole in pit along perimeter of Structure 2.	Medium compact, dark brown silty clay fill of one of several stakeholes in the base of pit C256, which is located along southern perimeter of Structure 2.
C287	N/A	0.3	0.34	0.08	Shallow circular cut, possibly related to nearby pit furnaces (cuts C251 and C291).	Shallow circular cut, filled with charcoal-rich clay C238.
C288	N/A	0.2	0.16	0.11	Posthole in interior of structure 1, perhaps to support a roof structure.	Cut of posthole located in interior of structure 1 (along eastern edge).

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C289	N/A	0.25	0.15	0.08	Small oval pit , associated with possible cremation pit.	Cut of small oval pit with concave base and gently curving sides. Located beside (west of) a shallow cremation pit C290.
C290	N/A	0.8	0.57	0.12	Cremation pit.	Shallow convex cut of cremation pit with gently sloping sides (due east of small pit C246/C289).
C291	N/A	0.81	0.76	0.21	Circular pit furnace.	Cut of circular pit furnace. Associated with burnt spread C310 and interior stakehole C313/C312.
C292	N/A	1.35	0.31	0.1	Irregular linear cut.	Cut of irregular linear containing dark brown charcoal-rich burnt fill.
C293	N/A	0.32	0.26	0.03	Burnt spread associated with cremation pit.	Orange/reddish burnt spread, adjacent to cremation pit (C229/C275).
C294	C434	N/A	0.5	0.25	Fill of modern drainage ditch.	Compacted stony fill of modern stone-lined drain, traversing the site on a south-west-north-east axis.
C295	N/A	0.1	0.06	0.13	Stakehole in pit along perimeter of Structure 2.	Cut of stakehole in base of pit cut C256, along southern perimeter of Structure 2.
C296	N/A	0.15	0.09	0.1	Stakehole in pit along perimeter of Structure 2.	Cut of stakehole in base of pit cut C256, along southern perimeter of Structure 2.
C297	N/A	0.14	0.08	0.07	Stakehole in pit along perimeter of Structure 2.	Cut of stakehole in base of pit cut C256, along southern perimeter of Structure 2.
C298	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C299	C397	5	0.5	0.2	Fill of shallow ditch.	Stone packing in narrow linear ditch, which runs on a north-west-south-east axis, and meets one of a pair of parallel ditches (C327/C328).
C300	C290	0.8	0.57	0.03	Fill of cremation pit.	Loose grey silty ash forming upper fill (containing a high degree of burnt bone) of shallow cremation burial pit located due east of smaller burnt pit C246/C289.
C301	N/A	0.3	0.2	0.2	Irregular compact charcoal-rich clay deposit.	Irregular compact charcoal-rich clay deposit located between stone spread C22, circular stone feature C231/C435 and large stone spread C221.
C302	C291	0.75	0.7	0.06	Fill of pit furnace	Grey/black charcoal-rich fill, indicative of intense burning, forming middle fill of circular pit furnace. Associated with burnt spread C310 and interior stakehole C313/ C312.
C303	C291	0.8	0.74	0.04	Fill of pit furnace	Red baked compact layer with some charcoal staining constituting either the lower fill of circular pit furnace or the heat-effected cut, over pocket C311. Associated with burnt spread C310 and interior stakehole C313/ C312.
C304	N/A	2.2	1.3	0.05	Irregular metalled surface.	Irregular stone spread to the north-east of structure 1. Located north of stone spreads C221 and C22.
C305	N/A	2.1	0.48	0.22	Possibly a small furnace feature	Cut of pear-shaped feature to the north-east of linear ditch C398.
C306	C307	0.23	0.19	0.2	Fill of stakehole in pit along perimeter of Structure 2.	Medium compact dark brown silty clay fill of stakehole in base of pit cut 256, along southern perimeter of Structure 2.
C307	N/A	0.23	0.19	0.2	Stakehole in pit along perimeter of Structure 2.	Cut of stakehole in base of pit C256, along southern perimeter of Structure 2.

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C308	C130	0.51	0.45	0.14	Fill of figure-of-eight-shaped kiln.	Fill (natural redeposit) of figure-of-eight-shaped kiln.
C309	C130	1.73	0.68	0.09	Fill of figure-of-eight-shaped kiln.	Black compact silt fill, containing charcoal and animal bone, of figure-of-eight-shaped kiln.
C310	N/A	0.4	0.1	0.08	Burnt contained spread/pocket associated with circular pit furnace (cut 291).	Dark brown loose clay, with moderate charcoal, spread/pocket to the east of circular pit furnace (C291).
C311	C291	0.18	0.12	0.06	Fill of pit furnace.	Loose dark brown gravely clay forming fill of pocket in base of circular pit furnace. Associated with burnt spread C310 and interior stakehole C313/C312.
C312	C313	0.1	0,1	0.13	Fill of stakehole associated with circular pit furnace.	Loose dark brown clayey silt with occasional charcoal fleck forming fill of stakehole in base of circular pit furnace C291.
C313	N/A	0.1	0.1	0.13	Stakehole in base of circular pit furnace C291.	Cut of stakehole in base of circular pit furnace (cut C291 with fills C239, C302, C303 and C311).
C314	C130	0.6	0.74	0.04	Fill of figure-of-eight-shaped kiln.	Compact grey/dark red silty fill of figure-of-eight-shaped kiln, containing a high degree of charcoal and small and badly preserved animal bone fragments.
C315	C130	2.1	0.5	0.05	Fill of figure-of-eight-shaped kiln.	Compact black silty fill of a figure-of-eight-shaped kiln, containing a high degree of charcoal, pieces of burnt wood and bone.
C316	C321	0.74	0.29	0.07	Fill of relatively isolated pit.	Fill of a small pit containing flecks of charcoal. 14m north-east of cuts C334 and C330.
C317	N/A	0.13	0.07	0.16	Cut of small oval stakehole.	Cut of small oval stakehole, adjoining stakehole cut C405 and associated with other stakeholes, just south-west of Structure 2.
C318	C405	0.19	0.16	0.1	Fill of stakehole.	Loose mid greyish brown sandy clay with frequent charcoal flecks forming fill of stakehole, cut C405, right next to stakehole cut C317. Associated with other stakeholes just south-west of Structure 2.
C319	C330	0.54	0.54	0.11	Fill of cremation pit.	Loose dark brown sandy fill of circular cremation pit, containing burnt bone and charcoal.
C320	C334	1.5	0.75	0.2	Fill of pit	Fill/spread with charcoal inclusions – perhaps natural burning as extent is not clearly defined. Due east of cremation pit cut C330.
C321	N/A	0.07	0.29	0.07	Cut of small pit.	Relatively isolated pit, 14m north-east of cuts C334 and C330 (cremation pit).
C322	C323	0.05	0.03	0.08	Fill of stakehole.	Loose dark greyish brown sandy clay with occasional charcoal forming fill of stakehole, within pit cut C170. Next to stakehole cut C282 and associated with four other stakeholes within the same pit: C282, C413, C414 and C281.
C323	N/A	0.05	0.03	0.08	Cut of stakehole within pit cut C170.	Cut of stakehole (adjacent stakehole cut C282), within pit cut C170. Associated with four other stakeholes within the same pit: C413, C414, C282 and C281.
C324	C305	2.1	0.48	0.22	Fill of possible small furnace feature	Compact, dark brown/grey, charcoal-rich fill of pear-shaped feature to the north-east of linear ditch C398.
C325	C338	0.95	0.45	0.12	Fill of pit.	Compact dark brown clay with frequent charcoal inclusions forming fill of oval pit. Located due north of cremation features C289 and C290.
C326	C130	1.73	1.01	0.26	Fill of figure-of-eight-shaped kiln.	Compact fine grained dark brown (probably re-deposited natural), but contains some charcoal and stone. Fill of figure-of-eight-shaped kiln.

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C327	N/A	67.4	0.5	0.18	Cut of one of two parallel shallow ditches traversing the site on a north-east-south-west axis.	Cut of eastern example of shallow linear ditch running parallel to linear ditch C400/C399. The ditch connects with another similar linear ditch (C398/C397) and is cut by modern linear ditch C268/C237/C264. The ditch is also cut by a figure-of-eight furnace/kiln (C273/C243/C274). Located to the west of circular domestic structures.
C328	C327	67.4	0.5	0.18	Fill of one of two parallel shallow ditches traversing the site on a north-east-south-west axis.	Mid-brown compacted silt with frequent tiny charcoal flecks. Fill of linear ditch running parallel to similar shallow linear ditch C400/C399. The ditch connects with another similar linear feature, C398/C397, but is cut by modern linear ditch C268/C237/C264. The ditch also seems to be cut by a figure-of-eight furnace/kiln (C273/C243/C274).
C329	C337	0.77	0.41	0.15	Isolated pit.	Fill of oval pit, due east of C198/C427, with occasional charcoal inclusions.
C330	N/A	0.54	0.54	0.11	Cremation pit.	Shallow convex cut of cremation pit with gently sloping sides.
C331	C339	0.15	0.13	0.29	Fill of stakehole in pit along perimeter of Structure 2.	Medium compact, mid-brown, silty clay, with frequent charcoal, fill of stakehole in the floor of pit cut C195 (pit which constitutes a western extension of pit cut C256), along south-western perimeter of Structure 2. Associated with stakehole cut C197.
C332	N/A	1.35	0.69	0.19	Pit along south-western perimeter of structure 1.	Cut of pit, along the south-west perimeter of structure 1. Associated with cut C177.
C333	C332	1.35	0.69	0.19	Fill of pit along south-western perimeter of structure 1.	Fill of pit along the south-west perimeter of structure 1 containing frequent charcoal. Associated with cut C177.
C334	N/A	1.5	0.75	0.2	Pit of uncertain function due east of cremation pit cut C330.	Cut(?) of irregular charcoal-rich fill spread.
C335	N/A	0.4	0.51	0.1	Cut of shallow pit.	Cut of shallow pit filled with burnt clay. Located near, and associated with, similar burnt pit C264/C336.
C336	N/A	0.24	0.25	0.09	Cut of shallow pit.	Cut of shallow pit filled with burnt clay. Located near, and associated with, similar burnt pit C265/C335.
C337	N/A	0.77	0.41	0.15	Isolated pit.	Cut of oval pit, due east of C198/C427.
C338	N/A	0.95	0.45	0.12	Relatively isolated pit	Cut of oval pit of uncertain function. Located north of cremation features C289 and C290.
C339	N/A	0.15	0.13	0.29	Stakehole in pit along perimeter of Structure 2.	Cut of stakehole in the floor of pit cut C195 (pit which constitutes a western extension of pit cut C256), along south-western perimeter of Structure 2. The stakehole cut is associated with stakehole cut C197.
C340	C341	0.22	0.22	0.26	Fill of posthole in interior of structure 1, perhaps to support a roof structure.	Fill of posthole containing charcoal and flecks of red burnt material. Associated with similar postholes (includes cuts C393, C343, C341, C345, C288, C124, C407, C404, C347 and C349) and numerous stakeholes.
C341	N/A	0.22	0.22	0.26	Posthole in interior of structure 1, perhaps to support a roof structure.	Cut of posthole located in interior (along northern edge) of structure 1. Associated with similar postholes (includes cuts C393, C343, C341, C345, C288, C124, C407, C404, C347 and C349) and numerous stakeholes.
C342	C343	0.22	0.2	0.23	Fill of posthole in interior of structure 1, perhaps to support a roof structure.	Loose dark brown sandy clay fill of posthole located in interior (along northern edge) of structure 1. Associated with similar postholes (includes cuts C393, C343, C341, C345, C288, C124, C407, C404, C347 and C349) and numerous stakeholes.

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C343	N/A	0.22	0.2	0.23	Posthole in interior of structure 1, perhaps to support a roof structure.	Cut of posthole located in interior (along northern edge) of structure 1. Associated with similar postholes (includes cuts C393, C343, C341, C345, C288, C124, C407, C404, C347 and C349) and numerous stakeholes.
C344	C345	N/A	0.3	0.28	Fill of posthole in interior of structure 1, perhaps to support a roof structure.	Loose dark grey fill (with charcoal flecks) of posthole located in interior (along north-eastern edge) of structure 1. Associated with similar postholes (includes cuts C393, C343, C341, C345, C288, C124, C407, C404, C347 and C349) and numerous stakeholes.
C345	N/A	N/A	0.3	0.28	Posthole in interior of structure 1, perhaps to support a roof structure.	Cut of posthole located in interior (along north-eastern edge) of structure 1. Associated with similar postholes (includes cuts C393, C343, C341, C345, C288, C124, C407, C404, C347 and C349) and numerous stakeholes.
C346	C347	0.39	0.28	0.11	Fill of posthole in interior of structure 1, perhaps to support a roof structure.	Loose dark brown sandy clay fill of posthole located in interior (along north-western edge) of structure 1. Associated with similar postholes (includes cuts C393, C343, C341, C345, C288, C124, C407, C404, C347 and C349) and numerous stakeholes.
C347	N/A	0.39	0.28	0.11	Posthole in interior of structure 1, perhaps to support a roof structure.	Cut of posthole located in interior (along north-western edge) of structure 1. Associated with similar postholes (includes cuts C393, C343, C341, C345, C288, C124, C407, C404, C347 and C349) and numerous stakeholes.
C348	C349	0.17	0.12	0.29	Fill of posthole in interior of structure 1, perhaps to support a roof structure.	Loose dark brown sandy clay fill (containing charcoal flecks) of small posthole located in interior (along north-western edge) of structure 1. Associated with similar postholes (includes cuts C393, C343, C341, C345, C288, C124, C407, C404, C347 and C349) and numerous stakeholes.
C349	N/A	0.28	0.13	0.29	Posthole in interior of structure 1, perhaps to support a roof structure.	Cut of small posthole located in interior (along north-western edge) of structure 1. Associated with similar postholes (includes cuts C393, C343, C341, C345, C288, C124, C407, C404, C347 and C349) and numerous stakeholes.
C350	N/A	0.08	0.01	0.08	Stakehole within pit along southern perimeter of structure 1.	Cut of stakehole in base of pit (C200) along the southern perimeter of structure 1. Associated with another post/stakehole (C352/C353) at base of same feature.
C351	C350	0.08	0.09	0.08	Fill of stakehole within pit along southern perimeter of structure 1.	Fill of stakehole, in base of pit (C200) along the southern perimeter of structure 1. Associated with another stakehole/posthole (C352/C353) at base of same feature.
C352	N/A	0.18	0.2	0.17	Stakehole within pit along southern perimeter of structure 1.	Cut of post/stakehole, in base of pit (C200) along the southern perimeter of structure 1. Associated with another stakehole (C350/C351) at base of same feature.
C353	C352	0.2	0.18	0.18	Stakehole within pit along southern perimeter of structure 1.	Fill of post/stakehole in base of pit (C200) along the southern perimeter of structure 1. Associated with another stakehole (C350/C351) at base of same feature.
C354	C355	0.1	0.08	0.11	Fill of stakehole in interior of structure 1.	Dark-brown sandy clay fill of stakehole, containing about 40% charcoal. In interior (south-east quadrant) of structure 1.
C355	N/A	0.1	0.08	0.11	Stakehole in interior of structure 1.	Cut of stakehole in interior (south-east quadrant) of structure 1.
C356	C372	0.54	0.51	0.19	Fill of small pit.	Loose black silty sand, with charcoal inclusions, fill of shallow pit with stakehole (C 373/C374) in base. Located just south of Structure 2 and immediately west of stone spread C142.
C357	C359	0.08	0.07	0.09	Fill of stakehole in interior of structure 1.	Loose mid-brown sandy clay fill of stakehole, containing a few flecks of charcoal.

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C358	C349	0.11	0.13	0.12	Fill of posthole in interior of structure 1, perhaps to support a roof structure.	Loose light brown fill of small posthole located in interior (along north-western edge) of structure 1. Associated with similar postholes (includes cuts C393, C343, C341, C345, C288, C124, C407, C404, C347 and C349) and numerous stakeholes.
C359	N/A	0.08	0.07	0.09	Stakehole in interior of structure 1.	Cut of stakehole in interior (southern area) of structure 1.
C360	C361	0.13	0.07	0.13	Fill of stakehole in interior of structure 1.	Mid-brown sandy clay fill of stakehole, containing very occasional charcoal flecks. Located in southern sector of interior of structure 1. Associated with cluster of stakeholes (including cuts C370, C379, C383, C361, C375, C418, C359, C355 and C369).
C361	N/A	0.13	0.07	0.13	Stakehole in interior of structure 1.	Cut of stakehole. Located in southern sector of interior of structure 1. Associated with cluster of stakeholes (including cuts C370, C379, C383, C361, C375, C418, C359, C355 and C369).
C362	C130	1.5	0.58	0.05	Fill of figure-of-eight-shaped kiln.	Red/orange clay fill of figure-of-eight shaped furnace. Containing charcoal, one large piece of charcoal/wood and some smaller fragments. Situated between two layers of charcoal, over fill C314 and C315 and under fill C309 and could possibly constitute a less fire-effected continuation of fill C314.
C363	C365	0.07	0.05	0.06	Fill of stakehole in interior of structure 1.	Loose light brown silty sand fill of oval stakehole, containing occasional charcoal flecks. Located in eastern quadrant of interior of structure 1.
C364	C369	0.13	0.09	0.15	Fill of stakehole in interior of structure 1.	Loose mid-brown sandy clay fill of oval stakehole (containing *c.* 2% charcoal). Located in interior of structure 1, in south-western quadrant. Associated with similar cuts such as C355, C359, C361, C370 and C375.
C365	N/A	0.07	0.05	0.06	Stakehole in interior of structure 1.	Cut of oval stakehole. Located in eastern quadrant of interior of structure 1.
C366	N/A	1.8	N/A	N/A	Large shallow pit located to the west of Structure 2.	Shallow, sub-rectangular depression/cut filled with compacted stone. The profile of the depression cuts two postholes (C384/C385 and C389/C390).
C367	C366	1.8	N/A	N/A	Fill of large shallow pit located to the west of Structure 2.	Loose medium compaction light brown yellow sandy clay with flecks of charcoal and frequent stone inclusions within shallow, sub-rectangular depression/cut C366. The fill covers two postholes (C384/C385 and C389/C390).
C368	C370	0.07	0.05	0.06	Fill of stakehole in interior of structure 1.	Loose light brown silty clay fill of stakehole, containing charcoal flecks. Located in southern sector of interior of structure 1. Associated with cluster of stakeholes (including cuts C370, C379, C383, C361, C375, C418, C359, C355 and C369).
C369	N/A	0.13	0.09	0.15	Stakehole in interior of structure 1.	Cut of oval stakehole. Located in interior of structure 1, in south-western quadrant.
C370	N/A	0.07	0.05	0.06	Stakehole in interior of structure 1.	Cut of stakehole. Located in southern sector of interior of structure 1. Associated with cluster of stakeholes (including cuts C370, C379, C383, C361, C375, C418, C359, C355 and C369).
C371	C375	0.07	0.06	0.09	Fill of stakehole in interior of structure 1.	Loose mid-brown sandy clay fill of stakehole (containing about 3% charcoal). Located in southern sector of interior of structure 1. Associated with cluster of stakeholes (including cuts C370, C379, C383, C361, C375, C418, C359, C355 and C369).
C372	N/A	0.54	0.51	0.19	Small pit adjacent to stone spread C142.	Cut of shallow pit with stakehole (C373/C374) in base. Located just south of Structure 2 and immediately west of stone spread C142.

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C373	C374	0.05	0.05	0.17	Fill of stakehole.	Black, charcoal-rich fill of stakehole in base of shallow pit (cut C372). Located just south of Structure 2 and immediately west of stone spread C142.
C374	N/A	0.05	0.05	0.17	Stakehole in small pit.	Cut of stakehole in base of shallow pit (cut C372). Located just south of Structure 2 and immediately west of stone spread C142.
C375	N/A	0.07	0.06	0.09	Stakehole in interior of structure 1.	Cut of stakehole. Located in southern sector of interior of structure 1. Associated with cluster of stakeholes (including cuts C370, C379, C383, C361, C375, C418, C359, C355 and C369).
C376	N/A	ø 0.54	ø 0.54	0.44	Cut of circular pit or large posthole.	Cut of possible circular pit or large posthole, cutting larger oblong feature C402. Entrance to structure 1.
C377	C376	0.54	0.54	0.44	Fill of circular pit or large posthole.	Fill of possible pit or large posthole, consisting of large stacked stones (~0.10 m – 0.33m), which represents ~75% of the overall fill. Context C26 represents the clay matrix surrounding these stones.
C378	C379	0.07	0.05	0.06	Fill of stakehole in interior of structure 1.	Loose mid-brown sandy clay fill of stakehole, located in interior of structure 1 (containing very occasional - *c*. 1% - flecks of charcoal). Located in southern sector of interior of structure 1. Associated with cluster of stakeholes (including cuts C370, C379, C383, C361, C375, C418, C359, C355 and C369).
C379	N/A	0.07	0.05	0.06	Stakehole in interior of structure 1.	Cut of stakehole. Located in southern sector of interior of structure 1. Associated with cluster of stakeholes (including cuts C370, C379, C383, C361, C375, C418, C359, C355 and C369).
C380	C381	N/A	0.26	0.26	Fill of small pit.	Loose brown silty clay fill, containing charcoal and large stones (which constitute 70% of the fill), of small oval pit.
C381	N/A	N/A	0.26	0.26	Small pit.	Cut of small oval pit.
C382	C383	0.06	0.04	0.05	Fill of stakehole in interior of structure 1.	Loose mid-brown sandy clay fill of stakehole, containing occasional charcoal flecks. Located in southern sector of interior of structure 1. Associated with cluster of stakeholes (including cuts C370, C379, C383, C361, C375, C418, C359, C355 and C369).
C383	N/A	0.06	0.04	0.05	Stakehole in interior of structure 1.	Cut of stakehole. Located in southern sector of interior of structure 1. Associated with cluster of stakeholes (including cuts C370, C379, C383, C361, C375, C418, C359, C355 and C369).
C384	N/A	0.53	N/A	0.37	Posthole in base of large shallow pit located to the west of Structure 2.	Cut of posthole located in the base of a shallow depression, cut C366. Associated with posthole C389/C390.
C385	C384	0.53	N/A	0.37	Fill of posthole in base of large shallow pit located to the west of Structure 2.	Medium compact, dark brown silty clay, containing large stones (measuring 0.25m x 0.25m x 0.30m), and frequent charcoal inclusions, forming fill of posthole cut by a shallow depression, cut C366. Associated with posthole C389/C390.
C386	C387	0.09	0.07	0.1	Fill of stakehole.	Mid-brown sandy clay fill of stakehole, containing occasional flecks of charcoal (1%) and pebbles (30% of fill). Associated with cluster of stakeholes and postholes to immediate south-east (including cuts C387, C164, C75, C127, C126, 179, 188, C186, C185, C191 and C193).

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C387	N/A	0.09	0.07	0.1	Stakehole.	Cut of stakehole. Associated with cluster of stakeholes and postholes to immediate south-east (including cuts C387, C164, C75, C127, C126, C179, C188, C186, C185, C191 and C193).
C388	C391	0.28	N/A	0.3	Fill of posthole.	Dark brown charcoal-rich silty sand, containing stones and pebbles, forming the fill of a relatively isolated posthole.
C389	N/A	0.41	N/A	0.15	Posthole in base of large shallow pit located to the west of Structure 2.	Cut of posthole, cut by shallow depression cut C366. Associated with posthole C384/C385.
C390	C389	0.41	N/A	0.15	Fill of posthole in base of large shallow pit located to the west of Structure 2.	Medium compact, orange brown silty clay, containing small flecks of charcoal and frequent stones (some larger than 0.20m x 0.25m x 0.25m), forming the fill of a posthole cut by the base of a shallow depression, cut C366. Associated with posthole C384/C385.
C391	N/A	0.28	N/A	0.3	Cut of posthole.	Cut of relatively isolated posthole. The original post seems to have been supported by stones of various sizes.
C392	C393	0.25	0.24	0.26	Fill of posthole in interior of structure 1, perhaps to support a roof structure.	Loose, dark brown sandy clay fill of posthole, containing charcoal inclusions <10 %, small stones <20 %. Located in interior of structure 1, in north-western quadrant. Associated with similar postholes (includes cuts C393, C343, C341, C345, C288, C124, C407, C404, C347 and C349) and numerous stakeholes.
C393	N/A	0.25	0.24	0.26	Posthole in interior of structure 1, perhaps to support a roof structure.	Cut of posthole located in interior (along western edge) of structure 1. Associated with similar postholes (includes cuts C393, C343, C341, C345, C288, C124, C407, C404, C347 and C349) and numerous stakeholes.
C394	N/A	3	1.2	N/A	Cut of irregular stone spread.	Cut of irregular stone spread (possible working area). Cut by modern linear ditch C172/C100.
C395	C396	0.3	N/A	0.3	Fill of possible posthole in the interior of Structure 2.	Medium/loose, dark grey, sandy silt fill, with frequent charcoal, fill of a truncated posthole containing a flint scraper, visible in the base of the modern linear field boundary ditch (C172/C100). Located to the west of pit C116/C119.
C396	N/A	0.3	N/A	0.3	Possible posthole in the interior of Structure 2.	Cut of truncated posthole, visible in the base of the modern linear field boundary ditch (C172/C100). Located to the west of pit C116/C119.
C397	N/A	26.5	0.55	0.3	Cut of shallow ditch running on a north-west-south-east axis.	Cut of linear ditch (which connects with a similar linear ditch at an acute angle (cut C327/C328). This, in turn, is cut by a modern black linear ditch (C237/C264/C268) and by figure-of-eight furnace cut C273.
C398	C397	26.5	0.55	0.3	Fill a shallow ditch running on a north-west-south-east axis.	Compact dark brown silty clay fill in narrow linear ditch, containing small flecks of charcoal, running on a north-west-south-east axis. The ditch also connects with similar linear feature (C327/C328), but is cut by modern black linear ditch (C268/C237/C264).
C399	C400	68.6	0.55	0.24	Fill of one of two shallow ditches traversing the site on a north-east-south-west axis.	Light brown sandy clay fill, with numerous small stones and tiny charcoal flecks. Fill of western example of parallel linear ditches. Runs parallel to linear ditch C327/C328.
C400	N/A	68.6	0.55	0.24	Cut of one of two parallel shallow ditches traversing the site on a north-east-south-west axis.	Cut of western example of parallel shallow linear ditches. Runs parallel to linear ditch C327/C328.
C401	C402	1.48	0.44	0.3	Fill of oval pit.	Fill of oval pit (similar to fill C26 in C376) containing patches of red baked clay.

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C402	N/A	1.48	0.44	0.3	Cut of oval pit	Cut of oval pit running on an east-west axis along eastern perimeter of structure 1. The pit is also cut by a large posthole (C26/C377/C376) at its western end.
C403	C404	0.16	0.15	0.14	Fill of posthole in interior of structure 1, perhaps to support a roof structure.	Loose brown sandy clay fill of posthole, containing occasional charcoal flecks (< 2%) and small pebbles < 5%. Located in interior (along western edge) of structure 1. Associated with other interior postholes (including C288, C345, C341, C343, C349, C393, C407, and C124) and numerous stakeholes.
C404	N/A	0.16	0.15	0.14	Posthole in interior of structure 1, perhaps to support a roof structure.	Cut of posthole located in interior (along western edge) of structure 1. Associated with similar postholes (includes cuts C393, C343, C341, C345, C288, C124, C407, C404, C347 and C349) and numerous stakeholes.
C405	N/A	0.19	0.16	0.1	Cut of small oval stakehole.	Cut of small oval stakehole, adjoining stakehole cut C317 and associated with other stakeholes, just south-west of Structure 2.
C406	C407	0.17	0.16	0.17	Fill of posthole in interior of structure 1, perhaps to support a roof structure.	Loose, brown sandy clay fill of posthole (containing charcoal flecks) located in interior (along south-west edge) of structure 1. Associated with similar postholes (includes cuts C393, C343, C341, C345, C288, C124, C407, C404, C347 and C349) and numerous stakeholes.
C407	N/A	0.17	0.16	0.17	Posthole in interior of structure 1, perhaps to support a roof structure.	Cut of posthole located in interior (along south-west edge) of structure 1. Associated with similar postholes (includes cuts C393, C343, C341, C345, C288, C124, C407, C404, C347 and C349) and numerous stakeholes.
C408	C415	0.17	0.17	0.37	Fill of posthole located in interior of Structure 2.	Loose, dark yellow/brown, sandy clay fill, with occasional charcoal flecks and occasional larger stones, fill of posthole located in interior (along northern edge) of Structure 2, associated with other interior postholes (including C484, C84, C415, C280, C107 and C396) and numerous stakeholes.
C409	C413	0.08	0.05	0.06	Fill of stakehole.	Dark brown sandy clay with occasional charcoal forming fill of stakehole, (adjacent stakehole C414) within pit cut C170. Associated with four other stakeholes within pit cut C170: C414, C323, C282 and C281.
C410	C414	0.05	0.04	0.08	Fill of stakehole.	Dark brown grey sandy clay with occasional charcoal forming fill of stakehole (adjacent stakehole C413), within pit C170. Associated with four other stakeholes within pit, C170: C413, C323, C282 and C281.
C411	C417	1.4	1.4	0.15	Oval stony/metalled patch.	Oval stone spread/patch. Located to the north-east of the entrance features of structure 1.
C412	C424	0.8	0.6	0.1	Oval metalled surface.	Oval-shaped small stone spread/deposit set in shallow cut or natural hollow. Located directly east of the entrance of structure 1.
C413	N/A	0.08	0.05	0.06	Cut of stakehole.	Cut of stakehole (adjacent stakehole C414), within pit cut C170. Associated with four other stakeholes within the same pit C170: C323, 414, 282 and C281.
C414	N/A	0.05	0.04	0.08	Cut of stakehole.	Cut of stakehole (adjacent stakehole C413), within pit cut C170. Associated with four other stakeholes within the pit C170: C323, C281, C282 and C281.
C415	N/A	0.17	0.17	0.37	Posthole located in interior of Structure 2.	Cut of posthole located in interior (along northern edge) of Structure 2, associated with other interior postholes (including C484, C84, C415, C280, C107 and C396).

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C416	C418	0.09	0.07	0.07	Fill of stakehole in interior of structure 1.	Loose brown sandy clay fill of stakehole, containing very occasional charcoal flecks. Located in interior of structure 1, in south-south-western quadrant. Associated with a cluster of stakeholes in this area.
C417	N/A	1.4	1.4	0.15	Oval stony/metalled patch, located north-east of the entrance of structure 1.	Cut of small shallow circular depression (containing stone deposit/patch). Located to the north-east of the entrance of structure 1.
C418	N/A	0.09	0.07	0.09	Stakehole in interior of structure 1.	Cut of stakehole, located in SSW quadrant in interior of structure 1. Associated with a cluster of stakeholes in this area.
C419	C428	0.18	0.15	0.12	Fill of posthole adjacent to stone spread C142.	Fine-grained loose, dark brown sandy clay fill of posthole, with moderate charcoal. Associated with posthole C426/C423. Both located south-west of Structure 2 and on the verge of stone spread C142.
C420	N/A	2.12	0.95	0.06	Stone spread/ working surface.	Oval-shaped stone spread to south-east of large stone, spread C142.
C421	C422	0.08	0.05	0.2	Fill of stakehole.	Loose dark greyish brown sandy clay with frequent charcoal inclusions forming fill of triangular stakehole with rounded corners. Associated with other stakeholes immediately south-west of Structure 2.
C422	N/A	0.08	0.05	0.2	Cut of stakehole.	Cut of triangular stakehole with rounded corners. Associated with various stakeholes immediately south-west of Structure 2.
C423	C426	0.18	0.15	0.12	Fill of posthole adjacent to stone spread C142.	Loose, dark brown sandy clay fill of posthole, with moderate charcoal. Associated with posthole C419/C428. Both located south-west of Structure 2 and on the verge of stone spread C142.
C424	N/A	1.2	0.5	0.11	Oval metalled surface, located directly east of the entrance of structure 1.	Cut containing oval-shaped small stone spread/deposit C412. Located directly east of the entrance of structure 1.
C425	N/A	2.2	1.3	0.05	Cut/depression containing Irregular metalled surface.	Shallow cut or natural depression containing small irregular stone spread to the north-west of structure 1. Located north of stone spreads C221 and C22.
C426	N/A	0.18	0.15	0.12	Posthole adjacent to stone spread C142.	Cut of posthole. Associated with posthole C419/C428. Both located south-west of Structure 2 and on the verge of stone spread C142.
C427	N/A	3	0.75	0.4	Isolated pit.	Cut of shallow oblong feature, due west of C329/C337.
C428	N/A	0.18	0.15	0.12	Posthole adjacent to stone spread C142.	Cut of posthole. Associated with posthole C426/C423. Both located south-west of Structure 2 and on the verge of stone spread C142.
C429	C453	0.33	0.12	0.09	Fill of pocket under stone spread C18..	Fill of burnt pocket under stone spread C18. Associated with adjacent posthole C446/C445.
C430	C431	0.06	0.06	0.07	Fill of stakehole in Interior? of Structure 2.	Loose, brown, sandy clay fill, with frequent charcoal flecks, forming fill of stakehole. Associated with adjacent stakehole cut C433. Located in interior of Structure 2, southern half.
C431	N/A	0.06	0.06	0.07	Stakehole in Interior? of Structure 2.	Cut of stakehole located in interior (?) of Structure 2, southern half. Associated with adjacent stakehole cut C433.
C432	C433	0.07	0.07	0.05	Fill of stakehole in Interior? of Structure 2.	Loose, brown, silty clay fill, with frequent charcoal, forming fill of stakehole. Located in interior (?) of Structure 2, southern half. Associated with adjacent stakehole cut C431.

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C433	N/A	0.07	0.07	0.05	Stakehole in Interior? of Structure 2.	Cut of stakehole located in interior (?) of Structure 2, southern half. Associated with adjacent stakehole cut C431.
C434	N/A	N/A	0.5	0.25	Modern stone lined drain.	Straight-sided cut of modern stone-lined drain, traversing the site on a south-west-north-east axis.
C435	N/A	0.5	0.5	0.25	Circular metalled area due east of entrance of structure 1.	Cut of small shallow circular depression (filled with compacted stone deposit). Located due east of structure 1.
C436	C437	0.2	0.19	0.03	Fill of pit.	Dark/black sandy charcoal-rich fill of small circular pit containing a stone perforated object (possible spindle whorl: E3123:436:1). The pit was sealed below stone spread C221.
C437	N/A	0.2	0.19	0.03	Cut of pit.	Cut of small circular pit containing a stone perforated object (possible spindle whorl: E3123:436:1). The pit was sealed below stone spread C221.
C438	N/A	0.17	0.15	0.13	Posthole.	Cut of posthole, under stone layer C22.
C439	N/A	3.6	1.56	0.2	Cut or natural depression containing metalled surface south-east of Structure 2.	Cut/ or natural depression containing stone spread C22 and clay deposit C222.
C440	C441	0.1	0.08	0.17	Fill of stakehole along northern perimeter of Structure 2.	Loose, brown, sandy clay fill, with occasional charcoal flecks, forming fill of stakehole located along the northern perimeter of Structure 2. Located between possible shallow hearth C88 and perimeter pit of structure 1 C90.
C441	N/A	0.1	0.08	0.17	Stakehole along northern perimeter of Structure 2.	Cut of stakehole located along the northern perimeter of Structure 2. Located between possible shallow hearth c 088 and perimeter pit of structure 1 C90.
C442	C443	0.09	0.07	0.14	Fill of stakehole, associated with circular structure 2.	Dark brown grey sandy clay with occasional charcoal forming fill of stakehole. Associated with various stakeholes and pit C170 immediately south-west of Structure 2.
C443	N/A	0.09	0.07	0.14	Cut of stakehole, associated with circular structure 2.	Cut of stakehole. Associated with various stakeholes and pit C170 immediately south-west of Structure 2.
C444	N/A	0.82	0.49	0.01	Shallow cut containing small stone spread.	Shallow cut containing small stone spread. This feature truncated posthole C445/C446 and adjacent burnt pocket C453/C429.
C445	C446	ø 0.15	ø 0.15	~0.19	Fill of posthole.	Fill of posthole under stone spread C18. Associated with adjacent burnt pocket C453/C429.
C446	N/A	ø 0.15	ø 0.15	~0.19	Cut of posthole.	Cut of posthole under stone spread C18. Associated and adjacent burnt pocket C453/C429.
C447	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C448	C473	1.01	1.09	N/A	Fill of circular pit furnace.	Loose brown sandy clay forming upper fill of circular pit furnace which cuts through stone spread C221.
C449	C450	0.32	0.32	0.17	Fill of posthole - possibly related to circular pit furnace C473.	Loose dark brown silty sandy fill of posthole located in between stone spreads C221 and C22, close to small pit posthole cut C486 and circular furnace cut C473.
C450	N/A	0.2	0.32	0.17	Posthole - possibly related to circular pit furnace cut C473.	Cut of posthole located in between stone spreads C221 and C22, close to small pit posthole cut C486 and circular furnace cut C 473.

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C451	C462	2.28	1	0.1	Fill of pit located between structure 1 and stone spreads C22+C221.	Dark brown charcoal-rich silty sand within a large oval pit to the south-east of the entrance of structure 1. The southern extent of this context was covered by stone layer C22/C439.
C452	N/A	3.3	3.2	N/A	Possible cut or natural depression.	Possible cut or natural depression containing irregular stone spread C221 and its upper clay deposit C19. This stone spread is cut by a later circular furnace (C473) and circular pit C479/C469. The cut of the stone spread, in turn, cuts an earlier small pit containing a perforated stone object (E3123:436:1), C437 and a posthole C470/C466.
C453	N/A	0.33	0.12	0.09	Cut of burnt pocket.	Cut of burnt pocket under stone spread C18. Associated with adjacent posthole C446/C445.
C454	C455	0.17	0.16	0.2	Fill of posthole under metalled surface.	Fine-grained loose, brown fill of posthole under large stone layer C142.
C455	N/A	0.17	0.16	0.2	Posthole under metalled surface.	Cut of posthole under large stone layer C142.
C456	C457	0.23	0.14	0.18	Fill of posthole under metalled surface.	Fine-grained loose, brown clay sandy fill of posthole under large stone layer C142.
C457	N/A	0.23	0.14	0.28	Posthole under metalled surface.	Cut of posthole under large stone layer C142.
C458	N/A	0.05	0.05	0.11	Stakehole, along south-western perimeter of Structure 2.	Cut of stakehole on eastern edge of cut C195, along south-western perimeter of Structure 2.
C459	C460	0.17	0.13	0.18	Fill of posthole, along south-western perimeter of Structure 2.	Loose, dark greyish brown, sandy clay fill, with charcoal flecks, forming fill of posthole on eastern edge of cut C195, along south-western perimeter of Structure 2.
C460	N/A	0.17	0.13	0.18	Fill of posthole, along western perimeter of Structure 2.	Cut of posthole on eastern edge of cut C195, along south-western perimeter of Structure 2.
C461	C462	2.28	1	0.1	Fill of pit.	Stony fill within large oval pit to the south-east of the entrance of structure 1, the southern extent of this context was covered by stone layer C22.
C462	N/A	2.28	1	0.23	Cut of large oval pit.	Cut of large oval pit, the southern extent of this context was covered by stone layer C22.
C463	C464	0.19	0.11	0.17	Fill of posthole under metalled surface.	Fine-grained loose, dark brown clay sandy fill, with frequent charcoal, of posthole under large stone layer C142.
C464	N/A	0.19	0.11	0.17	Posthole under metalled surface.	Cut of posthole under large stone layer C142.
C465	N/A	0.84	0.8	0.12	Sterile deposit.	Sterile deposit of shallow sub-circular feature. Only very occasional tiny flecks of charcoal, no clear edge.
C466	C470	ø ~0.24	ø ~0.24	0.26	Fill of posthole under metalled floor.	Medium compact brown sandy fill (containing flecks of charcoal) of posthole, under stone layer C221. Located at the northern extent of cut C452.
C467	C458	0.05	0.05	0.11	Fill of stakehole, along south-western perimeter of Structure 2.	Loose, dark brown, sandy clay fill, with occasional charcoal flecks, forming fill of stakehole on eastern edge of cut C195, along south-western perimeter of Structure 2.
C468	C487	*c.* 12	1.47	0.31	Fill of linear ditch C487.	Medium-compact-soft brown/yellow fill, with occasional flecks of charcoal and occasional animal bone in linear ditch running north-south from northern baulk.
C469	C479	ø ~0.47	ø ~0.47	~0.34	Fill of small pit - possibly related to circular pit furnace cut C473.	Loose dark grey/brown silty sandy fill of posthole/pit, possibly cutting stone spread C221. A stakehole C481/C482 pierces the base of the cut.
C470	N/A	ø ~0.24	ø ~0.24	0.26	Posthole under metalled floor.	Cut of posthole, under stone layer C221. Located at the northern extent of cut C452.

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C471	C472	0.47	0.3	0.26	Fill of pit cutting through metalled surface.	Loose dark brown charcoal-rich sandy clay fill of pit cutting through irregular stone spread C225 (cut/natural depression C394). Associated with posthole C478/C477 which cuts through the same feature.
C472	N/A	0.47	0.3	0.26	Pit cutting through metalled surface.	Cut of pit which cuts through irregular stone spread C225. Associated with posthole C478 which also cuts through the same feature.
C473	N/A	1.01	1.09	0.25	Circular pit furnace.	Fire reddened cut of pit furnace which cuts through stone spread C221.
C474	C473	1.01	1.09	N/A	Fill of circular pit furnace.	Loose black charcoal-rich middle fill of a circular pit furnace which cuts through stone spread C221.
C475	C473	1.01	1.09	N/A	Fill of circular pit furnace.	Red baked clay forming lowest fill in a circular pit furnace, cutting through stone spread C221.
C476	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C477	C478	0.18	0.16	0.18	Fill of posthole cutting through metalled surface.	Dark brown charcoal-rich sandy fill of posthole cutting through irregular stone spread C225. Associated with pit C471/C472 which cuts through the same feature.
C478	N/A	0.18	0.16	0.18	Posthole cutting through metalled surface.	Cut of posthole which cuts through irregular stone spread C225 (cut/natural depression C394). Associated with pit C471/C472 which cuts through the same feature.
C479	N/A	ø ~ 0.47	ø ~ 0.47	~0.34	Small pit - possibly related to circular pit furnace cut C473.	Cut of small pit, possibly cutting through stone spread C221. A stakehole C481/C482 pierces the base of the cut.
C480	C394	0.86	0.72	0.01	Spread, loose grey sandy clay.	Loose, grey, charcoal-rich sandy clay fill (irregular spread) under stone spread/fill C225.
C481	C482	ø ~0.17	ø ~0.17	~0.5	Fill of stakehole in small pit.	Dark grey/brown silty sand fill of stakehole piercing the base of the posthole/pit feature, which possibly cuts stone spread C221.
C482	N/A	ø ~0.17	ø ~0.17	~0.5	Stakehole in small pit - possibly related to circular pit furnace cut C473.	Cut of stakehole piercing the base of the posthole/pit feature, which possibly cuts stone spread C221.
C483	C484	~0.14	~0.14	0.49	Fill of posthole located in interior of Structure 2.	Loose, dark greyish/brown, silty clay fill, with occasional charcoal flecks, fill of posthole located in interior (along northern perimeter) of Structure 2, associated with other interior postholes (including C84, C415, C280, C107 and C396) and numerous stakeholes.
C484	N/A	~0.14	~0.14	0.49	Posthole located in interior of Structure 2.	Cut of posthole located in interior (along northern perimeter) of Structure 2, associated with other interior postholes (including C84, C415, C280, C107 and C396) and numerous stakeholes.
C485	C486	0.21	0.17	0.11	Fill of posthole - possibly related to circular pit furnace cut C473.	Red burnt clay fill of posthole located in between stone spreads C221 and C22, close to posthole cut C450 and circular pit furnace cut C473.
C486	N/A	0.21	0.17	0.11	Posthole - possibly related to circular pit furnace cut C473.	Cut of small pit located in between stone spreads C221/C452 and C22/C439, close to posthole cut C 450 and circular pit furnace C 473.
C487	N/A	*c.* 12	1.47	0.31	Linear ditch.	Ditch cut running north-south from northern baulk.
C488	N/A	~0.81	~0.6	~0.02	Cut of pit/or natural depression.	Cut of pit/or natural depression filled with stone packing/spread along the eastern perimeter of structure 1, associated with cut C25.
C489	C490	~0.28	~0.28	0.32	Fill of posthole.	Fill of posthole cutting the base of pit cut C25, along the eastern perimeter of structure 1.

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C490	N/A	~0.28	~0.28	0.32	Cut of posthole.	Cut of posthole which cuts the base of pit C25 located along the eastern perimeter of structure 1.
C491	N/A	1.75	N/A	0.4	Small figure-of-eight-shaped kiln.	Cut of small a figure-of-eight-shaped kiln.
C492	C491	N/A	N/A	N/A	Fill of small figure-of-eight-shaped kiln.	Lower charcoal fill of a small figure-of-eight-shaped kiln. Associated with red baked spread C493 and pit cut C564 (which is filled by C563 and C567).
C493	N/A	2.8	1.8	0.28	Spread of red baked clay adjacent to small figure-of-eight-shaped kiln (cut C491).	Irregular spread of compact red baked clay. This spread of burnt clay is covered by another spread of moderately loose brown-grey silt. Both spreads are cut by pit cut C564 (filled by C567 and C563).
C494	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C495	C497	1.28	0.7	0.18	Fill of oval pit furnace.	Black charcoal-rich, medium compact, sandy fill of oval pit furnace.
C496	C549	5	1.3	0.25	Burnt irregular spread.	Brown silty clay (with occasional charcoal) upper fill of irregular spread/feature, cutting linear ditch C397/C398.
C497	N/A	1.28	0.7	0.18	Cut of oval pit furnace.	Cut of oval pit furnace, break of slope at top not perceptible on west side, sharp on east side. Gradual break of slope at base.
C498	C497	1.28	0.7	0.09	Fill of pit furnace.	Compact red burnt clay constituting the lower fill or lining, or possible burning of cut itself, of oval pit furnace.
C499	C548	0.54	0.24	0.1	Fill of shallow oval pit.	Soft brown-grey silty sand with very occasional charcoal flecks forming fill of shallow oval pit.
C500	N/A	~2.90	~1.50	0.28	Spread/patch of sterile ash over red baked clay spread.	Irregular spread of moderately loose brown-grey silty ash. This burnt clay covers an irregular spread of compact red baked clay. Both spreads are cut by pit cut C564 (filled by C567 and C563).
C501	C502	0.45	0.4	0.19	Fill of pit / large posthole in interior of ring-ditch.	Soft mid-brown sandy clay fill of pit/posthole in interior of ring-ditch. Contains pebbles (~20%) and occasional charcoal.
C502	N/A	0.45	0.4	0.19	Pit or large posthole in interior of ring-ditch.	Cut of oval pit/posthole. Break of slope at top sharp, tapers to a flat base.
C503	N/A	External diameter of *c.* 16.5	4	1.3	Cut of ring-ditch.	Cut of ring-ditch. Sharp break of slope at top with curving base. Rock-cut at base along the eastern arc of the ring-ditch.
C504	C503	External diameter of *c.* 16.5m	3	1	Upper fill of ring-ditch. Disturbed fill (especially to NNE).	Loose, medium-brown silt with inclusions of pebbles, flecks of charcoal, bone fragments and pieces of iron slag, forming the upper fill of ring-ditch.
C505	C503	External diameter of *c.* 16.5m	1.62	0.5	Stony fill of ring-ditch.	Stone packing/concentration in ring-ditch forming a stony seam midway through the fill of the ring-ditch. This fill consists of large stones set in a loose brown silt containing flecks of charcoal and animal bone. The stony seam seems to represent the lowest fill within a secondary cut in the ditch.
C506	N/A	0.56	0.55	0.49	Large posthole in interior of ring-ditch.	Cut of large posthole in interior of ring-ditch. Tapers to a flat narrow base.

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C507	C503	N/A	2	0.5	Primary/lowest fill of ring-ditch.	Lower fill of ring-ditch. Loose grey-brown sandy silt with occasional inclusions of stone, large flecks of charcoal, frequent large animal bone, horn and antler.
C508	C506	0.56	0.55	0.49	Fill of large posthole in interior of ring-ditch.	Compact light grey-brown sandy silt fill of large posthole in the interior of ring-ditch. Also contains inclusions of stone, flecks of charcoal and red burnt clay.
C509	C515	0.6	0.44	0.41	Fill of pit or posthole in interior of ring-ditch.	Loose dark brown clay silt with inclusions of stones, pebbles and some flecks of charcoal, forming the fill of an oval pit/posthole.
C510	N/A	16.4	1.3	0.5	Curving narrow ditch which cuts the upper portions of the ring-ditch.	Cut of curving narrow ditch which cuts upper portions of ring-ditch. Sharp break of slope at top, gradual and curving at base, smooth sides and concave base. This context also connects with (and equates to) ditch C536/C538. This ditch also cuts the wider linear ditch C528/C529 = C539/C540.
C511	N/A	~2	1	0.29	Narrow linear gully.	Cut of linear gully/ditch which cuts ditch C510/C513. Break of slope at top sharp, at base sharp to the north and gradual to the south. Vertical sides, base flat.
C512	C516	2.76	0.63	0.15	Irregular linear to north-west of ring-ditch.	Medium soft black/brown - black/red sandy clay with occasional inclusions of stones, heat cracked stones and charcoal, forming fill of shallow, irregular, linear feature to the north-west of the ring-ditch.
C513	N/A	N/A	N/A	N/A	N/A	Same as C538.
C514	N/A	1.5	0.8	0.1	Charcoal-rich patch in upper fill of ring-ditch.	Oval spread/patch consisting of loose, grey-black silt with inclusions of charcoal flecks (>50%) and bone fragments, visible in surface of C504 in ring-ditch.
C515	N/A	0.6	0.44	0.41	Pit or posthole in interior of ring-ditch.	Cut of oval pit/posthole. Break of slope sharp at top with vertical sides and flat base.
C516	N/A	2.76	0.63	0.15	Irregular linear to north-west of ring-ditch.	Cut of shallow, irregular, linear feature to north-west of ring-ditch. Break of slope moderately sharp at top, gradual at base with rounded angles.
C517	C503	N/A	0.8	0.5	Ring-ditch fill.	Stone concentration in ring-ditch. Loose mid-brown silt with inclusions of compacted pebbles, flecks of charcoal and bone fragments. Similar to C505 but with smaller more concentrated stone packing. Only noted in eastern sector of ring-ditch.
C518	N/A	9.75	0.56	0.13	Cut of furrow to north of ring-ditch.	Cut of linear furrow/ditch cutting upper context of ring-ditch. Break of slope gradual at both top and base, sides and base concave.
C519	C518	9.75	0.55	0.13	Fill of furrow.	Loose red-brown sandy clay with inclusions of charcoal, pebbles and pieces of natural chert, forming fill of linear furrow/ditch cutting upper context of ring-ditch.
C520	C503	N/A	2	0.5	Fill of ring-ditch.	Lower fill of ring-ditch. Loose grey-brown sandy silt with occasional inclusions of pebbles, compacted stone, flecks of charcoal and bone fragments.
C521	N/A	N/A	0.9	1.3	Secondary cut in ring-ditch.	Secondary cut of ring-ditch, interior edge.
C522	C534	~2.56	~1.08	~1.1	Primary fill of ring-ditch.	Primary fill of ring-ditch along interior edge, possibly representing slump from interior bank. Compact, hard light-brown silty sand with moderate inclusions of small stone and occasional charcoal.
C523	C638=C528 =C540	N/A	N/A	N/A	Fill of wide linear cutting ring-ditch.	Sterile yellow fill along the northern side of cut of the wide ditch cutting/bisecting the ring-ditch on an east-west axis (C638=C528=C540). Cuts through stony fill of ring-ditch C505.

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C524	C541	1.65	1.5	0.23	Fill of shallow pit to the east of ring-ditch.	Stone packing in irregular shallow pit, located to east of the ring-ditch. Compacted stones set in mid-brown silt containing occasional flecks of charcoal.
C525	C503	N/A	N/A	0.8	Primary fill of the ring-ditch.	Primary fill, lining cut C503 on the exterior side of the ring-ditch. Hard compact light grey-brown silt with inclusions of small stones and charcoal.
C526	C503	≥0.48	~0.3	~ 0.34	Ring-ditch fill.	Medium compact, mid-brown clay patch belowC504.
C527	C541	5.5	3.5	0.2	Fill of shallow pit to the east of ring-ditch.	Dark brown sand clay, containing charcoal and bone, fill of irregular shallow pit, located to east of the ring-ditch.
C528	N/A	N/A	N/A	N/A	N/A	Same as C540.
C529	C638=C528 =C540	>20m	3.9	0.9	Fill of wide linear cutting ring-ditch.	Light brown/yellow silty clay, with occasional charcoal, forming fill of wide ditch cutting/bisecting the ring-ditch on an east-west axis. Cuts through stone fill of ring-ditch C505 along the eastern arc of the ring-ditch.
C530	C511	~2	1	0.29	Fill of narrow linear gully.	Dark brown sandy silt, containing frequent stone, occasional charcoal and burnt bone, forming fill of linear gully/ditch which cuts ditch C510/C513.
C531	C532	2	0.4	0.12	Fill of linear gully.	Loose grey/brown silty sand, containing high frequency of stone inclusions, forming fill of small linear drain cutting eastern extension of wide linear (fills C529 =C539). Containing slag and animal bone.
C532	N/A	N/A	0.4	0.12	Narrow linear gully.	Cut of small concave linear drain cutting eastern extension of wide linear (fills C529 =C539).
C533	C638=C528 =C540	>20	1.83	0.54	Fill of wide linear cutting ring-ditch.	Medium compact, mid brown, silty clay with flecks of charcoal. Fill of the wide ditch cutting/bisecting the ring-ditch on an east-west axis. This fill is only found where the wide ditch cuts the ring-ditch on its western side.
C534	N/A	N/A	1.2	1.4	Secondary cut in ring-ditch.	Secondary cut of ring-ditch, exterior edge.
C535	C638=C528 =C540	N/A	N/A	N/A	Fill of wide linear cutting ring-ditch.	Stony packing in wide ditch cutting/bisecting the ring-ditch on an east-west axis (C638=C528=C540). Cuts through stony fill of ring-ditch C505.
C536	N/A	N/A	N/A	N/A	N/A	Same as C510.
C537	510 = 536	18	0.5	0.48	Fill of curving narrow ditch which cuts the upper portions of the ring-ditch.	Stony fill of narrow ditch which cuts upper portions and interior of ring-ditch. This context also connects with (and equates to) ditch C510/C513. This ditch also cuts the wider linear ditch C528/C529 = C539/C540.
C538	C510 = C536	18	1.43	0.48	Fill of curving narrow ditch which cuts the upper portions of the ring-ditch.	Compact yellow-brown clay with inclusions of stone, pebbles, chert, flecks of charcoal and bone fragments forming fill of curving narrow ditch which cuts upper portions of ring-ditch. This context also connects with (and equates to) ditch C510/C513. This ditch also cuts the wider linear ditch C528/C529 = C539/C540.
C539	N/A	N/A	N/A	N/A	N/A	Same as C529.
C540	N/A	N/A	3	0.7	Cut of wide linear cutting ring-ditch.	Cut of wide linear ditch, running east-west through the ring-ditch. This ditch cuts through the ring-ditch, cutting its stony fill C505.
C541	N/A	2.95	2.4	0.3	Shallow pit to the east of ring-ditch.	Cut of shallow pit to east of ring-ditch with gently sloping sides and flat/irregular base.
C542	C543	4	0.79	0.18	Fill of narrow linear gully.	Dark brown silty sand fill of linear feature, cut by linear gully (C532/C531).

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C543	N/A	5	0.79	0.18	Narrow linear gully.	Cut of narrow linear feature to east of ring-ditch, cut by linear gully (C532/C531).
C544	C543	5	0.6	0.15	Fill of narrow linear gully.	Compacted stony layer in narrow linear feature to east of ring-ditch, cut by linear gully (C532/C531).
C545	C503	2.3	1.1	0.2	Ring-ditch fill with burnt bone.	Concentration of burnt bone and charcoal in dark grey brown silt, in western section of ring-ditch (not disturbed by C504 in this area).
C546	C503	2.1	1.75	0.2	Ring-ditch fill.	Yellow/brown-grey/brown silty clay, containing occasional charcoal flecks forming a middle fill of ring-ditch.
C547	C503	N/A	1.45	0.5	Ring-ditch fill.	Medium compact, brown silty clay with small stone inclusions forming middle fill of ring-ditch.
C548	N/A	0.54	0.24	0.1	Cut of shallow oval pit.	Cut of shallow oval pit.
C549	N/A	5.5	1.5	0.7	Cut of burnt irregular spread.	Cut of irregular burnt spread/feature, cutting linear ditch C397/C398.
C550	C497	1.28	0.7	0.18	Fill of pit furnace.	Brown fine-grained sandy clay, with frequent charcoal, forming fill of oval pit furnace.
C551	C552	0.32	0.29	0.14	Fill of pit or posthole in interior of ring-ditch.	Dark brown sandy clay fill, with moderate charcoal, of pit/posthole in interior southern quadrant of ring-ditch.
C552	N/A	0.32	0.29	0.14	Pit or posthole in interior of ring-ditch.	U-shaped cut of posthole in interior southern quadrant of ring-ditch.
C553	C555	0.7	N/A	0.24	Fill of pit furnace due south of ring-ditch.	Brown/orange/red baked clay with a high degree of charcoal forming the uppermost fill of burnt pit.
C554	C555	0.55	0.48	0.2	Fill of pit furnace due south of ring-ditch.	Dark brown/red sandy clay forming the lower fill of burnt pit.
C555	N/A	1m	N/A	N/A	Cut of pit furnace due south of ring-ditch.	Concave cut of burnt pit.
C556	C555	0.18	0.16	0.11	Fill of pit furnace due south of ring-ditch.	Dark/black charcoal-rich, medium sand, upper fill of burnt pit.
C557	C549	1.7	0.7	0.4	Burnt irregular spread / fill.	Red/orange and black burnt fill of irregular spread/feature, cutting linear ditch C397/C398.
C558	C503	4	0.4	0.4	Ring-ditch fill.	Medium compact mid-brown clay patch constituting a fill of the ring-ditch below C505.
C559	C555	N/A	N/A	N/A	Fill of pit furnace due south of ring-ditch.	Dark red/orange/brown clay sand with frequent charcoal forming the lower fill of burnt pit.
C560	C561	N/A	0.75	0.29	Fill of narrow linear feature.	Medium compact, mid-brown, with very occasional charcoal flecks, sandy clay, forming fill of linear feature, possibly modern agricultural furrow, north-east-south-west axis.
C561	N/A	N/A	0.75	0.29	Narrow linear feature.	Cut of linear feature, possibly modern agricultural furrow.
C562	C549	4.1	1.05	0.5	Burnt irregular spread / fill.	Yellow/grey and light brown silty fill of irregular spread/feature, cutting linear ditch C397/C398.
C563	C564	0.57	0.56	0.2	Fill of burnt pit related to kiln C491.	Loose grey/brown silt with moderate charcoal forming the upper fill of burnt pit. The pit cuts an irregular spread of compact red clay (in turn covered moderately loose brown-grey silt C500).
C564	N/A	0.57	0.56	0.2	This burnt pit is directly related to the small kiln nearby (cut C491).	Cut of circular pit. Cutting sterile spread C500 and a spread of red baked clay C493.
C565	N/A	18.5	2.5	0.4	Wide shallow linear ditch, running south from ring-ditch.	Cut of wide shallow linear ditch, running south from ring-ditch, also cutting posthole (C581/C580).

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C566	C565	18.5	2.5	0.4	Fill of wide shallow linear ditch, running south from ring-ditch.	Medium compact, mid-brown, fine grained sandy clay, forming fill of wide shallow linear ditch, running south from ring-ditch, fill covers truncated posthole (C581/C580).
C567	C564	0.3	0.3	0.1	Fill of burnt pit.	Compact burnt red clay representing the lowest fill of a burnt pit. The pit cuts irregular spread of compact red clay (in turn covered moderately loose brown-grey silt C500).
C568	C569	4.1	0.33	0.1	Fill of narrow linear furrow.	Medium compact, light brown silt, with occasional stone inclusions, forming fill of narrow furrow.
C569	N/A	4.1	0.33	0.1	Narrow linear furrow.	Concave cut of shallow furrow.
C570	N/A	1.7	1	0.2	Patch of burnt material adjacent to kiln C491).	Charcoal spread/patch, cut by pit C564.
C571	C572	N/A	0.77	0.15	Fill of linear ditch running north-south.	Medium compact, light brown fine grained sandy fill of linear ditch, running north-south, parallel to wide ditch (C566/C565), to south of ring-ditch. Cutting ditches C587/C586 and C619/C620.
C572	N/A	N/A	0.77	0.15	Linear ditch running north-south.	Concave cut of linear ditch, running north-south, parallel to wide ditch (C566/C565), to south of ring-ditch. Cutting ditches C587/C586 and C619/C620.
C573	C574	0.55	0.37	0.25	Fill of small burnt pit.	Charcoal-rich dark brown sandy clay forming fill of small burnt pit, associated with similar small pit/possibly a posthole (C576/fill C575).
C574	N/A	0.55	0.37	0.25	Cut of small burnt pit.	Cut of small burnt pit, associated with similar small pit/possibly a posthole (C576/fill C575).
C575	C576	0.36	0.3	0.16	Fill of a small pit/or possible posthole.	Light brown sandy clay with occasional flecks of charcoal, forming the main fill of a small pit/or possible posthole. Associated with similar small pit/possible posthole (C574/fill C573) and other small pits/possible postholes, in an area truncated and disturbed by a range of narrow linear furrows and drainage ditches.
C576	N/A	0.36	0.3	0.16	Cut of small pit/or possible posthole .	Cut of small pit/or possible posthole, associated with similar small pit/possible posthole (C574/fill C573).
C577	C578	3.6	0.42	0.13	Fill of narrow linear furrow.	Medium compact, brown sandy clay, with very occasional charcoal, forming fill of narrow linear furrow. Associated with other small pits/possible postholes in an area truncated and disturbed by a range of narrow linear furrows and drainage ditches.
C578	N/A	3.6	0.42	0.13	Narrow linear furrow.	Cut of narrow linear furrow, associated with other small pits/possible postholes, in an area truncated and disturbed by a range of narrow linear furrows and drainage ditches.
C579	C580	0.1	N/A	0.12	Fill of stakehole.	Compact, light brown, silty clay fill of stakehole in area disturbed by range of narrow linear furrows and drainage ditches.
C580	N/A	0.1	N/A	0.12	Stakehole.	Cut of stakehole in area disturbed by range of narrow linear furrows and drainage ditches.
C581	N/A	0.1	0.06	0.12	Cut of posthole.	Cut of posthole, truncated by wide linear ditch running south from ring-ditch (C565/fill C566).
C582	C581	0.1	0.06	0.12	Fill of posthole.	Dark brown/reddish clay, with some charcoal, forming the fill of a posthole, truncated by wide linear ditch running north-south from ring-ditch (C565/fill C566).

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C583	N/A	N/A	N/A	N/A	N/A	Same as C655.
C584	N/A	35	3	1	Cut of early medieval field/land division ditch running east-west.	Cut of possible early medieval field/land division ditch running east-west. Truncated by similar field/land division ditch running NNW-SSE. Sharp, steep sided, flat base becoming V-sectioned to east.
C585	C611=C584	*c.*19	*c.* 2	0.4	Fill of early medieval field/land division ditch (cut C584) running east-west.	Upper fill of early medieval field/land division ditch (cut C584) running east-west. Fill located east of the low wall (C654) which blocks this western field division ditch.
C586	C587	*c.* 17.5	3	0.5	Fill of linear ditch running east-west.	Medium compact, mid-brown, sandy clay, forming fill of wide linear feature, running east-west to south of ring-ditch.
C587	N/A	*c.* 17.5	3	0.5	Linear ditch running east-west.	Cut of wide linear feature running east-west.
C588	C589	1.75	1.4	0.3	Fill of shallow sterile irregular pit.	Compact brownish grey silty sand with occasional flecks of charcoal, forming the fill of a shallow irregular pit (possibly just a fill accumulated in natural depression).
C589	N/A	1.75	1.4	0.3	Shallow sterile irregular pit.	Cut of shallow irregular pit (possibly just a fill accumulated in natural depression).
C590	C591	25m	0.75	0.29	Fill of possible irrigation ditch.	Brown medium compact silty sand fill of narrow shallow modern ditch in area of early medieval field/land division ditches.
C591	N/A	25m	0.75	0.29	Possible irrigation ditch.	Convex cut of shallow narrow modern ditch in area of early medieval field/land division ditches.
C592	C593	N/A	1	0.3	Fill of shallow linear drainage ditch.	Medium compact, dark brown, occasional stone inclusions, sandy clay, forming fill of shallow linear drainage ditch, east-west axis, associated with numerous narrow linear furrows and drainage ditches in the wider area.
C593	N/A	N/A	1	0.3	Narrow shallow linear drainage ditch.	Cut of shallow drainage ditch linear f associated with numerous narrow linear furrows and drainage ditches in the wider area.
C594	C595	N/A	0.56	0.27	Fill of linear furrow.	Medium compact, brown clay silt, with medium small stone inclusions, forming fill of narrow linear furrow, parallel to ditch C593, associated with numerous narrow linear furrows and drainage ditches in the wider area.
C595	N/A	N/A	0.56	0.27	Narrow linear furrow.	Concave cut of narrow linear furrow, parallel to C593, associated with numerous narrow linear furrows and drainage ditches in the wider area.
C596	N/A	2.6	1.1	0.3	Figure-of-eight-shaped kiln.	Cut of a figure-of-eight-shaped kiln, located to the north of the early medieval land division ditches.
C597	C596	0.9	1.1	0.2	Fill of figure-of-eight-shaped kiln	Firm, brown, fine-grained silty sand with occasional charcoal, stones and animal bones, forming an upper fill of a figure-of-eight-shaped kiln.
C598	C611=C584	7.3	1.2	0.3	Fill of early medieval field/land division ditch (cut C584) running east-west.	Dark brown silty sand forming fill of early medieval field/land division ditch (cut C584) running east-west. Fill located east of the low wall (C654) blocking this western field division ditch. The fill contained a quantity of animal bone.
C599	N/A	N/A	N/A	N/A	N/A	N/A
C600	C601	0.5	0.39	0.09	Fill of pit furnace.	Charcoal-rich fill of small pit containing a high quantity of black slag.
C601	C601	0.5	0.39	0.09	Cut of pit furnace.	Cut of small pit containing a high quantity of black slag.

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C602	N/A	0.6	0.39	0.03	Charcoal spread.	Soft greyish brown silt with a high concentration of charcoal, forming a spread/lens.
C603	C611=C584	15	0.6	0.05	Fill of early medieval field/land division ditch (cut C584) running east-west.	Red/brown charcoal-rich lens forming a middle fill of early medieval field/land division ditch (C584) running east-west. Fill located east of the low wall (C654) blocking this western field division ditch (C584). The fill contained a quantity of animal bone.
C604	N/A	0.56	0.21	0.05	Cut of burnt pit.	Cut of burnt pit (to north of field/land division ditch).
C605	C604	0.56	0.21	0.05	Fill of burnt pit.	Reddish lower fill of burnt pit (to north of land/field division ditch).
C606	C601	0.5	0.39	0.03	Fill of pit furnace.	Red burnt clay fill of small pit containing a high quantity of slag.
C607	C604	0.56	0.71	0.1	Fill of pit.	Brownish/red upper fill of burnt feature (to north of land/field division ditch).
C608	N/A	0.15	0.1	0.08	Pocket of charcoal, associated with circular pit furnace C601.	Pocket of charcoal near pit with high concentration of black slag (C601).
C609	C610	1.3	0.38	0.18	Fill of pit, associated with circular pit furnace containing black slag.	Loose light black/Brown/reddish silty clay fill, with moderate charcoal flecks, of burnt pit to west of pit containing a high concentration of black slag (C601).
C610	N/A	1.3	0.38	0.18	Cut of pit, associated with circular pit furnace C601.	Irregular concave cut of burnt small pit located directly west of pit containing a high concentration of black slag (C601).
C611	N/A	N/A	N/A	N/A	N/A	Same as C584.
C612	C611=C584	*c.* 13.5	2.2	0.8	Fill of early medieval field/land division ditch (C584) running east-west.	Mid-brown silty sand with occasional charcoal forming middle fill of possible early medieval field/land division ditch (C584) running east-west. Fill located east of the low wall (C654) blocking this western field division ditch. The fill contained a quantity of animal bone.
C613	N/A	0.15	0.2	0.05	Cut of charcoal pocket.	Cut of charcoal pocket, located immediately north of linear ditch C590/C591.
C614	C613	0.15	0.2	0.05	Pocket of charcoal.	Fill of charcoal pocket, located immediately north of linear ditch C590/C591.
C615	C611=C584	2	0.8	0.1	Fill of early medieval field/land division ditch (cut C584) running east-west.	Red/brown charcoal-rich lens forming middle fill of possible early medieval field/land division ditch (C584) running east-west. Fill located due west of the low wall (C654) blocking this western field division ditch. The fill contained a quantity of animal bone.
C616	C611=C584	34	1.2	0.7	Fill of early medieval field/land division ditch (cut C584) running east-west.	Red/brown charcoal-rich lower fill of possible early medieval field/land division ditch (cut C584) running east-west. Fill located due east of the low wall (C654) blocking this western field division ditch. The fill contained a quantity of animal bone.
C617	C631	2.85	0.53	0.31	Fill of furnace pit.	Baked red clay fill of elongated burnt feature, possibly a small furnace.
C618	C621	1.5	1.6	0.08	Fill of shallow pit south of land/field division ditch.	Light brown/yellow fill of shallow pit containing animal bone, located south of land division ditch cut C584.
C619	C620	~8	0.9	0.3	Fill of linear ditch running east-west.	Medium compact, mid-brown, sandy clay, with occasional flecks of charcoal, forming fill of linear ditch running east-west from C510/C513. Located due south of ring-ditch. Contained flecks of charcoal.
C620	N/A	~8	0.9	0.3	Linear ditch running east-west.	Cut of linear ditch running east-west from C510/C513. Located due south of ring-ditch.
C621	N/A	1.5	1.6	0.08	Shallow pit south of land/field division ditch.	Cut shallow pit located south of land division ditch cut C584.

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C622	C596	1.1	0.68	0.2	Fill of figure-of-eight-shaped kiln.	Firm, fine-grained sand, dark brown charcoal-rich stony upper fill of a figure-of-eight-shaped kiln.
C623	C596	1.28	1.1	0.12	Fill of figure-of-eight-shaped kiln.	Brown/red charcoal-rich stony lower fill of a figure-of-eight-shaped kiln.
C624	C596	0.84	1.1	0.1	Fill of figure-of-eight-shaped kiln.	Dark brown charcoal-rich middle fill of a figure-of-eight-shaped kiln.
C625	C596	0.9	0.6	0.8	Fill of figure-of-eight-shaped kiln	Firm, dark greyish brown fine-grained silty sand with red flecks of baked clay, and moderate charcoal, numerous stones and animal bones, forming an upper fill of a figure-of-eight-shaped kiln.
C626	N/A	2	1.3	0.1	Natural or modern agricultural feature.	Cut containing concentration of compacted stones which might constitute a natural feature.
C627	C626	2	1.3	0.1	Natural or modern agricultural feature.	Concentration of compacted stones within pit which might constitute a natural feature i.e. field clearance.
C628	C629	0.5	1.5	0.3	Fill of small oval pit.	Charcoal-rich sandy clay fill of small oval pit containing worked chert E3123:628:1.
C629	N/A	0.5	1.5	0.3	Cut of small oval pit.	Cut of small oval pit.
C630	C632	1.04	1m	0.7	Fill of circular pit furnace.	Dark brown silty sand, with frequent large charcoal inclusions, forming the upper fill of shallow circular fired pit/furnace.
C631	N/A	2.85	0.53	0.31	Cut of irregular furnace pit.	Cut of irregular elongated burnt feature, possibly a small furnace.
C632	N/A	1.1	~0.97	0.15	Circular pit furnace.	Shallow convex cut of circular fired pit/furnace.
C633	C632	0.97	~1m	0.13	Fill of circular pit furnace.	Black charcoal-rich silty clay forming the middle fill of shallow circular fired pit/furnace.
C634	C632	0.68	~0.57	0.05	Fill of circular pit furnace.	Red baked lower fill lining cut of shallow circular fired pit/furnace.
C635	C611=C584	2	0.6	0.2	Fill of early medieval field/land division ditch (cut 584) running east-west.	Grey silty sandy comprising middle fill of possible early medieval field/land division ditch (cut C584) running east-west. Fill located east of the low wall (C654) blocking this east-west aligned field division ditch (cut C584).
C636	C637	8.6	0.96	0.27	Fill of linear ditch	Dark brown silty sand with occasional charcoal flecks and animal bone, forming fill of shallow linear ditch, running north-south from northern baulk of site, peters out at *c.* 8.6m south of the northern baulk.
C637	N/A	8.6	0.96	0.27	Linear ditch	Cut of linear ditch running north-south from northern baulk of site.
C638	N/A	N/A	N/A	N/A	Same as C540.	Same as C540.
C639	N/A	N/A	N/A	N/A	N/A	Non-archaeological.
C640	N/A	N/A	N/A	N/A	Same as C585.	Same as C585.
C641	C584=C611	7	0.90	0.3	Fill of early medieval field/land division ditch (cut C584) running east-west.	Compact yellow brown silty sand with occasional pebbles forming fill of possible early medieval field/land division ditch (cut C584) running east-west. Fill located east of the low wall (C654) blocking this western field division ditch (cut C584). The fill contained a quantity of animal bone.
C642	C643	2.96	0.43	0.16	Fill of shallow pit.	Brownish grey silty fill of shallow depression immediately north of land/field division ditch. Containing burnt bone.

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C643	N/A	2.96	0.43	0.16	Shallow pit	Cut of shallow depression immediately north of field/land division ditch.
C644	C584=C611	1	0.88	0.3	Fill of early medieval field/land division ditch (C584) running east-west.	Dark grey silty upper fill of early medieval field/land division ditch, section located at easternmost extent of ditch where it becomes shallow. Fill contains burnt bone.
C645	C584=C611	0.5	0.26	0.12	Fill of early medieval field/land division ditch (C584) running east-west.	Greyish/brown silty upper fill of possible early medieval field/land division ditch, running east-west; section located at easternmost extent of ditch where it becomes shallow. Fill contains burnt bone.
C646	C584=C611	8	1.3	0.4	Fill of early medieval field/land division ditch (C584) running east-west.	Brown/yellow silty upper fill of early medieval field/land division ditch running east-west, section located at easternmost extent of ditch where it becomes shallow.
C647	C648	1.26	1.18	0.29	Fill of shallow pit.	Fill of shallow depression immediately north of land division ditch. Containing bone.
C648	N/A	1.26	1.18	0.3	Shallow pit.	Cut of shallow depression immediately north of land division ditch.
C649	C584=C611	2	2.8	0.6	Fill of early medieval field/land division ditch (cut C584) running east-west.	Medium compact yellow brown silty sand with occasional stone inclusions forming the middle fill of early medieval field/land division ditch (C584) running NNW-SSE. Fill located west of the low wall (C654) blocking the east-west aligned field division ditch (C584). The fill contained a quantity of animal bone.
C650	584=611	3.6	1.2	0.35	Fill of early medieval field/land division ditch (C584) running east-west.	Light brown silty upper fill of early medieval ditch, running east-west; section located at easternmost extent of ditch where it becomes shallow.
C651	C584=C611	2.6	1	0.3	Fill of early medieval field/land division ditch (C584) running east-west.	Light brown silty sand forming lowest fill of early medieval field/land division ditch, running east-west; section located at easternmost extent of ditch where it becomes shallow.
C652	C584=C611	1.2	1.5	0.25	Fill of early medieval field/land division ditch (C584) running east-west.	Mid brown/grey silty sand forming the lower fill of early medieval field/land division ditch (C584) running east-west. Fill located directly east of the low wall (C654) blocking this western field division ditch.
C653	C656	>31	3.25	0.7	Fill of possible early medieval field/land division.	Mid grey silty sand with large stone inclusions forming upper fill of ditch (cut C656) running NNW-SSE. Fill located west of the low wall (C654) blocking the western field division ditch (cut C584). This fill contained a high quantity of animal bone.
C654	N/A	2.2	0.3	0.4	Stone wall in early medieval field/land division.	Low stone wall comprised of two tiers of masonry, blocking the eastern field division ditch (cut C584). The wall essentially flanks ditch cut C656, running NNW-SSE, which cuts ditch cut C584.
C655	C656	3.5	3.5	0.8	Fill of possible early medieval field/land division.	Mid/dark brown silty clay with large stone inclusions forming the upper fill of ditch running NNW-SSE. Fill located west of the low wall (C654) blocking the eastern field division ditch (cut C584).
C656	N/A	>35	3.5	1	Early medieval field/land division.	U-shaped cut of ditch running NNW-SSE. Cutting ditch cut C584 which runs on an east-west axis.
C657	C656	>35	2m	0.4	Fill of possible early medieval field/land division.	Mid grey silty sand with occasional pebbles and large stone inclusions forming lower fill of ditch running NNW-SSE i.e. ditch running west of the low wall (C654) blocking the eastern field division ditch (cut C584). Containing high quantity of animal bone.
C658	C656	1.5	1	0.3	Fill of possible early medieval field/land division.	Stone concentration in ditch running NNW-SSE. Fill located to the north-west of the low wall (C654) blocking the western field division ditch (cut C584).

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description
C659	C656	~2	~2	~0.25	Fill of possible early medieval field/land division.	Stone concentration in ditch running NNW-SSE. Fill located to the south-west of the low wall (C654) blocking the western field division ditch (cut C584).
C660	C656	2.7	~0.35	0.48	Stone wall in early medieval field/land division.	Grey brown sandy soil bonding stones of wall C654, in ditch cut C656.

Appendix 1.2 Catalogue of Artefacts

Registration Number	Context	Item No.	Simple Name	Full Name	Material	No. of Parts	Description
E3123:1:1	1	1	Metal	Base fragment of modern pot or dish.	Iron	1	Base fragment of modern pot or dish.
E3123:1:3	1	3	Flint	Flint Arrowhead	Flint	1	Fresh arrowhead modified.
E3123:1:4	1	4	Chert flake	Chert platform flake	Chert	1	Abraded, complete, platform flake
E3123:1:5	1	5	Flint flake	Flint flake	Flint	1	Fresh, complete, platform flake
E3123:1:6	1	6	Chert	Chert scraper: distal frag	Chert	1	Abraded, Scraper: distal frag, modified
E3123:1:7a	1	7a	Chert blade	Chert bipolar blade	Chert	1	Fresh, complete, bipolar blade
E3123:1:7b	1	7b	Chert angular shatter	Chert angular shatter	Chert	1	Fresh, angular shatter, angular shatter
E3123:1:8	1	8	Flint bipolar blade	Flint bipolar blade	Flint	1	Fresh, complete, bipolar blade
E3123:1:9	1	9	Flint angular shatter	Flint angular shatter	Flint	1	Burnt, angular shatter, angular shatter
E3123:1:10	1	10	Pottery	Bodysherds of Leinster cooking ware.	Pottery	1	Bodysherds of Leinster cooking ware.
E3123:1:11	1	11	Flint flake	Flint bipolar flake	Flint	1	Fresh, complete, bipolar flake
E3123:1:12	1	12	Flint platform shatter	Flint fragment.	Flint	1	Burnt, indeterminate frag, platform shatter
E3123:1:14	1	14	Chert flake	Chert bipolar flake	Chert	1	Abraded, complete, bipolar flake
E3123:1:15	1	15	Chert platform shatter	Chert indeterminate frag	Chert	1	Abraded, Indeterminate frag, platform shatter
E3123:1:17	1	17	Flint bipolar shatter	Flint fragment	Flint	1	Fresh, Medial fragment, bipolar shatter
E3123:1:18	1	18	Pottery	Body fragment of black glazed earthenware. 18th–19th century.	Pottery	1	Body fragment of black glazed earthenware. 18th–19th century.
E3123:3:1	3	1	Stone	Small mortar or grinding stone.	Sedimentary greywacke	1	Small mortar or grinding stone. Sub-circular, flat grey stone; bifacially worked with a small ground concave centred on each of its two main faces.

Registration Number	Context	Item No.	Simple Name	Full Name	Material	No. of Parts	Description
E3123:4:1	4	1	Stone	Stone axe	Sedimentary greywacke	1	Cigar-shaped axe, minimally worked, apparently based on a cobble. Some flaking and pecking prior to polishing evident on one flattened face and along blade, but the other face is convex and appears polished without flaking/pecking.
E3123:4:2	4	2	Stone	Grinding stone / quernstone.	Sedimentary greywacke	1	Split boulder with a fractured face which has been very finely flattened and smoothed through use.
E3123:4:3	4	3	Stone	Hammerstone	Sedimentary coarse sandstone	1	Sub-cuboid hammerstone, all six faces flattened by use.
E3123:6:1	6	1	Chert, angular shatter	Chert angular shatter	Chert	1	Fresh, angular shatter.
E3123:6:2	6	2	Pottery	Fragment (2g) of middle Bronze Age domestic cordoned urn.	Pottery	1	Fragment of middle Bronze Age cordoned urn.
E3123:6:4	6	4	Flint flake	Flint bipolar flake	Flint	1	Fresh, complete, bipolar flake.
E3123:6:5	6	5	Pottery	Bodysherd of a vessel with a round-topped upright rim of a cordoned urn dating to middle Bronze Age.	Pottery	1	Bodysherd of a vessel with a round-topped upright rim of a cordoned urn dating to middle Bronze Age.
E3123:6:6	6	6	Pottery	Fragments of a cordoned urn with a flat-topped, inward sloping rim dating to the middle Bronze Age.	Pottery	1	Fragments of a cordoned urn with a flat-topped, inward sloping rim dating to the middle Bronze Age.
E3123:6:7	6	7	Flint flake	Flint platform flake	Flint	1	Fresh, complete, platform flake
E3123:6:8	6	8	Pottery	Bodysherd of middle Bronze Age cordoned urn.	Pottery	1	Bodysherd of middle Bronze Age cordoned urn.
E3123:6:9	6	9	Pottery	Bodysherd of middle Bronze Age cordoned urn.	Pottery	1	Bodysherd of middle Bronze Age cordoned urn.
E3123:6:10	6	10	Pottery	Rimsherd of middle Bronze Age cordoned urn.	Pottery	1	Rimsherd of middle Bronze Age cordoned urn.
E3123:6:11	6	11	Quartz flake	Quartz platform flake	Quartz	1	Fresh, complete, platform flake

Registration Number	Context	Item No.	Simple Name	Full Name	Material	No. of Parts	Description
E3123:6:13	6	13	Flint flake	Flint bipolar flake	Flint	1	Patinated, complete, bipolar flake
E3123:6:14	6	14	Chert angular shatter	Chert angular shatter	Chert	1	Abraded, angular shatter.
E3123:6:15	6	15	Pottery	Bodysherd of middle Bronze Age cordoned urn.	Pottery	1	Bodysherd of middle Bronze Age cordoned urn.
E3123:6:16	6	16	Pottery	Fragment of middle Bronze Age cordoned urn.	Pottery	1	Fragment of middle Bronze Age cordoned urn.
E3123:6:17	6	17	Pottery	Rimsherd of middle Bronze Age cordoned urn.	Pottery	1	Rimsherd of middle Bronze Age cordoned urn.
E3123:6:18	6	18	Pottery	Bodysherd of middle Bronze Age cordoned urn.	Pottery	1	Bodysherd of middle Bronze Age cordoned urn.
E3123:6:21	6	21	Pottery	Bodysherd of middle Bronze Age cordoned urn.	Pottery	1	Bodysherd of middle Bronze Age cordoned urn.
E3123:6:22	6	22	Pottery	Fragment of middle Bronze Age cordoned urn.	Pottery	1	Fragment of middle Bronze Age cordoned urn.
E3123:12:1	12	1	Stone	Saddle quern	Sedimentary mudstone	1	Saddle quern. Angular stone with a deep concave surface, both polished and pecked. Probably used as a saddle quern (grinding).
E3123:14:1	14	1	Chert flake	Chert platform flake	Chert	1	Fresh, complete, platform flake
E3123:19:2	19	2	Pottery	Fragment of a middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of a middle to late Bronze Age domestic vessel.
E3123:19:4	19	4	Pottery	Rimsherd of middle Bronze Age domestic cordoned urn.	Pottery	1	Rimsherd of middle Bronze Age domestic cordoned urn.
E3123:19:5	19	5	Pottery	Rimsherd of middle Bronze Age domestic cordoned urn.	Pottery	1	Rimsherd of middle Bronze Age domestic cordoned urn.
E3123:19:6	19	6	Pottery	Fragment of middle Bronze Age domestic cordoned urn.	Pottery	1	Fragment of middle Bronze Age domestic cordoned urn.

Registration Number	Context	Item No.	Simple Name	Full Name	Material	No. of Parts	Description
E3123:19:7	19	7	Pottery	Fragment of a middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle Bronze Age domestic cordoned urn.
E3123:19:8	19	8	Pottery	Bodysherd of a middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of a middle to late Bronze Age domestic vessel.
E3123:19:10	19	10	Pottery	Rimsherd of middle Bronze Age domestic cordoned urn.	Pottery	1	Rimsherd of middle Bronze Age domestic cordoned urn.
E3123:19:11	19	11	Pottery	Bodysherd of a middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of a middle to late Bronze Age domestic vessel.
E3123:19:12	19	12	Pottery	Fragment of a middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of a middle to late Bronze Age domestic vessel.
E3123:19:13	19	13	Chert platform shatter	Chert distal flake fragment	Chert	1	Fresh, Distal flake fragment, platform shatter
E3123:19:14	19	14	Pottery	Fragment of a middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of a middle to late Bronze Age domestic vessel.
E3123:19:15	19	15	Pottery	Fragment of a middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of a middle to late Bronze Age domestic vessel.
E3123:19:16	19	16	Pottery	Fragment of a middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of a middle to late Bronze Age domestic vessel.
E3123:19:17	19	17	Pottery	Fragment of a middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of a middle to late Bronze Age domestic vessel.
E3123:19:18	19	18	Pottery	Fragment of a middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of a middle to late Bronze Age domestic vessel.
E3123:19:19	19	19	Pottery	Fragment of a middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of a middle to late Bronze Age domestic vessel.
E3123:19:20	19	20	Pottery	Fragment of a middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of a middle to late Bronze Age domestic vessel.

Registration Number	Context	Item No.	Simple Name	Full Name	Material	No. of Parts	Description
E3123:20:1	20	1	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:20:2	20	2	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:20:3	20	3	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:20:4	20	4	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:20:5	20	5	Flint flake	Flint pressure flake Retouched	Flint	1	Fresh, Retouch, Pressure flake.
E3123:21:1	21	1	Flint	Flint, Utilised	Flint	1	Fresh, Utilised, modified
E3123:21:2	21	2	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:21:3	21	3	Flint flake	Flint platform flake, core trimming	Flint	1	Fresh, core trimming, platform flake.
E3123:21:4	21	4	Chert flake	Chert retouched flake	Chert	1	Abraded, Retouch flake, platform flake.
E3123:21:5	21	5	Chert flake	Chert core trimming	Chert	1	Fresh, core trimming, platform flake.
E3123:21:6	21	6	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:21:7	21	7	Flint flake	Flint, retouched flake	Flint	1	Fresh, retouch, pressure flake.
E3123:29:1	29	1	Flint	Flint ?bipolar flaked biface: distal frag	Flint	1	Fresh, ?bipolar flaked biface: distal frag, modified.
E3123:35:1	35	1	Pottery	Bodysherd of middle Bronze Age domestic cordoned urn.	Pottery	1	Bodysherd of middle Bronze Age domestic cordoned urn.
E3123:35:2	35	2	Pottery	Fragment of middle Bronze Age domestic cordoned urn.	Pottery	1	Fragment of middle Bronze Age domestic cordoned urn.
E3123:35:3	35	3	Pottery	Fragment of middle Bronze Age domestic cordoned urn.	Pottery	1	Fragment of middle Bronze Age domestic cordoned urn.

Registration Number	Context	Item No.	Simple Name	Full Name	Material	No. of Parts	Description
E3123:35:4	35	4	Pottery	Fragment of middle Bronze Age domestic cordoned urn.	Pottery	1	Fragment of middle Bronze Age domestic cordoned urn.
E3123:35:5	35	5	Chert	Chert shatter	Chert	1	Chert platform shatter, medial flake fragment, abraded.
E3123:35:6	35	6	Chert	Unworked thermal flake	Chert	1	Unworked thermal flake, abraded.
E3123:35:7a	35	7	Pottery	Bodysherd of middle Bronze Age domestic cordoned urn.	Pottery	1	Bodysherd of middle Bronze Age domestic cordoned urn.
E3123:35:7b	35	7	Chert angular shatter	Chert angular shatter	Chert	1	Abraded, angular shatter, angular shatter
E3123:35:8	35	8	Pottery	Rimsherd of middle Bronze Age domestic cordoned urn.	Pottery	1	Rimsherd of middle Bronze Age domestic cordoned urn.
E3123:37:1	37	1	Pottery	Fragments of mid-LBA domestic cordoned urn	Pottery	1	16 very small fragments of mid-LBA domestic cordoned urn
E3123:40:1	40	1	Pottery	Bodysherd of middle Bronze Age domestic cordoned urn.	Pottery	1	Pottery
E3123:54:1	54	1	Flint flake	Flint bipolar flake	Flint	1	Fresh, complete, bipolar flake.
E3123:54:2	54	2	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:3	54	3	Flint	Flint scraper	Flint	1	Fresh, Scraper, modified
E3123:54:4	54	4	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:5	54	5	Flint shatter	Flint indeterminate fragment	Flint	1	Patinated, Indeterminate fragment, platform shatter
E3123:54:6	54	6	Flint flake	Flint pressure flake	Flint	1	Fresh, Retouch, Pressure flake
E3123:54:7	54	7	Pottery	Rimsherd of middle to late Bronze Age domestic vessel.	Pottery	1	Rimsherd of middle to late Bronze Age domestic vessel.
E3123:54:8	54	8	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.

Registration Number	Context	Item No.	Simple Name	Full Name	Material	No. of Parts	Description
E3123:54:9	54	9	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:10	54	10	Flint angular shatter	Flint angular shatter	Flint	1	Fresh, angular shatter.
E3123:54:11	54	11	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:12	54	12	Flint	Flint bipolar flake	Flint	1	Fresh, complete, bipolar flake
E3123:54:13	54	13	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:14	54	14	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:15	54	15	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:54:16	54	16	Flint	Flint scraper	Flint	1	Fresh, scraper, modified
E3123:54:17	54	17	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:18	54	18	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:54:19	54	19	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:20	54	20	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:54:21	54	21	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:22	54	22	Flint	Flint bipolar flake.	Flint	1	Fresh, complete, bipolar flake
E3123:54:23	54	23	Flint	Flint Arrowhead.	Flint	1	Fresh, Arrowhead, modified
E3123:54:24	54	24	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.

Registration Number	Context	Item No.	Simple Name	Full Name	Material	No. of Parts	Description
E3123:54:25	54	25	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:26	54	26	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:27	54	27	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:54:28	54	28	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:54:29	54	29	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:54:30	54	30	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:54:31	54	31	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:54:32	54	32	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:54:33	54	33	Pottery	Necksherd of middle to late Bronze Age domestic vessel.	Pottery	1	Necksherd of middle to late Bronze Age domestic vessel.
E3123:54:34	54	34	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:54:35	54	35	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:54:36	54	36	Chert	Chert angular shatter	Chert	1	Abraded, angular shatter, angular shatter
E3123:54:37	54	37	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.

Registration Number	Context	Item No.	Simple Name	Full Name	Material	No. of Parts	Description
E3123:54:38	54	38	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:39	54	39	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:54:40	54	40	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:41	54	41	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:42	54	42	Flint	Flint scraper	Flint	1	Patinated, Scraper, modified
E3123:54:43	54	43	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:54:44	54	44	Flint	Flint edge retouched	Flint	1	Fresh, edge retouched, modified
E3123:54:45	54	45	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:46	54	46	Pottery	Rimsherd of middle to late Bronze Age domestic vessel.	Pottery	1	Rimsherd of middle to late Bronze Age domestic vessel.
E3123:54:47	54	47	Flint	Flint scraper	Flint	1	Abraded, Scraper, modified
E3123:54:48	54	48	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:54:49	54	49	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:54:50	54	50	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:54:51	54	51	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:54:52	54	52	Flint flake	Flint bipolar flake	Flint	1	Fresh, complete, bipolar flake

Registration Number	Context	Item No.	Simple Name	Full Name	Material	No. of Parts	Description
E3123:54:53	54	53	Flint shatter	Flint indeterminate shatter.	Flint	1	Fresh, Indeterminate, platform shatter
E3123:54:54	54	54	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:55	54	55	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:56	54	56	Flint	Flint edge retouched	Flint	1	Patinated, edge retouched, modified
E3123:54:57	54	57	Flint flake	Flint retouched bipolar flake	Flint	1	Fresh, Retouch flake, bipolar flake
E3123:54:58	54	58	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:59	54	59	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:54:60	54	60	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:61	54	61	Pottery	Necksherd of middle to late Bronze Age domestic vessel.	Pottery	1	Necksherd of middle to late Bronze Age domestic vessel.
E3123:54:62	54	62	Pottery	Necksherd of middle to late Bronze Age domestic vessel.	Pottery	1	Necksherd of middle to late Bronze Age domestic vessel.
E3123:54:63	54	63	Pottery	Necksherd of middle to late Bronze Age domestic vessel.	Pottery	1	Necksherd of middle to late Bronze Age
E3123:54:64	54	64	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:65	54	65	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:66a	54	66a	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.

Registration Number	Context	Item No.	Simple Name	Full Name	Material	No. of Parts	Description
E3123:54:66b	54	66b	Flint angular shatter	Flint angular shatter	Flint	1	Fresh, angular shatter, angular shatter
E3123:54:67	54	67	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:68	54	68	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:54:69	54	69	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:54:70	54	70	Flint	Flint retouched piece	Flint	1	Fresh, retouched piece, modified
E3123:54:71	54	71	Flint flake	Flint bipolar flake	Flint	1	Fresh, complete, bipolar flake
E3123:54:72	54	72	Flint	Flint arrowhead	Flint	1	Fresh, Arrowhead, modified
E3123:54:73	54	73	Chert	Chert scraper	Chert	1	Fresh, Scraper, modified
E3123:54:74	54	74	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:54:75	54	75	Pottery	Necksherd of middle to late Bronze Age domestic vessel.	Pottery	1	Necksherd of middle to late Bronze Age domestic vessel.
E3123:54:76	54	76	Flint platform shatter	Flint distal frag	Flint	1	Patinated, Distal frag, platform shatter
E3123:54:77	54	77	Chert angular shatter	Chert angular shatter	Chert	1	Patinated, angular shatter, angular shatter
E3123:54:78	54	78	Flint flake	Flint platform flake	Flint	1	Fresh, complete, platform flake
E3123:54:79	54	79	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:80	54	80	Pottery	Rimsherd of middle to late Bronze Age domestic vessel.	Pottery	1	Rimsherd of middle to late Bronze Age domestic vessel.
E3123:54:81	54	81	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:82	54	82	Flint platform shatter	Flint indeterminate	Flint	1	Fresh, Indeterminate, platform shatter

Registration Number	Context	Item No.	Simple Name	Full Name	Material	No. of Parts	Description
E3123:54:83	54	83	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:84	54	84	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:85	54	85	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:86	54	86	Flint core	Flint bipolar core	Flint	1	Fresh, bipolar, core
E3123:54:87	54	87	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:88	54	88	Flint flake	Flint platform flake, retouched.	Flint	1	Fresh, Retouch, platform flake
E3123:54:89	54	89	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:90	54	90	Flint scraper	Flint scraper	Flint	1	Patinated, Scraper, modified
E3123:54:91	54	91	Chert scraper	Chert scraper	Chert	1	Abraded, Scraper, modified
E3123:54:92a	54	92a	Pottery	Anglesherd of middle to late Bronze Age domestic vessel.	Pottery	1	Anglesherd of middle to late Bronze Age domestic vessel.
E3123:54:92b	54	92b	Flint platform shatter	Flint distal shatter	Flint	1	Fresh, Distal shatter, platform shatter
E3123:54:93	54	93	Flint angular shatter	Flint angular shatter	Flint	1	Burnt, angular shatter, angular shatter
E3123:54:94	54	94	Flint modified	Flint scraper	Flint	1	Abraded, Scraper, modified
E3123:54:95	54	95	Chert modified	Chert scraper	Chert	1	Patinated, Scraper, modified
E3123:54:96	54	96	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:54:97	54	97	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:99	54	99	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.

Registration Number	Context	Item No.	Simple Name	Full Name	Material	No. of Parts	Description
E3123:54: 100	54	100	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:102	54	102	Flint modified	Flint scraper	Flint	1	Fresh, scraper, modified.
E3123:54:103	54	103	Flint bipolar flake	Flint flake	Flint	1	Fresh, complete, bipolar flake.
E3123:54:104 (1–181)	54	104	Chert	Abraded angular shatter (x181).	Chert	181	Chert assemblage of 181 pieces of abraded angular shatter.
E3123:54:105	54	105	Chert bipolar flake	Chert flake	Chert	1	Fresh, complete, bipolar flake.
E3123:54:106	54	106	Chert platform flake	Chert core trimming	Chert	1	Fresh, core trimming, platform flake.
E3123:54:107	54	107	Chert platform shatter	Chert distal fragment	Chert	1	Fresh, distal fragment, platform shatter.
E3123:54:108	54	108	Chert platform flake	Chert core trimming	Chert	1	Fresh, core trimming, platform flake.
E3123:54:109	54	109	Chert platform flake	Chert core trimming	Chert	1	Fresh, core trimming, platform flake.
E3123:54:110	54	110	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:54:111	54	111	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:54:112	54	112	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:113	54	113	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:54:114	54	114	Chert platform shatter	Chert distal frag	Chert	1	Fresh, Distal frag, platform shatter.
E3123:54:115	54	115	Chert bipolar flake	Chert flake	Chert	1	Fresh, complete, bipolar flake.
E3123:54:116	54	116	Chert platform shatter	Chert Indeterminate shatter	Chert	1	Fresh, Indeterminate shatter, platform shatter.
E3123:54:117	54	117	Chert unworked	Chert thermally damaged	Chert	1	Fresh, thermally damaged, unworked.
E3123:54:118	54	118	Chert platform shatter	Chert proximal frag	Chert	1	Fresh, proximal frag, platform shatter.
E3123:54:119	54	119	Chert unworked	Chert abraded lump	Chert	1	Abraded, abraded lump, unworked.
E3123:54:120	54	120	Chert angular shatter	Chert angular shatter	Chert	1	Abraded, angular shatter.
E3123:54:121	54	121	Chert angular shatter	Chert angular shatter	Chert	1	Abraded, angular shatter.

Registration Number	Context	Item No.	Simple Name	Full Name	Material	No. of Parts	Description
E3123:54:122	54	122	Chert platform shatter	Chert Indeterminate shatter	Chert	1	Fresh, Indeterminate shatter, platform shatter.
E3123:54:123	54	123	Chert unworked	Chert abraded lump	Chert	1	Abraded, abraded lump, unworked.
E3123:54:124	54	124	Chert platform shatter	Chert proximal fragment	Chert	1	Abraded, proximal fragment, platform shatter.
E3123:54:125	54	125	Chert angular shatter	Chert angular shatter	Chert	1	Abraded, angular shatter.
E3123:54:126	54	126	Chert angular shatter	Chert angular shatter	Chert	1	Fresh, angular shatter.
E3123:54:127	54	127	Chert modified	Chert Scraper	Chert	1	Fresh, scraper, modified.
E3123:54:128	54	128	Chert modified	Chert Scraper	Chert	1	Fresh, scraper, modified.
E3123:54:129	54	128	Chert angular shatter	Chert angular shatter	Chert	1	Fresh, angular shatter.
E3123:54:130	54	130	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Pottery.
E3123:54:131	54	131	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Pottery.
E3123:54:132	54	132	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:54:133	54	133	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:134	54	134	Chert modified	Chert retouched piece	Chert	1	Fresh, retouched piece, modified.
E3123:54:135	54	135	Chert bipolar shatter	Chert bipolar flake shatter	Chert	1	Fresh, bipolar flake shatter.
E3123:54:136	54	136	Chert platform flake	Chert core trimming	Chert	1	Fresh, core trimming, platform flake.
E3123:54:137	54	137	Chert cores	Chert flaked chunk	Chert	1	Abraded, flaked chunk, cores.
E3123:54:138	54	138	Chert bipolar flake	Chert complete	Chert	1	Abraded, complete, bipolar flake.
E3123:54:139	54	139	Chert angular shatter	Chert angular shatter	Chert	1	Abraded, angular shatter.
E3123:54:140	54	140	Chert bipolar flake	Chert complete	Chert	1	Fresh, complete, bipolar flake.
E3123:54:141	54	141	Chert bipolar flake	Chert complete	Chert	1	Fresh, complete, bipolar flake.
E3123:54:142	54	142	Chert Flake shatter	Chert proximal frag	Chert	1	Fresh, proximal frag, flake shatter.
E3123:54:143	54	143	Chert platform flake	Chert core trimming	Chert	1	Fresh, core trimming, platform flake.
E3123:54:144	54	144	Chert platform flake	Chert core trimming	Chert	1	Fresh, core trimming, platform flake.

Registration Number	Context	Item No.	Simple Name	Full Name	Material	No. of Parts	Description
E3123:54:145	54	145	Chert platform flake	Chert core face rejuvenation	Chert	1	Fresh, core face rejuvenation, platform flake.
E3123:54:146	54	146	Chert modified	Chert scraper	Chert	1	Burnt, Scraper, modified.
E3123:54:147	54	147	Chert platform flake	Chert bifacial thinning flake	Chert	1	Fresh, Bifacial thinning flake, platform flake.
E3123:54:148	54	148	Chert angular shatter	Chert angular shatter	Chert	1	Fresh, angular shatter.
E3123:54:149	54	149	Chert platform flake	Chert core trimming	Chert	1	Fresh, core trimming, platform flake
E3123:54:150	54	150	Chert angular shatter	Chert angular shatter	Chert	1	Abraded, angular shatter.
E3123:54:151	54	151	Chert angular shatter	Chert angular shatter	Chert	1	Fresh, angular shatter.
E3123:54:152	54	152	Chert scraper	Chert scraper	Chert	1	Fresh, scraper, modified.
E3123:54:153	54	153	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:54:154	54	154	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:155	54	155	Chert bipolar flake	Chert complete	Chert	1	Abraded, complete, bipolar flake.
E3123:54:156	54	156	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:157	54	157	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:158	54	158	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:159	54	159	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:160	54	160	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:54:161	54	161	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic bucket shaped vessel.

Registration Number	Context	Item No.	Simple Name	Full Name	Material	No. of Parts	Description
E3123:54:162	54	162	Pottery	Fragment of middle to late Bronze Age domestic vessel	Pottery	1	Fragment of middle to late Bronze Age domestic bucket shaped vessel
E3123:54:163	54	163	Pottery	Fragments of middle to late Bronze Age domestic vessel	Pottery	1	Fragments of middle to late Bronze Age domestic bucket shaped vessel
E3123:66:1	66	1	Pottery	Bodysherd from a large bucket-shaped vessel from the middle to late Bronze Age.	Pottery	1	Bodysherd from a large bucket-shaped vessel from the middle to late Bronze Age.
E3123:66:2	66	2	Pottery	Bodysherd from close to the junction with the base of a middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd from close to the junction with the base of a middle to late Bronze Age domestic vessel.
E3123:66:4	66	4	Pottery	Bodysherd from a large bucket-shaped vessel from the middle to late Bronze Age.	Pottery	1	Bodysherd from a large bucket-shaped vessel from the middle to late Bronze Age.
E3123:78:1	78	1	Flint modified	Flint projectile preform	Flint	1	Burnt, Projectile perform, modified
E3123:78:2	78	2	Flint pressure flake	Flint retouch flake	Flint	1	Burnt, Retouch flake, Pressure flake
E3123:78:3	78	3	Chert platform flake	Chert core trimming	Chert	1	Abraded, core trimming, platform flake
E3123:78:4	78	4	Flint pressure flake	Flint retouch flake	Flint	1	Burnt, Retouch flake, Pressure flake
E3123:100:1	100	1	Pottery	Body fragment of Meath-type ware. 13th – 14th century.	Pottery	1	Body fragment of Meath-type ware. 13th – 14th century.
E3123:100:2	100	2	Pottery	Body fragment of Meath-type ware. 13th – 14th century.	Pottery	1	Body fragment of Meath-type ware. 13th – 14th century.
E3123:100:3	100	3	Chert angular shatter	Chert angular shatter	Chert	1	Abraded, angular shatter.
E3123:100:5a	100	5a	Chert platform shatter	Chert distal flake frag	Chert	1	Fresh, Distal flake frag, platform shatter.
E3123:100:5b	100	5b	Chert angular shatter	Chert angular shatter	Chert	1	Abraded, angular shatter.
E3123:100:6	100	6	Chert bipolar flake	Chert core trimming	Chert	1	Abraded, core trimming, bipolar flake.

Registration Number	Context	Item No.	Simple Name	Full Name	Material	No. of Parts	Description
E3123:103:1	103	1	Stone	Grinding stone / quern	Sedimentary greywacke	1	Angular grinding / quernstone, slightly polished surface; irregular surface morphology, so only seems to have been lightly used
E3123:108:1a	108	1a	Chert angular shatter	Chert angular shatter	Chert	1	Abraded, angular shatter.
E3123:108:1b	108	1b	Chert angular shatter	Chert angular shatter	Chert	1	Abraded, angular shatter.
E3123:108:1c	108	1c	Chert angular shatter	Chert angular shatter	Chert	1	Abraded, angular shatter.
E3123:108:1d	108	1d	Chert angular shatter	Chert angular shatter	Chert	1	Abraded, angular shatter.
E3123:108:1e	108	1e	Chert angular shatter	Chert angular shatter	Chert	1	Abraded, angular shatter.
E3123:142:1	142	1	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:142:2	142	2	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:142:3	142	3	Chert unworked	Chert abraded lump	Chert	1	Abraded, abraded lump, unworked.
E3123:142:4	142	4	Flint angular shatter	Flint angular shatter	Flint	1	Abraded, angular shatter.
E3123:142:5	142	5	Flint bipolar flake	Flint complete	Flint	1	Abraded, complete, bipolar flake.
E3123:142:6	142	6	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:142:7	142	7	Flint angular shatter	Flint angular shatter	Flint	1	Abraded, angular shatter.
E3123:142:8	142	8	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:142:9	142	9	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:142:10	142	10	Flint modified	Flint Scraper	Flint	1	Abraded, scraper, modified.
E3123:142:11	142	11	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:154:1	154	1	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.

Registration Number	Context	Item No.	Simple Name	Full Name	Material	No. of Parts	Description
E3123:221:1	221	1	Pottery	Bodysherd of a middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of a middle to late Bronze Age domestic vessel.
E3123:221:2	221	2	Pottery	Rimsherd of a middle to late Bronze Age domestic vessel.	Pottery	1	Rimsherd of a middle to late Bronze Age domestic vessel.
E3123:222:1	222	1	Pottery	Bodysherd of a middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of a middle to late Bronze Age domestic vessel.
E3123:222:2	222	2	Pottery	Bodysherd of a middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of a middle to late Bronze Age domestic vessel.
E3123:222:3	222	3	Pottery	Bodysherd of a middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of a middle to late Bronze Age domestic vessel.
E3123:222:4	222	4	Pottery	Bodysherd of a middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of a middle to late Bronze Age domestic vessel.
E3123:224:1	224	1	Pottery	Fragment of a middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of a middle to late Bronze Age domestic vessel.
E3123:224:2	224	2	Pottery	Bodysherd of a middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of a middle to late Bronze Age domestic vessel.
E3123:224:3	224	3	Pottery	Necksherd of a middle to late Bronze Age domestic vessel.	Pottery	1	Necksherd of a middle to late Bronze Age domestic vessel.
E3123:224:4	224	4	Pottery	Bodysherd of a middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of a middle to late Bronze Age domestic vessel.
E3123:224:5	224	5	Chert angular shatter	Chert angular shatter	Chert	1	Abraded, angular shatter.
E3123:225:1	225	1	Flint platform shatter	Flint Indeterminate fragment	Flint	1	Burnt, indeterminate fragment, platform shatter.
E3123:225:2	225	2	Chert angular shatter	Chert angular shatter	Chert	1	Abraded, angular shatter.
E3123:225:3	225	3	Pottery	Bodysherd of a middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of a middle to late Bronze Age domestic vessel.

Registration Number	Context	Item No.	Simple Name	Full Name	Material	No. of Parts	Description
E3123:229:1	229	1	Stone	Hammerstone.	Sedimentary sandstone	1	Small sub-cuboid hammerstone, four faces flattened.
E3123:229:2	229	2	Pottery	Necksherd of middle to late Bronze Age domestic vessel.	Pottery	1	Necksherd of middle to late Bronze Age domestic vessel.
E3123:229:3	229	3	Pottery	Necksherd of middle to late Bronze Age domestic vessel.	Pottery	1	Necksherd of middle to late Bronze Age domestic vessel.
E3123:229:4	229	4	Pottery	Necksherd of middle to late Bronze Age domestic vessel.	Pottery	1	Necksherd of middle to late Bronze Age domestic vessel.
E3123:229:5	229	5	Pottery	Necksherd of middle to late Bronze Age domestic vessel.	Pottery	1	Necksherd of middle to late Bronze Age domestic vessel.
E3123:229:6	229	6	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:229:7	229	7	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:230:1a	230	1a	Chert platform flake	Chert flake.	Chert	1	Fresh, complete, platform flake.
E3123:230:1b	230	1b	Chert platform flake	Chert flake.	Chert	1	Fresh, complete, platform flake.
E3123:230:1c	230	1c	Chert angular shatter	Chert angular shatter	Chert	1	Fresh, angular shatter.
E3123:230:1d	230	1d	Chert angular shatter	Chert angular shatter	Chert	1	Fresh, angular shatter.
E3123:230:1e	230	1e	Chert angular shatter	Chert angular shatter	Chert	1	Fresh, angular shatter.
E3123:230:1f	230	1f	Chert angular shatter	Chert angular shatter	Chert	1	Abraded, angular shatter.
E3123:230:2	230	2	Stone	Grinding / polishing stone	Sedimentary greywacke	1	Possible grinding / polishing stone. Angular grey stone with smoothed surface.
E3123:230:3	230	3	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:233:1	233	1	Chert flake	Chert bipolar flake	Chert	1	Fresh, complete, bipolar flake.
E3123:249:1	249	1	Stone	Grinding stone/quern	Sedimentary greywacke	1	Grinding stone / quern. A small irregular slab fragment with two polished faces.

Registration Number	Context	Item No.	Simple Name	Full Name	Material	No. of Parts	Description
E3123:253:1	253	1	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of middle to late Bronze Age domestic vessel.
E3123:253:2	253	2	Flint modified	Flint scraper:	Flint	1	Patinated, scraper: bipolar, modified.
E3123:253:3	253	3	Stone	Grinding stone/quern	Sedimentary siltstone	1	Grinding stone / quern. A split brown/grey stone, with one flat, polished face.
E3123:253:4	253	4	Stone	Grinding stone/quern fragment	Sedimentary greywacke	1	Grinding stone / quern fragment. An angular fragment of stone with possibly two polished faces.
E3123:253:5	253	5	Chert platform shatter	Chert indeterminate fragment	Chert	1	Fresh, indeterminate fragment, platform shatter.
E3123:301:1	301	1	Chert angular shatter	Chert angular shatter	Chert	1	Fresh, angular shatter.
E3123:301:2	301	2	Chert angular shatter	Chert angular shatter	Chert	1	Abraded, angular shatter.
E3123:328:1	328	1	Chert platform flake	Chert core trimming	Chert	1	Fresh, core trimming, platform flake.
E3123:333:1	333	1	Pottery	Rimsherd of a bucket-shaped vessel dating to the middle to late Bronze Age.	Pottery	1	Rimsherd of a bucket-shaped vessel dating to the middle to late Bronze Age.
E3123:333:2	333	2	Pottery	Bodysherd of a middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of a middle to late Bronze Age domestic vessel.
E3123:333:3	333	3	Pottery	Fragments (5g) dating to middle to late Bronze Age	Pottery	1	Fragments (5g) dating to middle to late Bronze Age
E3123:395:1	395	1	Flint core	Flint core	Flint	1	Abraded, bipolar, core.
E3123:420:1	420	1	Pottery	Fragment of a middle to late Bronze Age domestic vessel.	Pottery	1	Fragment of a middle to late Bronze Age domestic vessel.
E3123:436:1	436	1	Stone	A perforated stone object, identified by specialist as a rare spindle whorl of sub-rectangular shape.	Stone	1	A rare disc-shaped spindle whorl of sub-rectangular shape dated, by the specialist,to the early medieval period – the date conflicts with the strategrafic sequence.
E3123:451:1	451	1	Pottery	Rimsherd of Middle to late Bronze Age domestic cordoned urn.	Pottery	1	Worn rimsherd of Middle to late Bronze Age domestic cordoned urn.

Registration Number	Context	Item No.	Simple Name	Full Name	Material	No. of Parts	Description
E3123:451:2	451	2	Pottery	Rimsherd of Middle to late Bronze Age domestic cordoned urn.	Pottery	1	Worn rimsherd of Middle to late Bronze Age domestic cordoned urn.
E3123:461:1	461	1	Pottery	Rimsherd of a middle to late Bronze Age domestic vessel.	Pottery	1	Rimsherd of a middle to late Bronze Age domestic vessel.
E3123:461:2	461	2	Pottery	Bodysherd of a middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of a middle to late Bronze Age domestic vessel.
E3123:461:3	461	3	Pottery	Bodysherd of a middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of a middle to late Bronze Age domestic vessel.
E3123:461:4	461	4	Pottery	Bodysherd of a middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of a middle to late Bronze Age domestic vessel.
E3123:461:5	461	5	Pottery	Bodysherd of a middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of a middle to late Bronze Age domestic vessel.
E3123:461:6	461	6	Pottery	Bodysherd of a middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of a middle to late Bronze Age domestic vessel.
E3123:461:7	461	7	Pottery	Bodysherd of a middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of a middle to late Bronze Age domestic vessel.
E3123:471:1	471	1	Pottery	Fragments of middle to late Bronze Age domestic vessel.	Pottery	1	3 fragments of plain middle to late Bronze Age domestic vessel.
E3123:491:1	491	1	Pottery	Body fragment of transfer printed ware. 18th – 19th century.	Pottery	1	Body fragment of transfer printed ware. 18th – 19th century.
E3123:496:1	496	1	Pottery	Bodysherd of a middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of a middle to late Bronze Age domestic vessel.
E3123:501:1	501	1	Pottery	Necksherd of a middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of a middle to late Bronze Age domestic vessel.
E3123:504:1	504	1	Flint scraper	Flint scraper	Flint	1	Fresh, Scraper, modified.

Registration Number	Context	Item No.	Simple Name	Full Name	Material	No. of Parts	Description
E3123:504:2	504	2	Pottery	Rim fragment of 18th–19th century Meath-type ware.	Pottery	1	Rim fragment of 18th–19th century Meath-type ware.
E3123:504:3	504	3	Chert, modified	Chert edge retouched	Chert	1	Abraded, edge retouched, modified.
E3123:504:4	504	4	Furnace lining fragment.	Possible piece of furnace lining	Baked clay	1	Baked clay with thin layer blackish vitrification (2mm) on inner surface. Possible piece of furnace lining (46.7g).
E3123:504:5	504	5	Chert flake	Chert bipolar flake	Chert	1	Abraded, complete, bipolar flake.
E3123:504:6	504	6	Chert shatter	Chert angular shatter	Chert	1	Abraded, angular shatter.
E3123:504:7	504	7	Flint shatter	Flint proximal flake fragment, bipolar shatter	Flint	1	Abraded, proximal flake fragment, bipolar shatter.
E3123:504:8	504	8	Chert shatter	Chert angular shatter	Chert	1	Abraded, angular shatter.
E3123:504:9a	504	9a	Chert shatter	Chert angular shatter	Chert	1	Abraded, angular shatter.
E3123:504:9b	504	9b	Chert shatter	Chert angular shatter	Chert	1	Abraded, angular shatter.
E3123:504:10	504	10	Chert flake	Chert platform flake, retouched.	Chert	1	Abraded, Retouch, platform flake.
E3123:504:11	504	11	Chert flake	Chert bipolar flake	Chert	1	Abraded, complete, bipolar flake.
E3123:504:12	504	12	Chert shatter	Chert shatter, medial flake fragment	Chert	1	Abraded, Medial flake fragment, bipolar shatter.
E3123:504:13	504	13	Pottery	Body fragment of a medieval Iberian olive jar.	Pottery	1	Body fragment of a medieval Iberian olive jar.
E3123:505:1	505	1	Flint modified	Flint bipolar flaked biface	Flint	1	Fresh, bipolar flaked biface, modified.
E3123:505:2	505	2	Flint flake	Flint platform flake, core trimming	Flint	1	Fresh, core trimming, platform flake.
E3123:505:3	505	3	Flint core	Flint core	Flint	1	Fresh, bipolar, core.
E3123:507:1	507	1	Chert shatter	Chert angular shatter	Chert	1	Fresh, angular shatter.
E3123:507:2a	507	2a	Chert flake	Chert platform flake	Chert	1	Fresh, core rejuvenation, platform flake.
E3123:507:2b	507	2b	Chert shatter	Chert angular shatter	Chert	1	Fresh, angular shatter.
E3123:507:3	507	3	Flint shatter	Flint angular shatter	Flint	1	Burnt, angular shatter.
E3123:508:1	508	1	Chert scraper	Chert ?hollow scraper	Chert	1	Fresh, ?Hollow scraper, modified
E3123:509:1	509	1	Chert shatter	Chert angular shatter	Chert	1	Abraded, angular shatter.

Registration Number	Context	Item No.	Simple Name	Full Name	Material	No. of Parts	Description
E3123:513:1	513	1	Bone needle	Medieval fragmentary bone needle.	Bone	1	Medieval fragmentary bone needle.
E3123:522:1	522	1	Chert modified	Chert edge retouched	Chert	1	Abraded, edge retouched, modified.
E3123:525:1	525	1	Chert shatter	Chert angular shatter	Chert	1	Fresh, angular shatter.
E3123:525:2	525	2	Chert blade	Chert bipolar blade.	Chert	1	Fresh, complete, bipolar blade.
E3123:527:1	527	1	Stone	Stone fragment with natural perforation	Sandstone	1	Irregularly shaped fragment with perforation (approx 13mm Diameter); apparently natural and unworked or unused.
E3123:527:2	527	2	Chert blade	Chert bipolar blade.	Chert	1	Fresh, complete, bipolar blade.
E3123:527:3	527	3	Flint modified	Flint edge retouched	Flint	1	Fresh, edge retouched, modified.
E3123:531:1	531	1	Metal	Nail fragment, uncertain date.	Iron	1	Nail fragment, uncertain date.
E3123:538:1	538	1	Chert modified	Chert edge retouched	Chert	1	Abraded, edge retouched, modified.
E3123:538:2	538	2	Chert blade	Chert bipolar blade	Chert	1	Abraded, complete, bipolar blade.
E3123:538:3	538	3	Chert blade	Chert bipolar blade	Chert	1	Abraded, complete, bipolar blade.
E3123:538:4	538	4	Chert shatter	Chert angular shatter	Chert	1	Abraded, angular shatter.
E3123:538:5	538	5	Chert flake	Chert bipolar flake	Chert	1	Abraded, complete, bipolar flake
E3123:538:6	538	6	Chert shatter	Chert angular shatter	Chert	1	Abraded, angular shatter.
E3123:538:7	538	7	Chert shatter	Chert angular shatter	Chert	1	Abraded, angular shatter.
E3123:538:8	538	8	Chert shatter	Chert shatter, distal flake fragment	Chert	1	Abraded, Distal flake fragment, bipolar shatter.
E3123:538:9a	538a	9a	Chert	Chert bipolar flake	Chert	1	Fresh, complete, bipolar flake
E3123:538:9b	538b	9b	Chert shatter	Chert angular shatter	Chert	1	Fresh, angular shatter.
E3123:538:10	538	10	Chert core	Chert core	Chert	1	Abraded, bipolar core
E3123:538:11	538	11	Flint shatter	Flint angular shatter	Flint	1	Abraded, angular shatter.
E3123:539:1	539	1	Chert flake	Chert bipolar flake	Chert	1	Fresh, complete, bipolar flake.
E3123:539:2	539	2	Chert shatter	Chert angular shatter	Chert	1	Fresh, angular shatter.
E3123:539:3	539	3	Metal	Nail fragment, uncertain date.	Iron	1	Nail fragment, uncertain date.
E3123:539:4	539	4	Chert scraper	Chert scraper	Chert	1	Fresh, Scraper, modified.
E3123:545:1	545	1	Flint flake shatter	Flint proximal fragment	Flint	1	Burnt, proximal fragment, Flake shatter.
E3123:560:1	560	1	Chert bipolar flake	Chert flake	Chert	1	Fresh, complete, bipolar flake.

Registration Number	Context	Item No.	Simple Name	Full Name	Material	No. of Parts	Description
E3123:577:1	577	1	Pottery	Fragment of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:577:2	577	2	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:583:1	583	1	Pottery	Body fragment of 18th–19th Century Meath-type ware.	Pottery	1	Body fragment of 18th–19th Century Meath-type ware.
E3123:583:2	583	2	Pottery	Fragment; not prehistoric.	Pottery	1	Fragment; not prehistoric.
E3123:583:3	583	3	Metal	Nail fragment.	Iron	1	Nail fragment.
E3123:585:1	585	1	Metal	Early medieval ring pin with penannular scrolled ring.	Iron	1	Early medieval ring pin with penannular scrolled ring.
E3123:585:2	585	2	Metal	Early medieval lower portion of pin shank.	Iron	1	Early medieval lower portion of pin shank.
E3123:602:1	602	1	Chert flake	Chert bipolar flake	Chert	1	Fresh, complete, bipolar flake.
E3123:619:1	619	1	Flint shatter	Flint platform shatter, distal fragment	Flint	1	Burnt, Distal fragment, platform shatter.
E3123:628:1	628	1	Chert flake	Chert platform flake	Chert	1	Fresh, complete, platform flake.
E3123:640:1	640	1	Pottery	Body fragment of 18th–19th Century Meath-type ware.	Pottery	1	Body fragment of 18th–19th Century Meath-type ware.
E3123:640:2	640	2	Pottery	Bodysherd of middle to late Bronze Age domestic vessel.	Pottery	1	Bodysherd of middle to late Bronze Age domestic vessel.
E3123:655:1	655	1	Pottery	Body fragment of 18th–19th Century Meath-type ware.	Pottery	1	Body fragment of 18th–19th Century Meath-type ware.
E3123:655:2	655	2	Metal	Pin or needle shank fragment.	Copper alloy	1	Pin or needle shank fragment.
E3123:657:1	657	1	Metal	Nail fragment, uncertain date.	Nail fragment, uncertain date	1	Fe Object

Appendix 1.3 Catalogue of Ecofacts

A total of 500 samples were taken during the course of excavation at this site. These were 362 bulk soil samples, 126 bone and burnt bone samples and 12 slag samples. 202 soil samples were processed by means of flotation and sieving through a 250/300µm mesh and the remainder were processed by dry sieving. The results of this are outlined below.

1.3.1 Animal Bone

Context number	Sample number	Feature	Sample weight (g)
C72	30	Fill of posthole – Structure 2	3.6g
C1	105	Topsoil	10.1
C237	207	Fill of ditch	3.8
C468	267	Fill of ditch	4
C237	281	Fill of ditch	55.9
C1	301	Topsoil	0.3
C1	302	Topsoil	0.6
C1	304	Topsoil	10.4
C1	305	Topsoil	6.4
C1	306	Topsoil	0.1
C1	307	Topsoil	1.7
C1	308	Topsoil	0.1
C1	309	Topsoil	405
C1	310	Topsoil	0.1
C1	311	Topsoil	2.2
C1	312	Topsoil	16.5
C505	317	Fill of ring-ditch	43.5
C504	321	Fill of ring-ditch	9.8
C507	322	Fill of ring-ditch	540
C527	323	Fill of cut	12
C505	335	Fill of ring-ditch	32.7
C507	336	Fill of ring-ditch	170
C504	337	Fill of ring-ditch	103.3
C504	339	Fill of ring-ditch	368
C505	340	Fill of pit / posthole	439
C507	342	Fill of ring-ditch	60.7
C507	343	Fill of ring-ditch	74.9
C504, T4	347	Fill of ring-ditch	310
C507	348	Fill of ring-ditch	28.4
C504, T3	350	Fill of ring-ditch	120.3
C507 T6	351	Fill of ring-ditch	985
C529	354	Fill of ditch	24.7
C507	355	Fill of ring-ditch	60.1
C507, T2	356	Fill of ring-ditch	63.8
C507 NW quad of T1/2	357	Fill of ring-ditch	75.4
C503, C505	359	Fill of ring-ditch	62.2
C529, T6, T7	360	Fill of ditch	71
C529	361	Fill of ditch	22.2
C538	364	Fill of ditch	0.6
C517, T3	367	Fill of ring-ditch	19.2
C584, C585	368	Fill of ditch	110.5
C529	373	Fill of ditch	60.4
C603	374	Fill of ditch	1781

Context number	Sample number	Feature	Sample weight (g)
C507 T6 ext.	377	Fill of ring-ditch	24.9
C507, T8	378	Fill of ring-ditch	11.8
C507, T3	379	Fill of ring-ditch	244.6
C585	381	Fill of ditch	0.3
C507, T3	382	Fill of ring-ditch	133.9
C517, T4	384	Fill of ring-ditch	54.9
C507, T4	385	Fill of ring-ditch	118.6
C529, T4	386	Fill of ditch	148.4
C539, C540	388	Fill of ditch	28.5
C511, C530	390	Fill of ditch	7.8
C640	391	Fill of ditch	149.8
C529	393	Fill of ditch	221
C507	395	Fill of ring-ditch	245
C531, C532	396	Fill of drain	76.8
C510, C513	397	Fill of ditch	22.6
C503, C507	398	Fill of ring-ditch	92.3
C511, C530	399	Fill of ditch	0.6
C653	400	Fill of ditch	292
C505	401	Fill of ring-ditch	245
C504	403	Fill of ring-ditch	<0.1g
C505	404	Fill of ring-ditch	0.6g
C507	405	Fill of ring-ditch	20.8g
C538	408	Fill of ditch	192
C505	409	Fill of ring-ditch	11.3
C507	410	Fill of ring-ditch	43.4
C527	412	Fill of ditch	108
C542	414	Fill of linear feature	171
C504	417	Fill of ring-ditch	148.4
C653	418	Fill of ditch	1280
C583	420	Fill of ditch	152
C523	421	Fill of ditch	26.6
C505	422	Fill of ring-ditch	221
C505	423	Fill of ring-ditch	51.2
C571	443	Fill of ditch	27.9
C507	445	Fill of ring-ditch	565
C504	451	Fill of ring-ditch	0.4
C598	455	Fill of linear feature	0.9g
C597	456	Fill of furnace	18.8
C603	458	Fill of ditch	4.8g
C615	464	Fill of ditch	1.2g
C655	465	Fill of ditch	515
C615	467	Fill of ditch	87.7
C616	468	Fill of ditch	130.4
C507	470	Fill of ring-ditch	915
C618	473	Fill of pit	394.6
C612	480	Fill of ditch	1168.8 including paper
C612	480	Fill of ditch	3540.0g
C596, C625	482	Fill of kiln	17.6
C619	484	Fill of linear feature	1.7
C585	487	Fill of ditch	3640.0g
C598	490	Fill of ditch	118.6g
C523	491	Fill of ditch	25.2
C655	494	Fill of ditch	319
C641	496	Fill of ditch	315

Context number	Sample number	Feature	Sample weight (g)
C616	501	Fill of ditch	1103.8g
C647	504	Fill of feature	5.2
C659	505	Deposit	10.7
C653	507	Fill of ditch	131.2
C616	509	Fill of ditch	107.7
C616	509	Fill of ditch	188.9g
C653	510	Fill of ditch	77.9
C653	511	Fill of ditch	9.3
C646	512	Fill of ditch	45.6

1.3.2 Burnt Bone

Context number	Sample number	Feature	Sample weight (g)
C67	29	Fill of cremation pit	14.7g
C67	31	Fill of cremation pit	2.4
C28	34	Fill of pit – Structure 1	6.2
C27	52	Fill of pit – Structure 1	20.6
C103	66	Fill of pit	1.5
C20	67	Fill of pit – Structure 2	0.2g
C13	73	Fill of pit	0.1g
C35	95	Fill of pit – Structure 2	0.4
C20	108	Fill of pit – Structure 2	0.4
C54	109	Deposit	1.3
C234	125	Fill of pit	0.1g
C229	130	Fill of pit	1.4g
C229	132	Fill of pit	1.4
C247	138	Fill of cremation pit	3.6g
C300	153	Fill of cremation pit	2.2
C247	154	Fill of cremation pit	5.7
C300	155	Fill of cremation pit	13.1g
C314	158	Fill of kiln	0.1g
C314	159	Fill of kiln	1.4
C253	160	Fill of cut	1.1
C54	161	Deposit	0.4
C140	173	Fill of kiln	0.4
C319	182	Fill of cremation pit	2.7
C319	183	Fill of cremation pit	6.7g
C315	197	Fill of kiln	0.9
C26	206	Fill of pit	0.1
C243	217	Fill of furnace	0.5
C419	239	Fill of stakehole	0.5
C1	312	Topsoil	0.4
C515, C519	353	Fill of pit / posthole	0.7
C585, C584	368	Fill of ditch	3.6
C504, T1	369	Fill of ring-ditch	0.3
C603	374	Fill of ditch	1.6
C585	381	Fill of ditch	11.4
C505	404	Fill of ring-ditch	0.2g
C545	415	Fill of ring-ditch	22.2
C504	419	Fill of ring-ditch	0.2
C545	448	Fill of ring-ditch	9.4
C504	450	Fill of ring-ditch	0.1
C504	451	Fill of ring-ditch	20.3
C545	452	Fill of ring-ditch	0.1g

Context number	Sample number	Feature	Sample weight (g)
C618	473	Fill of cut	10.4
C636	488	Fill of ditch	321
C642	499	Fill of cut	0.5

1.3.3 Charcoal

Context number	Sample number	Feature	Sample weight (g)
C10	1	Fill of pit – Structure 2	7.1g
C11	2	Fill of pit – Structure 2	2.2g
C32	3	Fill of pit – Structure 2	1.1g
C9	4	Fill of pit – Structure 2	18.0g
C119	8	Fill of possible feature	0.3g
C19	9	Spread	8.7g
C66	10	Non-archaeological	0.4g
C91	11	Fill of pit – Structure 2	0.1g
C78	13	Fill of pit – Structure 1	5.9g
C10	16	Fill of pit – Structure 2	3.1g
C104	17	Fill of stakehole	7.4g
C92	21	Fill of furnace	66.5g
C110	22	Fill of furnace	5.0g
C7	23	Fill of posthole – Structure 1	2.1g
C95	25	Fill of pit	25.7g
C94	26	Fill of pit	32.9g
C96	27	Fill of posthole	12.2g
C93	28	Fill of stakehole	21.2g
C67	29	Fill of cremation pit	291.2g
C72	30	Fill of posthole – Structure 2	0.8g
mixed fills	32	Fill of pit – Structure 1	28.9g
C29	35	Fill of pit –Structure 1	2.1g
C14	36	Fill of posthole – Structure 2	3.7g
C6	43	Spread	6.6g
C28	46	Fill of pit – Structure 1	>0.1g
C150	48	Fill of pit – Structure 1	0.7g
C73	49	Fill of circular pit	1.3g
C23	51	Fill of pit – Structure 1	4.1g
C70	54	Spread	3.8g
C103	61	Fill of pit	1.6g
C169	64	Fill of pit – Structure 1	1.8g
C103	65	Fill of pit	4.3g
C20	67	Fill of pit –Structure 2	10.8g
C146	68	Fill of stakehole	0.2g
C180	70	Fill of pit	161.9g
C180	71	Fill of pit	18.9g
C125	72	Fill of pit – Structure 2	3.2g
C13	73	Fill of posthole – Structure 2	0.2g
C47	77	Fill of pit – Structure 1	0.9g
C189	80	Fill of pit	3.1g
C154	83	Fill of pit	108.7g
C199	85	Fill of pit – Structure 1	0.9g
C35	86+A124	Fill of feature – Structure 2	4.4g
C205	90	Fill of posthole – Structure 2	1.5g
C51	91	Fill of stakehole	0.5g
C196	94	Fill of stakehole	1.8g
C4	96	Fill of pit – Structure 1	1.9g

Context number	Sample number	Feature	Sample weight (g)
Mixed fills 79 and 175	97+ 69	Fill of pit – Structure 1	
C220	101	Fill of pit	0.6g
C155	102	Fill of pit	1.0g
C156	104	Fill of pit	0.2g
C220	106	Fill of pit	1.0g
C54	110	Deposit	42.2g
C21	111	Fill	11.4g
C21	112	Fill	4.2g
C227	115	Fill of pit –Structure 1	8.9g
C32	117	Fill of pit – Structure 2	0.4g
C259	119	Fill of stakehole – Structure 2	0.1g
C234	125	Fill of pit	0.3g
C253	127	Fill	0.4g
C276	128	Fill of pit	11.2g
C276	129	Fill of pit	12.2g
C229	130	Fill of possible cremation pit	14.0g
C229	131	Fill of possible cremation pit	10.0g
C243	133	Fill of furnace	14.6g
C274	134	Fill of possible kiln	3.0g
C278	135	Fill of stakehole – Structure 2	2.4g
C247	138	Fill of cremation pit	27.3g
C246	139	Fill of cremation pit	0.2g
C271	148	Fill of cut	0.8g
C271	149	Fill of cut	2.1g
C247	152	Fill of cremation pit	3.2g
C300	155	Fill of cremation pit	10.4g
C243	156	Fill of furnace	10.2g
C309	157	Fill of furnace	22.0g
C314	158	Fill of furnace	0.1g
C315	166	Fill of furnace	207.0g
C324	167	Fill of cut	1.8g
C316	170	Fill of charcoal deposit	0.1g
C54	171	Deposit	19.9g
C331	176	Fill of stakehole	0.2g
C325	177	Fill of pit	1.7g
C301	180	Deposit	2.5g
C333	181	Fill of curvilinear	1.8g
C319	183	Fill of cremation pit	7.3g
C54	185	Deposit	0.7g
C354	192	Fill of stakehole	0.3g
C348	193	Fill of stakehole	2.9g
C362	200	Fill of furnace	0.5g
C363	201	Fill of stakehole	<0.1g
C356	204	Fill of cut	12.2g
C385	210	Fill of posthole	0.6g
C54	213	Deposit	3.7g
C362	214	Fill of furnace	3.4g
C392	221	Fill of posthole	0.3g
C243	222	Fill of furnace	2.4g
C403	227	Fill of posthole	0.1g
C89	228	Fill of stakehole	1.1g
C406	230	Fill of posthole	0.1g
C408	233	Fill of posthole – Structure 2	0.3g
C398	234	Fill of ditch	0.1g

Context number	Sample number	Feature	Sample weight (g)
C399	238	Fill of cut	0.5g
C436	243	Fill of cut	1.1g
C442	245	Fill of stakehole	0.6g
C449	247	Fill of posthole	1.0g
C454	251	Fill of posthole	5.2g
C456	252	Fill of posthole	0.4g
C463	253	Fill of posthole	0.1g
C451	254	Fill of cut	4.8g
C471	257	Fill of pit	0.8g
C269	258	Fill of ditch	3.4g
C747	262	Context Cancelled	35.9g
C485	264	Fill of pit	<0.1g
C468	266	Fill of ditch	0.4g
C245	270	Fill of stakehole	0.5g
C492	274	Fill of furnace	150.7g
C495	283	Fill of pit	5.5g
C504	315	Fill of ring-ditch	0.1g
C504	316	Fill of ring-ditch	<0.1g
C504	319	Fill of ring-ditch	2.4g
C504	327	Fill of ring-ditch	0.2g
C513	328	Fill of ditch	0.4g
C504	331	Fill of ring-ditch	0.4g
C514	333	Spread	3.6g
C517	346	Fill of ring-ditch	0.1g
C504	362	Fill of ring-ditch	0.8g
C504	366	Fill of ring-ditch	0.1g
C539	371	Fill of ditch	1.1g
C517	372	Fill of ring-ditch	<0.1g
C529	375	Fill of ditch	10.2g
C538	376	Fill of ditch	0.1g
C504	403	Fill of ring-ditch	1.7g
C505	404	Fill of ring-ditch	0.1g
C507	405	Fill of ring-ditch	0.1g
C522	407	Fill of ditch	0.1g
C538	411	Fill of ditch	16.3g
C545	416	Fill of ring-ditch	0.1g
C557	424	Fill of cut	10.7g
C557	425	Fill of cut	22.4g
C501	426	Fill of posthole / pit	0.1g
C557	432	Fill of cut	0.9g
C567	435	Fill of pit	3.8g
C562	436	Fill of cut	0.1g
C573	439	Fill of pit	0.9g
C592	447	Fill of linear cut	<0.1g
C545	452	Fill of ring-ditch	0.8g
C598	455	Fill of ditch	<0.1g
C603	458	Fill of ditch	0.2g
C600	461	Fill of slag pit	8.8g
C623	476	Fill of furnace	<0.1g
C624	477	Fill of furnace	0.1g
C633	485	Fill of furnace	56.3g
C628	495	Fill of pit	13.4g
C646	500	Fill of ditch	0.1g

1.3.4 Carbonised Plant Remains

Context number	Sample number	Feature	Sample weight (g)
C23	51	Fill of pit	<0.1g
C70	54	Spread	0.1g
C156	104	Fill of pit	0.1g
C54	110	Deposit	0.3g
C21	111	Fill of pit	0.1g
C237	126	Fill of ditch	0.1g
C243	133	Fill of furnace	4.3g
C274	134	Fill of cut	3.0g
C247	138	Fill of pit	<0.1g
C243	156	Fill of furnace	5.7g
C309	157	Fill of furnace	46.2g
C314	158	Fill of furnace	0.9g
C315	166	Fill of furnace	114.7g
C324	167	Fill of cut	3.1g
C348	193	Fill of stakehole	<0.1g
C362	200	Fill of furnace	6.4g
C362	214	Fill of furnace	0.3g
C243	222	Fill of furnace	1.5g
C463	253	Fill of posthole	<0.1g
C495	283	Fill of pit	0.3g
C504	403	Fill of ring-ditch	4.3g
C622	475	Fill of furnace	0.1g
C623	476	Fill of furnace	<0.1g
C624	477	Fill of furnace	0.4g
C646	500	Fill of cut	<0.1g

1.3.5 Metallurgical Waste

Context number	Sample number	Feature	Sample weight (g)
C100	271	Fill of ditch	39.0
C115	38	Fill of furnace – Structure 2	744.6
C267	124	Fill of furnace	444.6
C448	268	Fill of furnace	48.9
C504	329	Fill of ring-ditch	984.6
C504	330	Fill of ring-ditch	108.1
C504	338	Fill of ring-ditch	494.6
C504	341	Fill of ring-ditch	12.5
C531	334	Fill of drain	96.6
C539, C540	389	Fill of ditch	114.7
C600	461	Fill of slag pit	158.5
C600	462	Fill of slag pit	999.6

1.3.6 Burnt Clay

Context number	Sample number	Feature	Sample weight (g)
C293	146	Spread	0.4g
C314	158	Fill of furnace	15.2g
C140	219	Fill of furnace	16.1g

Appendix 1.4 Archive Checklist

Project: M3 – Navan to Kells, Contract 4	**Irish Archaeological Consultancy Ltd**	
Site Name: Grange 3		
Excavation Registration No.: E3123		
Ministerial Direction: A029/005		
Site director: Amanda Kelly		
Date: September 2010		
Field Records	**Items (quantity)**	**Comments**
Site drawings (plans)	65	49 sheets altogether
Site sections, profiles, elevations	97 section drawings, 2 profile drawings.	
Other plans, sketches, etc.		
Timber drawings	0	
Stone structural drawings	0	
Site diary/note books	0	
Site registers (folders)	4 Lever arch folders	
Survey/levels data (origin information)	Levels on plans	
Context sheets	660	
Wood Sheets	0	
Skeleton Sheets	0	
Worked stone sheets	0	
Digital photographs	504	
Photographs (print)	0	
Photographs (slide)	0	
Finds and Environ. Archive		
Flint/chert	367	includes 2 pieces of quartz
Stone artefacts	14	Possible spindle whorl, saddle quern fragment, grinding /polishing stones, hammerstones and a stone axehead
Pottery (specify periods/typology)	109 sherds + 87 fragments mid- LBA domestic pottery. 6 13th–14th C sherds. 3 18th–19th C sherds.	
Ceramic Building Material (specify types eg daub, tile)	0	
Metal artefacts (specify types - bronze, iron)	8	2 iron pin frags, 1 copper alloy pin (frags), base of mod. Iron vessel + 4 iron nails.
Glass	0	
Other find types or special finds (specify)	Bone Needle.	
Human bone (specify type eg cremated, skeleton, disarticulated)	1 sample of burnt bone 303.9g	
Animal bone	106 unburnt, 43 burnt bone,	
Metallurgical waste	12 samples of slag	= 4.25kg
Enviro bulk soil (specify no. of samples)	362	-
Enviro monolith (specify number of samples and number of tins per sample)	0	
Security copy of archive	Yes	Digital copy

APPENDIX 2 SPECIALIST REPORTS

Appendix 2.1 Prehistoric Pottery Report – Eoin Grogan and Helen Roche

Appendix 2.2 Medieval and Post Medieval Pottery Report – Niamh Doyle

Appendix 2.3 Lithics Analysis Report – Eimear Nelis

Appendix 2.4 Small Finds Reports
- Appendix 2.4.1 Metal Finds Reports – Jacqueline Mac Dermott
- Appendix 2.4.2 Worked Bone Report – Ian Riddler
- Appendix 2.4.3 Worked Stone Report – Richard O' Brien

Appendix 2.5 Charcoal and Wood Analysis Report – Lorna O'Donnell

Appendix 2.6 Plant Remains Analysis Report – Susan Lyons

Appendix 2.7 Faunal Assemblage Report – Margaret McCarthy

Appendix 2.8 Osteological Report – Jennie Coughlan

Appendix 2.9 Radiocarbon Dating Results – QUB and SUERC Laboratories

Appendix 2.10 Metallurgical Waste Analysis Report – Angela Wallace and Lorna Anguilano

THE PREHISTORIC POTTERY
GRANGE 3 (E3123)

EOIN GROGAN AND HELEN ROCHE

Summary
The site produced a small assemblage of 109 sherds (plus 89 fragments, weight: 1089.25g) representing at least 21 middle to late Bronze Age domestic vessels. This material highlights the significance of the core of prehistoric activity in the Kells area. A few sherds of medieval Leinster cooking ware were also recovered.

*(Note: A number of sherds listed in the site report (Kelly 2008), such as **154**:1 and **54**:101, were not submitted for analysis).*

The middle to late Bronze Age domestic pottery
There are 109 sherds (14 rim-, 16 neck-, one base-angle- and 78 bodysherds, plus 89 fragments, weight 1,089.25g), from at least 21 middle to late Bronze Age domestic vessels (Table 1). These consist of 13 plain domestic pots (Nos 1–2, and Groups I–XI, two cordoned vessels (Nos 3 and 4) and six decorated domestic cordoned urns (Nos 5–9 and Group XII). The bulk of the pottery came from features associated with, or in the immediate vicinity of, two circular houses (Structures 1 and 2), while smaller quantities also came from other contexts including a cremation pit (C275), and a pit (C502) in the interior of a ring-ditch (Kelly 2008).

Note: Group numbers (Roman numerals) refer to sherds from a distinct vessel where the overall form is not identifiable.

The vessels are all domestic, generally bucket-shaped, pots and, although there are no definite base- or base-anglesherds present, it is probable that all of these are flat bottomed. The rims are upright and rounded or flattened with some simple internal bevels (Nos 5–6). There is a limited range of stone inclusions in the Grange assemblage. The most common is crushed dolerite which occurs in all of the pottery. These inclusions are generally ≤ 5 by 4mm but larger pieces up to 9 by 7mm, and occasionally measuring over 14mm, are also present. Quartzite occurs in Vessel 1 and Group VI as well as individual sherds from C20 and C40, while shale was used in Group X and a sherd from C577; the latter also contained small rolled sandstone pebbles (≤ 3.82mm). The inclusions are present in medium to high quantities consisting of up to, or occasionally more than, 40% of the fabric. Although well-made and fired the pottery is utilitarian and minor variations in thickness have produced uneven outer surfaces; many of the vessels were finished externally with a fine slurry (a wet clay solution without inclusions) or paste which served to mask this irregularity as well as inclusions protruding through the surface. These smoother finishes are preserves on sherds from some of the vessels including Nos 1–2 and 5, and Groups II–III and VII; a thicker paste finish is partly preserved on Vessel 4.

The fragmented nature of the assemblage precluded accurate measurements for most of the vessels represented. Estimates were made for four pots: Nos 1 (rim diameter *c.* 200mm), Group II (maximum body diameter *c.* 250mm), 2 (rim *c.* 200mm), and 9 (rim *c.* 170mm). Where possible a rough size bracket has been provided and this indicates that the majority of the pots were in the medium range (Table 1) compared to other middle to late Bronze Age domestic pottery (see Grogan 2005).

The evidence indicates that all of the pottery is primarily domestic debris. Positive evidence for use in cooking occurs on 14 vessels, in the form of sooting (Nos 2–3 and 5, and Groups IV and IX–X) or burnt accretions (Nos 1, 3–4, 6 and 9, and Groups VI–VIII and XI). In addition a large percentage of the assemblage had been heavily reduced; this is clearly indicated by the large quantity of fragments (61) that could not be ascribed to a particular vessel. Much of the assemblage is worn with some damage to the surfaces and edge breaks of most sherds. However, there is not

much indication of severe wear, abrasion or weathering of the type that can be associated with exposure in the open, or on a midden. Overall the condition of the pottery is consistent with some movement after breakage but also with considerable protection from the elements. It is also evident that this assemblage represents only a fraction of the domestic loss associated with the structures. Many vessels were represented by only a few sherds, only two (Nos 3 and Group VII) had more than ten sherds present while only No. 3 had more than 20 sherds. The average number of sherds per vessel (4.6) shows that only a small part of each pot was recovered from the excavated contexts, and this indicates that most broken pottery was disposed of away from the main occupation areas.

Vessel 2 has an unusual bifurcated rim top divided by a circumferential channel produced by linear stab marks: rims of this type are rare but occur on late Bronze Age vessels at Raynestown 1, Co. Meath, Navan Fort (*Emain Macha*), Co. Armagh, Ballyveelish, Co. Tipperary, and Rathjordan, Co. Limerick (Grogan and Roche 2008; Waterman 1997, figs 35: 6, 9 and 36: 1–2; Doody 1987, fig. 2: 9; Ó Ríordáin 1948). Vessels 3 and 4 have low, pinched-up, cordons on the neck but appears otherwise to be plain. Twisted cord impressed decoration occurs on the neck of Nos 5–9 and Group XII. These, and the two cordoned vessels, belong to the domestic variant of the Cordoned Urn Tradition (Waddell 1995, 113, 118; Kavanagh 1976, 330; Brindley 2007, 143; Grogan and Roche forthcoming). Reasonably extensive dating indicates a range of *c*. 1750–1400 cal. BC for cordoned urn burials (Brindley 2007) but a slighter longer currency, perhaps down to the beginning of the late Bronze Age, for the domestic variant. The emergence of plain coarse domestic pottery during the latter part of this period has recently been demonstrated at Corrstown, Co. Derry (Roche and Grogan 2008). The fabric, form and firing of the Grange vessels is generally homogenous indicating a single contemporary assemblage. The current evidence suggests a date range for the Grange assemblage of *c*. 1500–1200 BC.

The cremation pit C275 produced sherds from a cordoned vessel (No. 4). As noted above this pot displayed evidence for use in a domestic context. While intact vessels were frequently used as funerary containers during the middle to late Bronze Age the use of broken pots, including deposition of just a few sherds, is also a feature of burials from the period (Grogan 2004). Examples include Mitchelstowndown North, Co. Limerick (Grogan 1988a; 1988b), and Killoran site 10, Co. Tipperary (Stevens 2005; Roche 2005). The pottery from the cremation pit links this feature to the two structures; while the single sherd (**501**:1) from the pit within the ring-ditch may be a fortuitous inclusion it may also provide a connection to the settlement activity.

The regional context

Grange in one of a cluster of sites in the Kells area including Kilmainham sites 1A, 1C and 2, and Town Parks3 that produced contemporary domestic pottery in small quantities (Lyne 2008; Walsh 2008; Bayley 2008; Gleeson 2008; Grogan and Roche 2009a; 2009b; 2009c; 2009d). These sites form part of an important, and previously unknown, concentration of prehistoric activity (McLoughlin and Walsh 2008). Until very recently only a small number of late Bronze Age sites had been identified in this region. These included Monknewtown and Moynagh Lough, Co. Meath (Sweetman 1976, 33, fig. 5; Bradley 2004), and Dalkey Island, Co. Dublin (Liversage 1968). Significant assemblages have more recently been identified at Stamullin and Raynestown 1, Co. Meath, and Haggardstown, Co. Louth (Grogan and Roche 2007; 2008a; 2008b).

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CATALOGUE

The excavation number E3123 and Ministerial Direction Number A029/005 are omitted throughout: only the context number, in **bold**, followed by the find number is included (*e.g.* **29**:5). Numbers in square brackets (*e.g*. **29**:[4, 6–9]) indicate that the sherds are conjoined. The thickness refers to an average dimension; where relevant a thickness range is indicated. Vessel numbers have been allocated to pottery where some estimation of the form of the pot is possible, or where the detailed evidence of featured sherds (*e.g*. rims, shoulders), decoration or fabric indicates separate pots. Group numbers (Roman numerals) refer to sherds from a vessel where the overall form is not identifiable principally due to the absence of sufficient feature (rim/ neck/ shoulder) sherds. Individual sherds that could not be definitely ascribed to either category are described separately; these may come from further pots that are not, however, included in the calculations of minimum and maximum numbers of vessels. The inclusions were examined using simple magnification and in some cases attribution reflects probable, rather than certain, identification.

Domestic cordoned urns
Stone spreads associated with Structure 1: fill C461 of pit C462
Clay deposit C19 covering stone C221
This context also produced late Bronze Age domestic pottery (see below).
Vessel 5. This is represented by a single rimsherd (**19**:5; one rim fragment: **19**:4) from a vessel with broad inward sloping bevel. The surfaces are smooth and the outer was finished with fine slurry. The brown-buff fabric has a dark grey core; the inner surface is sooted. There is a high content of dolerite inclusions (up to 5.95 x 5mm). Neck thickness: 9.76mm; weight: 9g.
Decoration
There are two horizontal lines of twisted cord immediately beneath the rim.
Comment
Although fragmentary this appears to be a domestic variant cordoned urn.

Group XII. This is represented by a single worn necksherd (**19**:10) of dark grey-brown fabric with a dark grey core and a smooth brown internal surface. There is a medium to high content of dolerite inclusions (≤ 6.3 x 6mm). Neck thickness: 14.2mm; weight: 9g.
Decoration
There are two horizontal lines of twisted cord immediately beneath the rim.

Other sherds
Small sherd (**19**:6) possibly from immediately beneath the rim; weight: 2g.

Fill C451 of pit C452
Vessel 6. This is represented by two much worn rimsherds (**451**:[1–2]) from a vessel with a rounded, upright rim with a slight outward projection and a flat internal bevel. The cream- to grey-buff fabric has a dark grey core; there is a patchy black external accretion. There is a medium content of dolerite inclusions (up to 7.06 x 6.5mm). Neck thickness: 8.9mm; weight: 8g.
Decoration
A single worn horizontal scored, or possibly cord impressed, line occurs immediately beneath the rim.

Fill C06 of possibly natural hollow C176
*(Note: **6**:3 is a stone)*

Vessel 7. This is represented by four sherds (one rimsherd (**06**:10; three bodysherds: **06**:15, [18, 21]; three fragments: **06**:6, 8, 16) from a vessel with a flat-topped, inward sloping rim. The brown-buff fabric has a dark grey core. There is a medium content of dolerite inclusions (up to 5.82 x 5.5mm). Neck thickness: 11.96mm; weight: 30g.
Decoration
A horizontal line of twisted cord occurs immediately beneath the rim. Below this is a panel of oblique cord impressed lines.

Vessel 8. This is represented by three sherds (one rimsherd: **06**:17; two bodysherds: **06**:5, 9) from a vessel with a round-topped upright rim. The grey-buff fabric has a dark grey core. There is a low content of dolerite inclusions (≤ 2.46 x 2.3mm). Neck thickness: 9.73mm; weight: 7g.
Decoration
A horizontal line of twisted cord occurs immediately beneath the rim.

Other sherds
Two fragments (**06**:2, 22); weight: 2g

Postholes and stakeholes in interior (and adjacent south-western perimeter) of Structure 2, fill C35 of rectangular cut C216
Vessel 9. This is represented by four worn sherds (one rimsherd: **35**:8; three bodysherds: **35**:1, 4, 7a; two fragments: **35**:2–3) from a vessel with a rounded rim that has a slight outward protrusion. The grey-buff fabric has a dark grey core. A blackened accretion survives on the inner surface. There is a medium content of dolerite inclusions (≤ 3 x 2mm, up to 8.95 x 7.70mm). Neck thickness: 11.08mm; weight: 25g.
Decoration
This is much worn but appears to consist of a horizontal line, possibly scored, immediately beneath the rim and an oblique line, probably of twisted cord, on the neck.
Maximum external rim diameter: *c.* 170mm.

Fill C40 of posthole C84
Small bodysherd (**40**:1) with dolerite and quartzite inclusions. Thickness: 11.41mm; weight: 3g.

Fill C37 of posthole C194
A total of 16 very small fragments (**37**:1); weight: 3g.

Plain middle to late Bronze Age domestic pottery
Structures 1 and 2
Pits along perimeter of Structure 1: fill C333 of pit C332
Vessel 1. This is represented by a single rimsherd (**333**:1) from a bucket-shaped vessel with a round-topped upright rim; there is a thinner, pinched-in band immediately beneath the rim. The smooth compact grey-brown fabric has a dark grey core: the surfaces are uneven due to localised variation in the wall thickness. The surfaces were smoothed over masking most of the inclusions. A patchy blackened accretion occurs on the outer surface. There is a medium content of dolerite (≤ 2.2 x 2mm, up to 8.27 x 4.8mm) and some quartzite inclusions (≤ 1.35 x 1mm). Neck thickness: 7.98–11.41mm; body: 5mm; weight: 33g.
Maximum external rim diameter: *c.* 220mm.

Other sherds
Group I. This is represented by a single bodysherd (**333**:2). The red-buff outer surface is abraded; the core and smooth inner surface are dark grey-brown. There is

a medium to high content of dolerite inclusions (up to 9.25 x 5.02mm). Body thickness: *c*. 13.8mm; weight: 15g.

Two fragments (both **333**:3); weight: 5g.

Fill C66 of pit C86
Group II. This is represented by two worn bodysherds (**66**:[1, 4]) from towards the base of a large bucket-shaped vessel. The buff to cream-buff outer surface is abraded; the core is dark grey and the inner surface is grey-buff but probably originally a similar colour to the outer. A distinct narrow horizontal constriction probably indicates a pressed-in coil joint: this would have been at least partly masked by a slurry finish that has been worn off. There is a medium to high content of dolerite inclusions (up to 6.72 x 4.77mm). Body thickness: *c.* 13.53mm (upper) – 15.35mm (lower); weight: 98g.
Maximum external body diameter: *c.* 250mm.

Group III. This is represented by a single bodysherd (**66**:2) from closed to the junction with the base. The smooth red-buff outer surface has a slurry finish; the core is grey and the smooth inner surface is red-brown. There is a medium to high content of dolerite inclusions (up to 9.36 x 6mm). Body thickness: *c*. 13.13mm (upper) – 18.45mm (lower); weight: 15g.

Stone spreads associated with Structure 1: fill C461 of pit C462
Vessel 2. This is represented by seven sherds (two rimsherds: **461**:1, 5; five bodysherds: **461**:2–4, 6–7) from a bucket-shaped vessel with a broad round-topped rim with a deep circumferential channel: this was created by an irregular rows of quadrangular stab marks on the rim top. The inner edge of the rim is folded over the upper neck surface. The smooth compact grey, to grey-buff to buff fabric has a dark grey core: the surfaces are uneven due to localised variation in the wall thickness. The external surface was smoothed with a fine slurry (this survives on **461**:6) masking most of the inclusions. Sooting on the inner neck surface extends to, but not over, the inner lip edge and also occurs on the outer rim and in patches over the outer neck surface. There is a medium content of dolerite inclusions (≤ 2.2 x 2mm, occasionally up to 14.11 x 7.25mm). Body thickness: 10.11mm (upper) – 13.08mm (lower); weight: 110g.
Maximum external rim diameter: *c.* 260mm.

Fill C471 of pit C472
Three fragments (all **471**:1); weight: 2g.

Metalled surface/stone spread C221 representing outdoor working area
Group IX. This is represented by two fragmentary sherds (one rimsherd: **221**:2; one bodysherd: **221**:1) from a vessel with a rounded upright rim. The grey-brown to buff fabric has a dark grey core; there is a patchy blackened accretion on the outer surface extending to but not over the rim top. There is a medium to high content of dolerite inclusions (≤ 5 x 4mm). Body thickness: *c.* 9.6mm; weight: 5g.

Clay deposit C19 covering stone spread C221
This context also produced domestic cordoned urn pottery (see above).
There are two worn bodysherds (**19**:8, 11; ten fragments: **19**:2, 7, 12, 14–20) of brown-buff fabric with a dark grey core; sooting occurs on the internal surface. There is a medium content of dolerite inclusions (≤ 3 x 2mm, up to 6.99 x 6.5mm). Body thickness: 12.41mm; weight: 42g.
*Note: **19**:3 and **19**:9 are stones*

Deposit C222 over metalled surface C22
Group X. This is represented by four bodysherds (**222**:1–4) of red-brown fabric with a dark grey core; there is some sooting on the inner surface (**222**:2). There is a low to medium content of dolerite (≤ 6.78 x 5mm) and occasional shale inclusions. Body thickness: 8.56–10.57mm; weight: 24g.

Irregular stone spread C225
Bodysherd (**225**:3) of red-brown fabric with a dark grey core; there is some sooting on the inner surface. There is a low to medium content of dolerite inclusions (≤ 6.78 x 5mm). Body thickness: 10.99mm; weight: 6g.
Comment
This is from Group X or a vessel very similar to it.

Spread C224 within cut C394
Group IV. This is represented by three sherds (one necksherd: **224**:3; two bodysherds: **224**:2, 4; one fragment: **224**:1) red-brown fabric with a dark grey core; there is some sooting on the outer surface. There is a medium to high content of dolerite inclusions (up to 11.26 x 7.22mm). Body thickness: 10.47mm; weight: 20g.

Pits forming perimeter of Structure 2, fill C20 of pit C256
Worn bodysherd (**20**:3; three fragments: **20**:1–2, 4) of cream-grey fabric with a light buff inner surface and a grey core. There is a medium content of quartzite (up to 3.5 x 3mm) and dolerite (up to 3 x 2mm) inclusions. Body thickness: 8.29mm; weight: 5g.

Stone spreads/ metalled surfaces (and related pits and postholes) associated with Structure 2
Clay deposit C54 over metalled working surface
Vessel 3. This is represented by 27 sherds (two rimsherds: **54**:7, 80; five necksherds: **54**:33, 61–63, 75; 20 bodysherds: **54**:13–14, 24, 26, 34, 38, 40, 45, 55, 58, 67, 79, 81, 85, 87, 89, 154, 157–58, 160; 16 fragments: **54**:28–30, 32, 37, 39, 43, 51, 59, 68, 74, 96, 111, 153, 161–62) from a bucket-shaped vessel with a flat-topped upright, or occasionally inturned, rim. There is an irregular pinched-up horizontal cordon beneath the rim. The smooth compact dark grey to grey-buff fabric has a dark grey core: the surfaces are uneven due to localised variation in the wall thickness. Sooting occurs on the inner body surface and there is a patchy blackened accretion on the outer neck. There is a medium content of dolerite inclusions (≤ 2.2 x 2mm, occasionally up to 8.96 x 7.45mm). Neck thickness: 11.21mm; body: 12.6mm; weight: 245g.

Group V. This is represented by seven small sherds (two rimsherd: **54**:66a, 100; five bodysherds: **54**:4, 17, 41, 84, 156) from a vessel with a rounded inturned rim. The grey-buff fabric has a dark grey core and inner surface. There is a medium content of dolerite inclusions (up to 7.37 x 5.75mm). Body thickness: 8.02mm; weight: 12g.

Group VI. This is represented by five much worn bodysherds (**54**:25, 60, 64, 83, 112) from a vessel of brown-buff with a dark grey core and inner surface; the external surface is abraded and a blackened accretion occurs over part of the interior. There is a medium content of dolerite and quartzite inclusions (≤ 5.48 x 5mm). Body thickness: 12.83mm; weight: 63g.

Group VII. This is represented by 14 sherds (one possible base-anglesherd: **54**:92a; 13 bodysherds: **54**:2, 8–9, 11, 19, 21 (2), 54, 97, 130, 133, 159) from a vessel of smooth buff to cream-buff fabric with a dark grey core and a smooth grey-brown inner surface; the external surface was finished with fine slurry and a blackened accretion occurs over part of the interior. There is a medium content of dolerite inclusions (≤ 5.48 x 5mm). Body thickness: 10.2–12.2mm; weight: 151g.

Other sherds
There are a further 20 fragments (one rim: **54**:46; **54**:15, 18, 20, 27, 31, 35, 48–50, 65, 69, 99, 110, 113, 131–32, 163 (3)); 27g.

Stone spread/working surface C142 under clay deposit C54
Group XI. This is represented by two bodysherds (**142**:8–9; five fragments: **142**:1 (2), 2, 6, 11) from a vessel of grey-brown to buff fabric with a dark grey core and a smooth grey-brown inner surface; a blackened accretion occurs over part of the interior. There is a medium content of dolerite inclusions (up to 10.92 x 8.97mm). Body thickness: 8.42–10.71mm; weight: 19g.

Stone spread/working surface C420
Fragment (**420**:1); weight: 3g.

Outlying features (in the immediate vicinity) associated with Structures 1 and 2
Fill C21 of pit C170
Bodysherd (**21**:6; one fragment: **21**:2) of grey-brown fabric with a very high content of dolerite inclusions (up to 11 x 10.6mm); 4g.

Fill C154 of pit C132
Worn bodysherd (**154**:1) with a buff internal surface and a dark grey core. There is a medium to high content of dolerite inclusions; weight: 3g.

Fill C230 of posthole C270
Group VIII. This is represented by a single bodysherd (**230**:3) of compact brown-buff fabric with a dark grey core and inner surface; the external surface is abraded and there is a blackened accretion on the inner. There is a medium to high content of dolerite inclusions (up to 5.58 x 4.45mm). Body thickness: 11.68mm; weight: 16g.

Fill C253 of oval pit C254
Small fragment (**253**:1); weight: 0.25g.

Outlying cremations, fill C229 of cremation pit C275
Vessel 4. This is represented by six sherds (four necksherds: **229**:[2–5]; two bodysherds: **229**:6–7) from a vessel with a gently curved neck; a low, pinched-up cordon at the junction with the body. The smooth compact buff fabric has a grey core and a grey-buff internal surface. The outer surface was finished with a thick paste or slurry and a patchy blackened accretion occurs on the inner surface. There is an irregular coil break between **229**:2 and 3. There is a low to medium content of dolerite inclusions (≤ 4 x 3mm, occasionally up to 9.4 x 9mm). Neck thickness: 8.34mm; body: 9.25mm; weight: 38g.

Features possibly related to furnace activity, irregular burnt spread C496 in cut C549
Worn bodysherd (**496**:1) of red-buff fabric with a black core and dark grey inner surface. There is a medium to high content of dolerite inclusions (up to 4.9 x 4.5mm). Body thickness: 9.52mm; weight: 3g.

Ring-ditch, interior features of ring-ditch, fill C501 of pit C502
Worn necksherd (**501**:1) of grey-brown fabric with a medium to high content of dolerite inclusions (up to 5.77 x 5.21mm). Body thickness: 8.64mm; weight: 2g.

Modern ditches, linears to the south of the ring-ditch
Fill C577 of furrow C578
Bodysherd (**577**:2; 2 fragments: both **577**:1) of buff fabric with a dark grey core and inner surface. There is a medium content of quartzite (up to 4.88 x 4.5mm),

sandstone (≤ 3.82 x 3.5mm) and quartzite inclusions (≤ 1.5 x 1mm). Body thickness: 13.21mm; weight: 25g.

Other material
Topsoil, C1
Three small bodysherds (all **01**:10) of grey-brown fabric with a dark grey core and inner surface. There is a medium content of quartzite and mica inclusions. Body thickness: 5.25mm; weight: 2g.
Comment
This appears to be Leinster cooking ware.

Early medieval land division ditches and related activity, early medieval land division ditches, fill C583 of ditch C656
Much abraded sherd (**583**:2) of red-buff fabric with a grey core and a low content of quartzite (up to 4.42 x 3.58mm). Weight: 2g.
Comment
This is not prehistoric material.

Fill C640 of ditch C584 (C611)
Bodysherd (**640**:2) of red-buff fabric with a blackened external accretion. There is a medium content of quartzite and mica inclusions. Body thickness: 5.29mm; weight: 2g.
Comment
This is Leinster cooking ware.

Nos **23**:1, **19**:3, 9 are stones.

Vessel No.	Context/feature	Number of sherds	Rimsherds	Necksherds	Basesherds	Bodysherds	Fragments	Inclusions	Vessel size (cm)	Weight (g)	Pottery type	Decorated
5	**19**	1	1	0	0	0	1	D	-	9	MBA domestic	■
Group XII	**19**	1	0	1	0	0	0	D	-	9	MBA domestic	■
Other	**19**	1	0	1	0	0	0	D	-	2	MBA domestic	-
6	**451**	2	2	0	0	0	0	D	-	8	MBA domestic	■
7	**06**	4	1	3	0	0	3	D	-	30	MBA domestic	■
8	**06**	3	1	0	0	2	0	D	-	7	MBA domestic	■
Other	**06**	0	0	0	0	0	2	-	-	2	MBA domestic	-
9	**35**	4	1	0	0	3	2	D	R. 17	25	MBA domestic	■
Other	**40**	1	0	0	0	1	0	D Q	-	3	MBA domestic	-
Other	**37**	0	0	0	0	0	16	-	-	3	MBA domestic	-
Total		***17***	***6***	***5***	***0***	***6***	***24***			***98***	***MBA domestic***	
1	**333**	1	1	0	0	0	0	D Q	R. 20	33	M-LBA domestic	-
Group I	**333**	1	0	0	0	1	0	D	-	15	M-LBA domestic	-
Other	**333**	0	0	0	0	0	2	-	-	5	M-LBA domestic	-
Group II	**66**	2	0	0	0	2	0	D	B. 25	98	M-LBA domestic	-
Group III	**66**	1	0	0	0	1	0	D	-	15	M-LBA domestic	-
2	**461**	7	2	0	0	5	0	D	R. 26	110	M-LBA domestic	-
Other	**471**	0	0	0	0	0	3	-	-	2	M-LBA domestic	-
Group IX	**221**	2	1	0	0	1	0	D	-	5	M-LBA domestic	-
Other	**19**	2	0	0	0	2	10	D	-	42	M-LBA domestic	-
Group X	**222**	4	0	0	0	4	0	D Sh	-	24	M-LBA domestic	-
Other	**225**	1	0	0	0	1	0	D	-	6	M-LBA domestic	-
Group IV	**224**	3	0	1	0	2	1	D	-	20	M-LBA domestic	-
Other	**20**	1	0	0	0	1	3	Q D	-	5	M-LBA domestic	-
3	**54**	27	2	5	0	20	16	D	M	245	M-LBA domestic	C
Group V	**54**	7	2	0	0	5	0	D	-	12	M-LBA domestic	-
Group VI	**54**	5	0	0	0	5	0	D Q	-	63	M-LBA domestic	-
Group VII	**54**	14	0	0	1	13	0	D	-	151	M-LBA domestic	-
Other	**54**	0	0	0	0	0	20	-	-	27	M-LBA domestic	-
Group XI	**142**	2	0	0	0	2	5	D	-	19	M-LBA domestic	-
Other	**420**	0	0	0	0	0	1	-	-	3	M-LBA domestic	-
Other	**21**	1	0	0	0	1	1	D	-	4	M-LBA domestic	-
Other	**154**	1	0	0	0	1	0	D	-	3	M-LBA domestic	-
Group VIII	**230**	1	0	0	0	1	0	D	-	16	M-LBA domestic	-
Other	**253**	0	0	0	0	0	1	-	-	0.25	M-LBA domestic	-
4	**229**	6	0	4	0	2	0	D	M	38	M-LBA domestic	C
Other	**496**	1	0	0	0	1	0	D	-	3	M-LBA domestic	-
Other	**501**	1	0	1	0	0	0	D	-	2	M-LBA domestic	-
Other	**577**	1	0	0	0	1	2	D Sh S	-	25	M-LBA domestic	-
Total		***92***	***8***	***11***	***1***	***72***	***65***			***991.25***	***M-LBA domestic***	

Q quartzite D dolerite S sandstone sg sandgrade Sh shale ■ decorated C cordoned

M medium sized vessel R. rim diameter (cm) B. body diameter

Table 1. Details of Bronze Age pottery including individual vessels from Grange 3, Co. Meath.

Vessel	Context	Sherds to draw	Section only	Photograph
1	333	**333**:R. 1		
2	461	**461**:1 (draw rim top also)		**461**:1 rim top
3	54	**54**:R. 7, 80, N. 62		
4	229	**229**:N. [2–5]		
5	19	**19**:R. 5		
6	451	**451**: R. [1–2]		
7	06	**06**: R. 10, B. 15		
8	06	**06**:R. 17		
9	35	**35**: R. 8		
Group II	66	**66**:B. [1, 4]		
Group V	54		**54**: R. 66	
Group XII	19	**19**:N. 10		

R. rim N. neck B. body

Table 2. Suggestions for illustration: Grange 3, Co. Meath.

54:2, 4, 7–9, 11, 13–15, 17–21 (2), 24–35, 37–41, 43, 45–46, 48–51, 54–69, 74–75, 79–81, 83–85, 87, 89, 92, 96, 97, 99–100, 110–113, 130–33, 153–54, 156–62

THE MEDIEVAL AND POST MEDIEVAL POTTERY GRANGE 3 (E3123)

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1 Introduction

The pottery assemblage from Grange 3 contains nine sherds of pottery including three sherd of 18th–19th century post medieval pottery and six sherds of 13th–14th century locally produced medieval pottery. The presence of pottery from the post medieval and medieval period at Grange 3 represents activity from both periods onsite.

2 Methodology

These fragments were identified visually in accordance with existing typologies. A brief description of fabric and decoration is given. The different types of pottery are presented in tabular form. Medieval vessel types and styles of manufacture were identified in accordance with the Medieval Pottery Research Group's classification of ceramic forms (1998). Both medieval and post medieval types were identified based on information from published excavations in Ireland and existing typologies.

3 Dating

Date ranges for the pottery types are based on published dates for the production and distribution of pottery excavated from archaeological sites in Ireland, England and the United States of America.

4 Discussion

Medieval pottery

4.1 Local medieval pottery: Meath-type wares

The medieval pottery from Grange 3 consists of two locally produced medieval pottery types that have been named Meath-type ware and Meath-type fine ware. These local medieval wares are similar in form to much medieval pottery found in Ireland from the 13th–14th century, with a strong influence on form and decoration from Ham Green and Bristol Redcliffe wares. It is a convention on medieval pottery studies to name a pottery type after its production site, in the absence of a known production site the pottery is named as a type after the area in which it has been found to be most prolific (Blake and Davey, 1983, 39–40).

The medieval pottery type found at Grange 3, situated between Navan and Kells has also been found on multiple sites along the route between the towns of Navan and Kells in County Meath (Doyle 2007 a,c,d,f–m). Due to the fact that this local medieval pottery has been found in multiple sites in central Meath and the production site is as yet unknown the pottery has been named simply Meath-type and Meath-type fine ware.

This pottery is distinctly different to that already identified at Trim (Sweetman 1987), and Drogheda ware (Campbell 1996). Locally produced wheel thrown medieval pottery from County Meath sites Castlefarm 1 (Doyle 2007a) and Dunboyne 4 (Doyle 2007b) is similar to the sandy wheel thrown pottery from Killeen Castle (Doyle 2006) and Tullykane (Sandes 2006). This pottery type is different to the Meath-type ware described here. Meath-type fine ware, however is similar to the local fine wares from Castlefarm 1 (Doyle 2007a) and Garrettstown 2 (Doyle 2007c).

4.2 Meath-type pottery

The assemblage contains four fragments of Meath-type medieval pottery representing a MNR of two vessels of this type, probably a jug form indicated by the rim fragment present. The fabric of these vessels is soft powdery clay with frequent inclusions of haematite and mica as well as small stones that stand proud on the surface where the soft fabric has been weathered. The fine powdery clay of this type is the same as that used for the local fine wares described below with the addition of

small stone inclusions. The soft nature of this pottery is such that it is often heavily abraded meaning it is sometimes difficult to discern the throwing lines of this pottery.

4.3 Meath-type fine ware

The assemblage contains two fragments of this medieval pottery representing a MNR of 1 vessel, most likely a jug form. This group of pottery has the same fine, powdery fabric of Meath-type ware but has fewer inclusions. Meath-type fine ware does not have the small stone inclusions of Meath-type ware, but contains occasional inclusions of haematite and small mica fragments.

The assemblage contains three fragments of post medieval pottery ranging in date from the 18th–19th century, representing pottery types used in domestic contexts.

4.4 Iberian Olive jar

The assemblage contains a shoulder from a globular olive jar like Seville coarse ware with buff and grey fabric and possible slip trailed pattern externally and surface treatment of the later made Seville coarse ware. The vessel is decorated with rilling at the neck-shoulder join and is burnt both externally and internally towards the neck. None of the rim remains, which would allow typological identification (Goggin 1960). Iberian olive jars such as this have been in use in Europe from Roman times and were imported into Ireland from the medieval period.

4.5 Transfer printed ware

Transfer printing was an efficient way to decorate large quantities of durable pearlware vessels in the 18th–19th century. It began in 1756 and was duly developed by Liverpool men; John Sadler and Guy Green. The assemblage contains a sherd of transfer printed ware from a bowl or teacup decorated with a brown floral pattern.

4.6 Black glazed earthenware

The assemblage contains a fragment from a black glazed buff earthenware vessel, possibly tableware such as a bowl, jug, tankard. This type of pottery ranges in date from the 18th–19th century and was probably produced in the Staffordshire, England.

Figure 1 - Catalogue of medieval and post medieval pottery from Grange 3

Licence Number	Context	Find number	links	Category	Type	Part
E3123	1	18		ceramic	Pottery. Black glazed buff fabric	body fragment
E3123	100	1		ceramic	Pottery. Meath-type ware	body fragment
E3123	100	2		ceramic	Pottery. Meath-type fine ware	body fragment
E3123	491	1		ceramic	Pottery. Transfer printed ware. Brown floral pattern.	body fragment
E3123	504	2		ceramic	Pottery. Meath-type ware	rim fragment
E3123	504	13		ceramic	Pottery. Iberian Olive jar. Surface treatment. Burnt	body fragment
E3123	583	1		ceramic	Pottery. Meath-type ware	body fragment
E3123	640	1		ceramic	Pottery. Meath-type fine ware	body fragment
E3123	655	1		ceramic	Pottery. Meath-type ware	body fragment
Total no. of sherds						9

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THE LITHICS
GRANGE 3 (E3123)
EIMEAR NELIS

MAY 2010

Introduction

During archaeological mitigation at the M3 Navan to Kells roadscheme, excavations uncovered a number of archaeological sites. The project yielded a large assemblage of chipped, ground and unworked stone artefacts from numerous sites, and this report documents the analysis of the chipped stone and ground stone assemblages found during excavations and soil sample analysis at Grange 3.

Methodology

All recovered artefacts were presented for analysis, and were studied visually and catalogued using SPSS (V13) for Windows. For each artefact, the following details were recorded: contextual information (including context/feature/sample number, northings and eastings where available), basic condition, extent of abrasion, material, colour, cortex, basic character and detailed classification, platform and termination type (where relevant for chipped stone), detail of working (where relevant), length (L), breadth (B), thickness (T), fragment size (mm) and mass (g). The criteria upon which these attributes have been selected, and the analytical methodology deployed, are presented in some detail elsewhere (Nelis 2003). Analysis of the ground stone assemblage, and comments on the petrology of the assemblage, was undertaken with Ms Clare McGranaghan.

Grange 3

Excavations at Grange 3, Co Meath, uncovered a complex of archaeological remains, including a number of Bronze Age structures. These included: the (possibly middle Bronze Age) circular Structure 1 and associated features (including an external pit which yielded numerous ground stone tools), and circular Structure 2, associated features and external metalled surface (Kelly 2008). A number of cremation pits were found in the outlying area of Structures 1 and 2, and a ring-ditch was located at the north-west of the excavated area. Post-dating these structures were significant agricultural/industrial features, comprised of a number of figure-of-eight kilns and furnace pits; some or all of these features may be as late as medieval in date. Numerous field drains and boundary ditches, thought to date to the early medieval period, were also found.

In total, 365 artefacts were found during excavation, and two piece of flint micro-debitage were recovered during soil sample processing (Table 1); a further 13 ground stone artefacts were found, including a saddle quern fragment, grinding/polishing stones, hammerstones and a stone axe.

Unique No	Context	Context	Basic Character	Classification	Condition	Cortex	Fragment size (mm)	Length (mm)	Breadth (mm)	Thickness (mm)	Mass (g)
E3123:1:3	1	Flint	modified	Arrowhead	Fresh	Tertiary	0	27	16	4	1.56
E3123:1:4	1	Chert	platform flake	complete	Abraded	Secondary	0	14	14	5	1.23
E3123:1:5	1	Flint	platform flake	complete	Fresh	Secondary	0	28	23	16	10.36
E3123:1:6	1	Chert	modified	Scraper: distal frag	Abraded	Secondary	0	17	17	8	4.46
E3123:1:7a	1	Chert	bipolar blade	complete	Fresh	Secondary	0	24	11	7	2.71
E3123:1:7b	1	Chert	angular shatter	angular shatter	Fresh	Secondary	0	8	7	3	.26
E3123:1:8	1	Flint	bipolar blade	complete	Fresh	Tertiary	0	28	11	4	1.46
E3123:1:9	1	Flint	angular shatter	angular shatter	Burnt	Tertiary	0	18	9	5	.81
E3123:1:11	1	Flint	bipolar flake	complete	Fresh	Primary	0	15	8	5	.65
E3123:1:12	1	Flint	platform shatter	Indeterminate frag	Burnt	Tertiary	20	0	12	8	2.37
E3123:1:14	1	Chert	bipolar flake	complete	Abraded	Secondary	0	26	19	9	5.36
E3123:1:15	1	Chert	platform shatter	Indeterminate frag	Abraded	Secondary	21	0	16	3	1.26
E3123:1:17	1	Flint	bipolar shatter	Medial fragment	Fresh	Secondary	13	0	11	6	.67
E3123:6:1	6	Chert	angular shatter	angular shatter	Fresh	Tertiary	30	0	11	8	2.13
E3123:6:4	6	Flint	bipolar flake	complete	Fresh	Tertiary	0	14	12	4	.58
E3123:6:7	6	Flint	platform flake	complete	Fresh	Tertiary	0	22	15	2	.91
E3123:6:11	6	Quartz	platform flake	complete	Fresh	Tertiary	0	16	11	6	1.37
E3123:6:13	6	Flint	bipolar flake	complete	Patinated	Tertiary	0	19	11	14	3.25
E3123:6:14	6	Chert	angular shatter	angular shatter	Abraded	Secondary	0	25	18	9	4.03
E3123:14:1	14	Chert	platform flake	complete	Fresh	Tertiary	0	14	14	2	.54
E3123:19:13	19	Chert	platform shatter	Distal flake fragment	Fresh	Secondary	22	0	21	9	4.48
E3123:21:1	21	Flint	modified	Utilised	Fresh	Secondary	0	36	17	8	3.93
E3123:21:3	21	Flint	platform flake	core trimming	Fresh	Tertiary	0	13	15	5	1.22
E3123:21:4	21	Chert	platform flake	Retouch flake	Abraded	Secondary	0	9	7	4	.32
E3123:21:5	21	Chert	platform flake	core trimming	Fresh	Tertiary	0	11	10	4	.32
E3123:29:1	29	Flint	modified	?bipolar flaked biface: distal frag	Fresh	Primary	17	0	20	8	2.54

Unique No	Context	Context	Basic Character	Classification	Condition	Cortex	Fragment size (mm)	Length (mm)	Breadth (mm)	Thickness (mm)	Mass (g)
E3123:35:5	35	Chert	platform shatter	Medial flake frag	Abraded		18	0	22	12	7.7g
E3123:35:6	35	Chert	Unworked	Thermal flake	Abraded		0	21	16	14	6.3g
E3123:35:7b	35	Chert	angular shatter	angular shatter	Abraded	Secondary	25	0	18	10	5.09
E3123:78:1	78	Flint	modified	Projectile preform	Burnt	Secondary	0	16	14	4	.89
E3123:78:2	78	Flint	Pressure flake	Retouch flake	Burnt	Secondary	0	10	7	3	.11
E3123:78:3	78	Chert	platform flake	core trimming	Abraded	Secondary	0	14	12	3	.76
E3123:78:4	78	Flint	Pressure flake	Retouch flake	Burnt	Secondary	0	6	7	3	.03
E3123:100:3	100	Chert	angular shatter	angular shatter	Abraded	Secondary	31	0	15	6	4.43
E3123:100:5a	100	Chert	platform shatter	Distal flake frag	Fresh	Secondary	23	0	16	8	2.08
E3123:100:5b	100	Chert	angular shatter	angular shatter	Abraded	Secondary	0	12	10	7	1.23
E3123:100:6	100	Chert	bipolar flake	core trimming	Abraded	Secondary	0	21	17	10	4.33
E3123:108:1a	108	Chert	angular shatter	angular shatter	Abraded	Secondary	0	15	6	5	.55
E3123:108:1b	108	Chert	angular shatter	angular shatter	Abraded	Secondary	0	16	14	7	.47
E3123:108:1c	108	Chert	angular shatter	angular shatter	Abraded	Secondary	0	14	8	3	.31
E3123:108:1d	108	Chert	angular shatter	angular shatter	Abraded	Secondary	0	15	6	3	.30
E3123:108:1e	108	Chert	angular shatter	angular shatter	Abraded	Secondary	0	6	5	3	.13
E3123:142:3	142	Chert	Unworked	Abraded lump	Abraded	Secondary	0	20	16	11	3.36
E3123:142:4	142	Flint	angular shatter	angular shatter	Abraded	Tertiary	0	22	15	6	2.53
E3123:142:5	142	Flint	bipolar flake	complete	Abraded	Secondary	0	21	30	10	7.76
E3123:142:7	142	Flint	angular shatter	angular shatter	Abraded	Tertiary	0	10	6	3	.23
E3123:142:10	142	Flint	modified	Scraper	Abraded	Tertiary	0	14	12	4	1.12
E3123:504:1	504	Flint	modified	Scraper	Fresh	Tertiary	0	22	26	9	5.56
E3123:504:3	504	Chert	modified	edge retouched	Abraded	Tertiary	60	0	20	8	8.87
E3123:504:5	504	Chert	bipolar flake	complete	Abraded	Secondary	0	28	16	8	3.16
E3123:504:6	504	Chert	angular shatter	angular shatter	Abraded	Tertiary	0	17	14	6	1.65
E3123:504:7	504	Flint	bipolar shatter	proximal flake fragment	Abraded	Secondary	14	0	10	4	.51
E3123:504:8	504	Chert	angular shatter	angular shatter	Abraded	Tertiary	0	20	15	11	2.98

Unique No	Context	Context	Basic Character	Classification	Condition	Cortex	Fragment size (mm)	Length (mm)	Breadth (mm)	Thickness (mm)	Mass (g)
E3123:504:9a	504	Chert	angular shatter	angular shatter	Abraded	Tertiary	0	23	20	6	3.21
E3123:504:9b	504	Chert	angular shatter	angular shatter	Abraded	Secondary	0	15	13	6	1.66
E3123:504:10	504	Chert	platform flake	Retouch	Abraded	Tertiary	0	16	14	3	.69
E3123:504:11	504	Chert	bipolar flake	complete	Abraded	Secondary	0	55	20	19	19.07
E3123:504:12	504	Chert	bipolar shatter	Medial flake fragment	Abraded	Tertiary	42	0	31	11	20.50
E3123:505:1	505	Flint	modified	bipolar flaked biface	Fresh	Tertiary	0	21	18	3	1.86
E3123:505:2	505	Flint	platform flake	core trimming	Fresh	Tertiary	0	18	21	6	2.15
E3123:505:3	505	Flint	cores	bipolar	Fresh	Secondary	0	56	30	16	34.62
E3123:507:1	507	Chert	angular shatter	angular shatter	Fresh	Tertiary	0	32	16	10	6.45
E3123:507:2a	507	Chert	platform flake	core rejuvenation	Fresh	Tertiary	0	41	31	16	16.27
E3123:507:2b	507	Chert	angular shatter	angular shatter	Fresh	Tertiary	0	16	17	10	1.44
E3123:507:3	507	Flint	angular shatter	angular shatter	Burnt	Tertiary	0	11	10	3	.41
E3123:508:1	508	Chert	modified	?Hollow scraper	Fresh	Tertiary	0	22	19	3	1.98
E3123:509:1	509	Chert	angular shatter	angular shatter	Abraded	Tertiary	0	20	16	9	4.06
E3123:522:1	522	Chert	modified	edge retouched	Abraded	Secondary	0	49	41	21	48.98
E3123:525:1	525	Chert	angular shatter	angular shatter	Fresh	Tertiary	0	13	11	7	1.61
E3123:525:2	525	Chert	bipolar blade	complete	Fresh	Tertiary	0	41	20	8	7.29
E3123:527:2	527	Chert	bipolar blade	complete	Fresh	Secondary	0	31	16	6	3.02
E3123:527:3	527	Flint	modified	edge retouched	Fresh	Tertiary	0	31	16	4	2.04
E3123:538:1	538	Chert	modified	edge retouched	Abraded	Tertiary	0	48	21	9	7.05
E3123:538:2	538	Chert	bipolar blade	complete	Abraded	Tertiary	0	29	13	6	3.04
E3123:538:3	538	Chert	bipolar blade	complete	Abraded	Secondary	0	48	21	10	13.42
E3123:538:4	538	Chert	angular shatter	angular shatter	Abraded	Secondary	0	34	24	11	9.98
E3123:538:5	538	Chert	bipolar flake	complete	Abraded	Secondary	0	31	18	10	6.76
E3123:538:6	538	Chert	angular shatter	angular shatter	Abraded	Secondary	0	48	35	13	25.66
E3123:538:7	538	Chert	angular shatter	angular shatter	Abraded	Tertiary	0	15	14	11	2.67
E3123:538:8	538	Chert	bipolar shatter	Distal flake fragment	Abraded	Tertiary	18	0	19	11	5.96

Unique No	Context	Context	Basic Character	Classification	Condition	Cortex	Fragment size (mm)	Length (mm)	Breadth (mm)	Thickness (mm)	Mass (g)
E3123:538:9a	538a	Chert	bipolar flake	complete	Fresh	Tertiary	0	18	11	2	.54
E3123:538:9b	538b	Chert	angular shatter	angular shatter	Fresh	Tertiary	0	18	6	5	.58
E3123:538:10	538	Chert	cores	bipolar	Abraded	Tertiary	0	31	18	16	10.31
E3123:538:11	538	Flint	angular shatter	angular shatter	Abraded	Tertiary	0	9	7	3	.23
E3123:539:1	539	Chert	bipolar flake	complete	Fresh	Tertiary	0	31	13	10	3.38
E3123:539:2	539	Chert	angular shatter	angular shatter	Fresh	Tertiary	0	13	9	5	.51
E3123:539:4	539	Chert	modified	Scraper	Fresh	Tertiary	0	25	24	10	7.07
E3123:602:1	602	Chert	bipolar flake	complete	Fresh	Tertiary	0	26	17	8	3.79
E3123:545:1	545	Flint	Flake shatter	proximal fragment	Burnt	Tertiary	12	0	13	5	.85
E3123:560:1	560	Chert	bipolar flake	complete	Fresh	Tertiary	0	35	18	8	5.37
E3123:628:1	628	Chert	platform flake	complete	Fresh	Tertiary	0	26	36	7	4.48
E3123:619:1	619	Flint	platform shatter	Distal fragment	Burnt	Tertiary	17	0	18	4	1.24
E3123:224:5	224	Chert	angular shatter	angular shatter	Abraded	Secondary	0	26	11	12	6.08
E3123:225:1	225	Flint	platform shatter	Indeterminate fragment	Burnt	Tertiary	18	0	14	7	2.13
E3123:225:2	225	Chert	angular shatter	angular shatter	Abraded	Secondary	0	22	18	11	3.63
E3123:230:1a	230	Chert	platform flake	complete	Fresh	Secondary	0	14	22	7	1.72
E3123:230:1b	230	Chert	platform flake	complete	Fresh	Secondary	0	11	6	2	.26
E3123:230:1c	230	Chert	angular shatter	angular shatter	Fresh	Tertiary	0	6	4	3	.27
E3123:230:1d	230	Chert	angular shatter	angular shatter	Fresh	Tertiary	0	6	5	3	.29
E3123:230:1e	230	Chert	angular shatter	angular shatter	Fresh	Tertiary	0	5	3	2	.17
E3123:230:1f	230	Chert	angular shatter	angular shatter	Abraded	Tertiary	0	5	3	2	.11
E3123:233:1	233	Chert	bipolar flake	complete	Fresh	Tertiary	0	12	8	5	.71
E3123:253:2	253	Flint	modified	Scraper: bipolar	Patinated	Secondary	0	17	14	6	1.96
E3123:253:5	253	Chert	platform shatter	Indeterminate fragment	Fresh	Tertiary	25	0	17	6	2.25
E3123:301:1	301	Chert	angular shatter	angular shatter	Fresh	Tertiary	0	14	7	3	.47
E3123:301:2	301	Chert	angular shatter	angular shatter	Abraded	Secondary	0	29	21	11	4.56
E3123:328:1	328	Chert	platform flake	core trimming	Fresh	Tertiary	0	22	25	6	5.25

Unique No	Context	Context	Basic Character	Classification	Condition	Cortex	Fragment size (mm)	Length (mm)	Breadth (mm)	Thickness (mm)	Mass (g)
E3123:395:1	395	Flint	cores	bipolar	Abraded	Tertiary	0	32	25	11	10.38
E3123:54:1	54	Flint	bipolar flake	complete	Fresh	Tertiary	0	16	6	3	.17
E3123:54:3	54	Flint	modified	Scraper	Fresh	Tertiary	0	20	14	5	1.44
E3123:54:5	54	Flint	platform shatter	Indeterminate fragment	Patinated	Tertiary	20	0	6	3	.47
E3123:54:6	54	Flint	Pressure flake	Retouch	Fresh	Secondary	0	14	8	2	.24
E3123:54:10	54	Flint	angular shatter	angular shatter	Fresh	Tertiary	0	12	9	6	.64
E3123:54:12	54	Flint	bipolar flake	complete	Fresh	Tertiary	0	17	11	5	.92
E3123:54:16	54	Flint	modified	Scraper	Fresh	Tertiary	0	11	11	3	.55
E3123:54:22	54	Flint	bipolar flake	complete	Fresh	Tertiary	0	12	11	6	1.29
E3123:54:23	54	Flint	modified	Arrowhead	Fresh	Tertiary	15	0	13	2	.73
E3123:54:36	54	Chert	angular shatter	angular shatter	Abraded	Tertiary	0	16	11	7	1.48
E3123:54:42	54	Flint	modified	Scraper	Patinated	Secondary	0	21	16	7	2.26
E3123:54:44	54	Flint	modified	edge retouched	Fresh	Tertiary	0	21	8	4	1.68
E3123:54:47	54	Flint	modified	Scraper	Abraded	Tertiary	0	42	28	7	9.37
E3123:54:52	54	Flint	bipolar flake	complete	Fresh	Tertiary	0	16	8	5	.72
E3123:54:53	54	Flint	platform shatter	Indeterminate	Fresh	Tertiary	14	0	9	5	.61
E3123:54:56	54	Flint	modified	edge retouched	Patinated	Tertiary	0	15	8	6	.76
E3123:54:57	54	Flint	bipolar flake	Retouch flake	Fresh	Tertiary	0	9	6	5	.34
E3123:54:66b	54	Flint	angular shatter	angular shatter	Fresh	Secondary	0	15	13	9	1.14
E3123:54:70	54	Flint	modified	retouched piece	Fresh	Tertiary	0	17	12	3	1.02
E3123:54:71	54	Flint	bipolar flake	complete	Fresh	Secondary	0	14	8	5	.51
E3123:54:72	54	Flint	modified	Arrowhead	Fresh	Tertiary	0	26	16	5	2.17
E3123:54:73	54	Chert	modified	Scraper	Fresh	Tertiary	0	25	24	8	5.45
E3123:54:76	54	Flint	platform shatter	Distal frag	Patinated	Tertiary	20	0	13	3	.98
E3123:54:77	54	Chert	angular shatter	angular shatter	Patinated	Tertiary	0	15	12	11	2.38
E3123:54:78	54	Flint	platform flake	complete	Fresh	Tertiary	0	8	9	3	.37

Unique No	Context	Context	Basic Character	Classification	Condition	Cortex	Fragment size (mm)	Length (mm)	Breadth (mm)	Thickness (mm)	Mass (g)
E3123:54:82	54	Flint	platform shatter	Indeterminate	Fresh	Tertiary	12	0	10	2	.42
E3123:54:86	54	Flint	core	bipolar	Fresh	Tertiary	0	26	12	11	3.43
E3123:54:88	54	Flint	platform flake	Retouch	Fresh	Tertiary	0	11	2	3	.48
E3123:54:90	54	Flint	modified	Scraper	Patinated	Tertiary	0	16	17	6	1.60
E3123:54:91	54	Chert	modified	Scraper	Abraded	Tertiary	0	31	41	8	15.22
E3123:54:92b	54	Flint	platform shatter	Distal shatter	Fresh	Tertiary	18	0	31	10	4.43
E3123:54:93	54	Flint	angular shatter	angular shatter	Burnt	Tertiary	0	11	6	3	.28
E3123:54:94	54	Flint	modified	Scraper	Abraded	Secondary	0	23	17	6	2.29
E3123:54:95	54	Chert	modified	Scraper	Patinated	Tertiary	0	15	21	6	2.31
E3123:54:102	54	Flint	modified	Scraper	Fresh	Tertiary	0	14	25	6	1.75
E3123:54:103	54	Flint	bipolar flake	complete	Fresh	Tertiary	0	13	11	6	1.16
E3123:54:104:1	54	Chert	angular shatter	angular shatter	Abraded	Secondary	38	0	38	10	13.87
E3123:54:104:2	54	Chert	modified	Scraper	Abraded	Secondary	0	21	17	8	2.77
E3123:54:104:3	54	Chert	modified	edge retouched	Abraded	Secondary	0	31	17	8	2.93
E3123:54: 104:4	54	Chert	cores	flaked chunk	Abraded	Secondary	0	58	42	19	51.84
E3123:54: 104:5	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	40	25	17	25.30
E3123:54: 104:6	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	41	28	16	14.10
E3123:54: 104:7	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	35	14	17	5.60
E3123:54: 104:8	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	41	28	16	15.10
E3123:54: 104:9	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	28	17	14	7.16
E3123:54: 104:10	54	Chert	bipolar flake	complete	Abraded	Secondary	0	25	21	12	5.35
E3123:54: 104:11	54	Chert	bipolar flake	complete	Abraded	Secondary	0	25	24	18	6.49
E3123:54: 104:12	54	Chert	bipolar flake	complete	Abraded	Secondary	0	21	16	8	4.01
E3123:54: 104:13	54	Chert	platform flake	core trimming	Abraded	Secondary	0	32	28	18	11.30
E3123:54: 104:14	54	Chert	platform flake	core rejuvenation	Abraded	Secondary	0	46	31	17	13.77
E3123:54: 104:15	54	Chert	platform flake	core rejuvenation	Abraded	Secondary	0	38	39	19	13.94
E3123:54: 104:16	54	Chert	platform flake	complete	Abraded	Secondary	0	25	28	9	2.99

Unique No	Context	Context	Basic Character	Classification	Condition	Cortex	Fragment size (mm)	Length (mm)	Breadth (mm)	Thickness (mm)	Mass (g)
E3123:54: 104:17	54	Chert	platform flake	core trimming	Abraded	Secondary	0	11	36	11	2.76
E3123:54: 104:18	54	Chert	platform flake	core trimming	Abraded	Secondary	0	32	28	12	8.20
E3123:54: 104:19	54	Chert	platform shatter	Medial blade fragment	Abraded	Secondary	31	0	20	5	2.39
E3123:54: 104:20	54	Chert	bipolar flake	complete	Abraded	Secondary	0	24	13	5	1.72
E3123:54: 104:21	54	Chert	platform flake	core trimming	Abraded	Secondary	0	16	12	5	1.05
E3123:54: 104:22	54	Chert	bipolar flake	complete	Abraded	Secondary	0	19	11	4	.81
E3123:54: 104:23	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	22	12	6	1.17
E3123:54: 104:24	54	Chert	platform flake	Retouch	Abraded	Secondary	0	13	13	2	.65
E3123:54: 104:25	54	Chert	platform flake	Retouch	Abraded	Secondary	0	14	20	3	.91
E3123:54: 104:26	54	Chert	platform flake	Retouch	Abraded	Secondary	0	19	13	2	.44
E3123:54: 104:27	54	Chert	platform shatter	Distal blade shatter	Abraded	Secondary	24	0	13	2	.58
E3123:54: 104:28	54	Chert	platform flake	Retouch	Abraded	Secondary	11	0	17	3	.48
E3123:54: 104:29	54	Chert	platform shatter	Distal flake shatter	Abraded	Secondary	16	0	15	4	1.09
E3123:54: 104:30	54	Chert	platform shatter	Medial blade shatter	Abraded	Secondary	13	0	9	4	.67
E3123:54: 104:31	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	42	28	21	36.89
E3123:54: 104:32	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	44	22	28	50.24
E3123:54: 104:33	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	37	33	14	18.23
E3123:54: 104:34	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	44	22	14	13.81
E3123:54: 104:35	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	56	18	9	12.07
E3123:54: 104:36	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	28	28	16	11.88
E3123:54: 104:37	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	30	22	18	16.03
E3123:54: 104:38	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	29	18	18	15.53
E3123:54: 104:39	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	37	26	16	14.12
E3123:54: 104:40	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	31	24	14	12.44
E3123:54: 104:41	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	35	28	15	9.31
E3123:54: 104:42	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	33	20	9	8.41
E3123:54: 104:43	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	33	22	17	16.21

Unique No	Context	Context	Basic Character	Classification	Condition	Cortex	Fragment size (mm)	Length (mm)	Breadth (mm)	Thickness (mm)	Mass (g)
E3123:54: 104:44	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	33	25	14	10.75
E3123:54: 104:45	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	33	12	11	7.42
E3123:54: 104:46	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	28	23	14	12.19
E3123:54: 104:47	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	33	20	11	4.26
E3123:54: 104:48	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	33	16	11	8.65
E3123:54: 104:49	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	33	22	12	6.16
E3123:54: 104:50	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	33	25	21	19.70
E3123:54: 104:51	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	24	18	11	6.51
E3123:54: 104:52	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	31	18	14	7.26
E3123:54: 104:53	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	40	22	13	10.23
E3123:54: 104:54	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	33	26	13	14.49
E3123:54: 104:55	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	33	15	13	8.47
E3123:54: 104:56	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	23	16	11	7.34
E3123:54: 104:57	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	23	20	18	9.48
E3123:54: 104:58	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	28	12	11	7.16
E3123:54: 104:59	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	30	13	10	5.74
E3123:54: 104:60	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	31	14	11	6.71
E3123:54: 104:61	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	26	12	11	4.27
E3123:54: 104:62	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	25	21	10	9.28
E3123:54: 104:63	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	28	13	8	4.33
E3123:54: 104:64	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	30	15	8	5.38
E3123:54: 104:65	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	25	20	10	4.81
E3123:54: 104:66	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	22	18	11	4.47
E3123:54: 104:67	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	22	18	8	2.85
E3123:54: 104:68	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	26	15	5	2.73
E3123:54: 104:69	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	23	19	9	4.41
E3123:54: 104:70	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	28	18	12	9.15

Unique No	Context	Context	Basic Character	Classification	Condition	Cortex	Fragment size (mm)	Length (mm)	Breadth (mm)	Thickness (mm)	Mass (g)
E3123:54: 104:71	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	18	16	9	1.47
E3123:54: 104:72	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	21	16	8	5.62
E3123:54: 104:73	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	26	18	14	7.86
E3123:54: 104:74	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	24	16	8	5.46
E3123:54: 104:75	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	30	15	7	4.16
E3123:54: 104:76	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	27	16	12	3.71
E3123:54: 104:77	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	20	18	10	5.44
E3123:54: 104:78	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	22	12	9	3.20
E3123:54: 104:79	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	22	16	5	1.49
E3123:54: 104:80	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	22	16	6	1.37
E3123:54: 104:81	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	16	16	9	3.17
E3123:54: 104:82	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	24	14	9	3.26
E3123:54: 104:83	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	27	16	8	3.53
E3123:54: 104:84	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	20	19	8	4.23
E3123:54: 104:85	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	16	10	9	2.55
E3123:54: 104:86	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	20	15	13	4.63
E3123:54: 104:87	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	17	12	7	1.91
E3123:54: 104:88	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	31	12	11	5.15
E3123:54: 104:89	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	20	17	6	2.11
E3123:54: 104:90	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	24	13	5	1.51
E3123:54: 104:91	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	21	15	8	1.53
E3123:54: 104:92	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	20	16	7	1.91
E3123:54: 104:93	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	28	14	11	5.81
E3123:54: 104:94	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	18	11	6	1.31
E3123:54: 104:95	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	25	16	11	4.19
E3123:54: 104:96	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	35	15	12	4.62
E3123:54: 104:97	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	18	18	7	2.78

Unique No	Context	Context	Basic Character	Classification	Condition	Cortex	Fragment size (mm)	Length (mm)	Breadth (mm)	Thickness (mm)	Mass (g)
E3123:54: 104:98	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	19	11	5	1.94
E3123:54: 104:99	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	17	15	7	3.05
E3123:54: 104:100	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	17	17	6	1.89
E3123:54: 104:101	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	19	16	8	2.35
E3123:54: 104:102	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	26	16	4	1.29
E3123:54: 104:103	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	20	8	8	1.53
E3123:54: 104:104	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	18	8	6	1.18
E3123:54: 104:105	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	19	14	3	.81
E3123:54: 104:106	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	18	11	10	1.85
E3123:54: 104:107	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	19	11	11	2.33
E3123:54: 104:108	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	22	12	11	2.51
E3123:54: 104:109	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	20	12	6	2.26
E3123:54: 104:110	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	20	12	6	2.05
E3123:54: 104:111	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	22	16	6	2.25
E3123:54: 104:112	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	22	8	9	1.56
E3123:54: 104:113	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	19	14	8	2.63
E3123:54: 104:114	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	19	13	3	.42
E3123:54: 104:115	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	15	10	8	1.19
E3123:54: 104:116	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	15	10	2	.16
E3123:54: 104:117	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	13	11	3	.22
E3123:54: 104:118	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	16	8	3	.29
E3123:54: 104:119	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	15	8	6	1.22
E3123:54: 104:120	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	16	12	7	1.64
E3123:54: 104:121	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	15	14	6	1.39
E3123:54: 104:122	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	12	11	5	1.16
E3123:54: 104:123	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	13	12	5	.93
E3123:54: 104:124	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	22	11	10	2.53

Unique No	Context	Context	Basic Character	Classification	Condition	Cortex	Fragment size (mm)	Length (mm)	Breadth (mm)	Thickness (mm)	Mass (g)
E3123:54: 104:125	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	14	11	4	.63
E3123:54: 104:126	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	18	12	6	1.17
E3123:54: 104:127	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	19	11	7	1.03
E3123:54: 104:128	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	14	10	5	1.26
E3123:54: 104:129	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	18	11	6	.62
E3123:54: 104:130	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	16	14	6	.94
E3123:54: 104:131	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	11	11	9	1.21
E3123:54: 104:132	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	17	15	5	.73
E3123:54: 104:133	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	27	13	12	1.49
E3123:54: 104:134	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	13	12	7	2.66
E3123:54: 104:135	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	13	13	11	1.42
E3123:54: 104:136	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	16	14	10	1.93
E3123:54: 104:137	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	21	16	6	1.79
E3123:54: 104:138	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	23	8	5	1.89
E3123:54: 104:139	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	16	13	6	1.18
E3123:54: 104:140	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	21	8	3	.66
E3123:54: 104:141	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	16	12	6	1.48
E3123:54: 104:142	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	16	12	9	1.76
E3123:54: 104:143	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	13	13	8	1.81
E3123:54: 104:144	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	19	14	7	.81
E3123:54: 104:145	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	16	8	7	.85
E3123:54: 104:146	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	16	11	3	1.63
E3123:54: 104:147	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	22	10	7	.97
E3123:54: 104:148	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	18	9	8	.92
E3123:54: 104:149	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	14	11	8	.93
E3123:54: 104:150	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	18	9	5	1.04
E3123:54: 104:151	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	16	13	9	.74

Unique No	Context	Context	Basic Character	Classification	Condition	Cortex	Fragment size (mm)	Length (mm)	Breadth (mm)	Thickness (mm)	Mass (g)
E3123:54: 104:152	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	13	12	9	.81
E3123:54: 104:153	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	18	8	7	.38
E3123:54: 104:154	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	14	8	5	.19
E3123:54: 104:155	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	14	8	3	.96
E3123:54: 104:156	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	18	9	5	.81
E3123:54: 104:157	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	13	9	6	.31
E3123:54: 104:158	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	9	8	4	1.11
E3123:54: 104:159	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	16	14	5	.57
E3123:54: 104:160	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	18	8	5	.33
E3123:54: 104:161	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	11	10	4	.18
E3123:54: 104:162	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	13	11	2	.41
E3123:54: 104:163	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	12	11	5	.34
E3123:54: 104:164	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	17	8	5	.21
E3123:54: 104:165	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	12	8	2	.61
E3123:54: 104:166	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	15	8	4	.45
E3123:54: 104:167	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	10	8	4	1.21
E3123:54: 104:168	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	18	8	6	1.38
E3123:54: 104:169	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	14	10	6	.23
E3123:54: 104:170	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	10	8	3	.36
E3123:54: 104:171	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	18	9	3	.82
E3123:54: 104:172	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	18	8	5	.51
E3123:54: 104:173	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	15	10	5	.89
E3123:54: 104:174	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	12	10	7	.53
E3123:54: 104:175	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	18	6	6	1.62
E3123:54: 104:176	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	15	14	9	.93
E3123:54: 104:177	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	16	10	5	.74
E3123:54: 104:178	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	12	8	6	1.03

Unique No	Context	Context	Basic Character	Classification	Condition	Cortex	Fragment size (mm)	Length (mm)	Breadth (mm)	Thickness (mm)	Mass (g)
E3123:54: 104:179	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	16	9	5	.81
E3123:54: 104:180	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	15	12	6	1.07
E3123:54: 104:181	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	18	9	6	.76
E3123:54: 104:182	54	Quartz	angular shatter	angular shatter	Abraded	Secondary	0	8	5	5	.43
E3123:54:105	54	Chert	bipolar flake	complete	Fresh	Tertiary	0	21	13	3	.74
E3123:54:106	54	Chert	platform flake	core trimming	Fresh	Tertiary	0	27	31	8	6.99
E3123:54:107	54	Chert	platform shatter	Distal fragment	Fresh	Tertiary	28	0	22	6	3.53
E3123:54:108	54	Chert	platform flake	core trimming	Fresh	Tertiary	0	24	29	6	4.51
E3123:54:109	54	Chert	platform flake	core trimming	Fresh	Tertiary	0	25	21	6	3.75
E3123:54:114	54	Chert	platform shatter	Distal frag	Fresh	Tertiary	26	0	27	6	1.81
E3123:54:115	54	Chert	bipolar flake	complete	Fresh	Tertiary	0	26	15	6	1.84
E3123:54:116	54	Chert	platform shatter	Indeterminate shatter	Fresh	Tertiary	28	0	21	6	1.76
E3123:54:117	54	Chert	Unworked	Thermally damaged	Fresh	Tertiary	0	23	16	5	1.63
E3123:54:118	54	Chert	platform shatter	proximal frag	Fresh	Secondary	20	0	17	6	1.71
E3123:54:119	54	Chert	Unworked	Abraded lump	Abraded	Secondary	0	17	11	9	2.21
E3123:54:120	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	18	11	7	1.44
E3123:54:121	54	Chert	angular shatter	angular shatter	Abraded	Tertiary	20	0	13	8	2.51
E3123:54:122	54	Chert	platform shatter	Indeterminate shatter	Fresh	Tertiary	21	0	17	6	1.87
E3123:54:123	54	Chert	Unworked	Abraded lump	Abraded	Secondary	0	27	26	16	15.88
E3123:54:124	54	Chert	platform shatter	proximal fragment	Abraded	Tertiary	11	0	13	5	.65
E3123:54:125	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	15	11	8	1.19
E3123:54:126	54	Chert	angular shatter	angular shatter	Fresh	Tertiary	0	31	20	13	6.32
E3123:54:127	54	Chert	modified	Scraper	Fresh	Tertiary	0	17	12	3	.98
E3123:54:129	54	Chert	angular shatter	angular shatter	Fresh	Secondary	0	21	19	16	6.67
E3123:54:134	54	Chert	modified	retouched piece	Fresh	Tertiary	0	28	19	9	5.25
E3123:54:135	54	Chert	bipolar shatter	bipolar flake shatter	Fresh	Tertiary	20	0	20	5	2.16

Unique No	Context	Context	Basic Character	Classification	Condition	Cortex	Fragment size (mm)	Length (mm)	Breadth (mm)	Thickness (mm)	Mass (g)
E3123:54:136	54	Chert	platform flake	core trimming	Fresh	Tertiary	0	13	15	8	1.45
E3123:54:137	54	Chert	cores	flaked chunk	Abraded	Secondary	0	21	42	29	30.86
E3123:54:138	54	Chert	bipolar flake	complete	Abraded	Tertiary	0	52	17	23	13.88
E3123:54:139	54	Chert	angular shatter	angular shatter	Abraded	Secondary	0	23	14	10	3.31
E3123:54:128	54	Chert	modified	Scraper	Fresh	Tertiary	11	0	21	5	2.01
E3123:54:140	54	Chert	bipolar flake	complete	Fresh	Tertiary	0	21	19	7	3.02
E3123:54:141	54	Chert	bipolar flake	complete	Fresh	Tertiary	0	25	9	6	1.01
E3123:54:142	54	Chert	Flake shatter	proximal frag	Fresh	Tertiary	20	0	24	4	1.38
E3123:54:143	54	Chert	platform flake	core trimming	Fresh	Tertiary	0	27	19	9	4.26
E3123:54:144	54	Chert	platform flake	core trimming	Fresh	Tertiary	0	31	42	12	11.81
E3123:54:145	54	Chert	platform flake	core face rejuvenation	Fresh	Tertiary	0	31	26	12	3.86
E3123:54:146	54	Chert	modified	Scraper	Burnt	Tertiary	17	0	12	7	1.46
E3123:54:147	54	Chert	platform flake	Bifacial thinning flake	Fresh	Tertiary	0	18	18	3	1.01
E3123:54:148	54	Chert	angular shatter	angular shatter	Fresh	Tertiary	20	0	13	5	.91
E3123:54:149	54	Chert	platform flake	core trimming	Fresh	Tertiary	0	22	21	6	2.52
E3123:54:150	54	Chert	angular shatter	angular shatter	Abraded	Tertiary	0	11	10	4	.51
E3123:54:151	54	Chert	angular shatter	angular shatter	Fresh	Tertiary	0	18	7	7	.92
E3123:54:152	54	Chert	modified	Scraper	Fresh	Tertiary	0	17	17	6	1.97
E3123:54:155	54	Chert	bipolar flake	complete	Abraded	Tertiary	0	19	13	8	1.81
(S) E3123:20:5	20	Flint	Pressure flake	Retouch	Fresh	Tertiary	0	8	7	3	.14
(S) E3123:21:7	21	Flint	Pressure flake	Retouch	Fresh	Tertiary	0	4	3	1	.03

Table 1: Grange 3 (E3123): showing basic composition of the flint and chert assemblage.

Analytical Methodology: Excavated Assemblage and Post-Excavation

Assemblage

This report details the analysis of both the excavated assemblage, and that recovered during post-excavation soil sample processing. Soil sample processing is an extremely important method of recovering small-scale artefacts which, during excavation, tend to have limited visibility and are therefore not inclined to be retrieved. In terms of chipped stone assemblages, this small-scale material commonly relates to micro-debitage. This material is mainly produced during two stages of knapping: (a) fine core trimming, and (b) the production of tools. Consequently, the lack of recovery of such an important element of an industry leads to a lack of understanding of industrial behaviour at any given site. Soil sample processing therefore helps to cast light on issues such as identifying knapping locations and clarifying disposal patterns. Such techniques represent a sub-sampling of deposits and therefore such processing may appear to create biased concentrations in a sub-set of excavated features. Consequently, it is important to analyse the excavated and soil sample assemblages separately in order to avoid introducing a bias into the quantitative analyses. For this reason, within this report both assemblages are presented separately, but the overall results are discussed together; for the purpose of clarity, all artefacts retrieved during soil sample processing are prefixed with (S).

It is of interest that despite the prolific assemblage of medium/large-scale chert and flint artefacts at Grange 3, micro-debitage was rarely found. Only 15 artefacts had a complete length of less than 10mm, and the majority of these were angular shatter; only five pressure flakes were found ((S)E3123:21:7; E3123:78:2 and E3123:78:4; (S) E3123:20:5; E3123:54:6) and two of these were recovered during soil sample processing. This is strongly suggestive that micro-debitage had a limited distribution at Grange 3, and this in turn suggests that small-scale flaking and retouch occurred rarely in the area of excavation.

Provenance

At Grange 3, the chipped stone assemblage was retrieved from a considerable number of contexts (Table 2). The overwhelming majority of these were recovered from Bronze Age features (Bronze Age activity associated with Structures 1 and 2: 227 artefacts). In most cases, these features yielded small quantities of artefacts, with most providing just one or two artefacts (e.g. C29; C224; C225; C19; C233; C301; C20; C35; C395; C14), and occasional examples of 4–6 finds being found (eg C78; C6; C108; C142; C230). By far the greatest concentration of chipped stone artefacts was found in C54 (deposit over metalled surface: 259 pieces), which yielded over two-thirds of all artefacts found at Grange 3.

Further smaller concentrations of artefacts were found in the ring-ditch (Ring-ditch:24 pieces, with 11 of these being found in C504) and ditches cutting the ring-ditch (Ditch features: 17 pieces, with 12 of these in C538), with small quantities being found in features associated with the metalworking features (Linear features C261: 1 piece), north–south ditches (Linear ditch C327: 1 piece), modern ditches (Linear cuts 5 pieces) and, finally, topsoil (13 pieces).

Context No.	Description	Unworked	core	Flake Debitage	angular shatter	modified	TOTAL
29	Fill of pit C30 Structure 1	0	0	0	0	1	1
78	Fill of pit 101 Structure 1	0	0	3	0	1	4
224	Fill of cut C394	0	0	0	1	0	1
225	Fill of cut C394	0	0	1	1	0	2
19	Layer over stone spread C221	0	0	1	0	0	1
233	Deposit over metalled area Structure 1	0	0	1	0	0	1
301	Deposit between stone deposits C22, C221	0	0	0	2	0	2
6	Fill of posthole C176 in Structure 1	0	0	4	2	0	6
20	Fill of pit C256 Structure 2	0	0	1	0	0	1
35	Fill of C216 Structure 2	0	0	0	1	0	1
395	Fill of posthole C396 Structure 2	0	1	0	0	0	1
108	Fill of posthole C84 Structure 2	0	0	0	5	0	5
14	Fill of posthole C122 Structure 2	0	0	1	0	0	1
54	Deposit over metalled surface C142	3	3	58	173	22	259
142	Stone metalled floor	1	0	1	2	1	5
230	Fill of posthole C270	0	0	2	4	0	6
21	Fill of pit C170 Structure 2	0	0	4	0	1	5
253	Fill of cut C254 assoc with house	0	0	1	0	1	2
560	Fill of linear feature C561	0	0	1	0	0	1
328	Linear ditch fill of cut C327	0	0	1	0	0	1
508	Fill of large posthole C506	0	0	0	0	1	1
509	Fill of large posthole C515	0	0	0	1	0	1
504	Upper fill of ring-ditch cut C503	0	0	5	4	2	11
505	Stony fill of ditch	0	1	1	0	1	3
507	Primary fill of ditch	0	0	1	3	0	4
522	Primary fill of ring-ditch C534	0	0	0	0	1	1
525	Primary fill of ring-ditch C503	0	0	1	1	0	2
545	Fill of ring-ditch C503	0	0	1	0	0	1
527	Fill of irregular oval feature C541	0	0	1	0	1	2
538	Fill of curving narrow ditch C536 Early Med?	0	1	5	5	1	12
539	Fill of linear ditch C638/C528/C540	0	0	1	1	1	3
602	Charcoal spread	0	0	1	0	0	1
628	Fill of oval pit cut C629	0	0	1	0	0	1
619	Fill of linear cut C620	0	0	1	0	0	1
100	Fill of linear ditch C172 Modern	0	0	2	2	0	4
1	Topsoil	0	0	9	2	2	13
	TOTAL	4	6	110	210	37	367

Table 2: Grange 3 (E3123): showing distribution and basic composition of the flint and chert assemblage.

Assemblage composition and condition

Material	Unworked	cores	Flake debitage	angular debitage	modified	TOTAL
Flint	0	3	34	8	21	66
Chert	4	3	75	201	16	299
Quartz	0	0	1	1	0	2
TOTAL	4	6	110	210	37	367

Table 3: Grange 3 (E3123): showing basic composition of the flint, chert and quartz assemblage.

Unusually, chert was by far the most commonly found material, accounting for over 81% of the assemblage; the majority of the remaining artefacts are flint (66 pieces; 18%), with a small number of quartz pieces also being found (2 pieces). Most of the chert artefacts indicate that the raw material was large-grained and would have had poor flaking qualities. The quality of the flint was variable, but some apparent evidence for heat-treating was found (E3123:78:1: possibly arrowhead perform). Heat-treating is a technique aimed at raising the temperature of flint without burning it, in order to increase its vitreosity and therefore improve its flaking qualities; the presence of this technique indicates that there were concerns over the quality and flaking potential of available raw material, and that some attempts were made to improve this potential.

While the assemblage is mainly comprised of primary knapping debitage, it included only a small number of cores (6 pieces), with the bulk of artefacts being angular shatter (57.2%). Although flake debitage is commonly the dominant artefact type in any given assemblage, it constitutes just one-third of all artefacts found at Grange 3 (Table 3). Modified tools account for just over 10% of all chipped stone artefacts (17 pieces). These are largely comprised of scrapers (22 pieces) and edge retouched (7 pieces) or utilised (1 piece) cutting tools. A possible hollow scraper and a small number of irregular projectiles were found (6: including two bipolar flaked bifaces and pressure flaked arrowheads, and Irish type of petit tranchet derivative).

Approximately one in three artefacts survived in a fresh condition, but the vast majority had been abraded (244 pieces, 67%); a small number exhibited signs of patination (9 pieces) and only a few had been subject to burning (11 pieces). All but one of the burnt artefacts were flint (the exception being the chert scraper fragment E3123:54:146), and most were flake debitage (6 pieces) or angular shatter (3 pieces), with a single projectile fragment (E3123:78:1) and the hitherto mentioned scraper fragment (E3123:54:146) also being found. The burnt artefacts were found in C54 (1 angular debitage, 1 scraper fragment), C78 (2 flake debitage, 1 arrowhead), C545 (1 flake debitage), C619 (1 flake debitage), C1 (1 flake debitage, 1 angular debitage), C225 (1 flake debitage) and C507 (1 angular debitage).

With such a high proportion of angular shatter, and relatively low proportion of flake debitage, in the assemblage, it is perhaps unsurprising that few artefacts were perceived to be broken or fragmentary (because it is not possible to determine if angular shatter is complete or broken): only 41 artefacts were broken (and most of these flake debitage). Of the 267 complete artefacts, the sizes ranged from 4mm to 58mm in maximum length, with the bulk of these measuring 28m or less in length (75%), and half of the complete assemblage measuring just 21mm or less; however, micro-debitage (i.e. less than 10mm) was under-represented, with only 15 artefacts

(4.9%) of these dimensions being found. The assemblage was therefore mostly populated by medium-scale artefacts, with three-quarters of the assemblage measuring between 10–32mm in maximum length.

Primary debitage: cores, flakes, blades and angular shatter

The majority of the Grange 3 chipped stone assemblage was primary knapping debitage (330 pieces; 89.9% of assemblage), with most of these being angular shatter (210 pieces); the remainder comprised flake debitage (110 pieces) and a small number of cores (6 pieces). The breakdown of flake debitage and angular debitage within the assemblage is unusual: in most Irish prehistoric assemblages, flake debitage is the dominant artefact type, and angular debitage would be less prolifically found.

The dominance of angular debitage within the Grange 3 assemblage is a bias largely determined by C54, a deposit overlying C142 (metalled surface) which produced 259 artefacts (mainly containing angular debitage, with fewer numbers of flake debitage and modified tools making up the remainder). Quite a large proportion of this material was poor quality chert with poor flaking qualities, and consequently evidence for flaking and knapping was difficult to read, contributing to a large body of chert angular shatter from this deposit (169 pieces: some of which may have been poor quality flake debitage). On some of the finer quality chert pieces, however, evidence for bipolar and platform flaking is evident (43 chert flake debitage), and even a few tools were produced (10 chert tools in E3123:54: 9 scrapers, 1 edge retouched cutting tool). It is probable that this assemblage represents an *in situ* knapping episode, where the chert was split and flaked in an attempt to find some suitable flaking material. Consequently, it is probable that it is mostly the discarded material that is here represented, and the ad-hoc reduction of this material is suggested by a lack of formally produced cores and a plentitude of irregular flakes, i.e. those which show irregular and often 'blocky' flaking patterns on their dorsal face (this is in contrast to more skilfully executed platform and bipolar flaking, which will tend to show uni-planar dorsal scars).

The features of the artefacts found in C54 are echoed throughout the remainder of the assemblage at Grange 3: most are large-grained chert. It is therefore unsurprising that primary debitage deriving from the reduction of such poor-quality material would result in debitage that could only be classified as angular shatter, either because (a) the material splintered/shattered during reduction (rather than flake uniformly, such as highly vitreous materials such as quality flint) or (b) the flake scars were unreadable, because of the coarseness of the raw material. Furthermore, a general lack of controlled platform reduction techniques, and a tendency to careless bipolar reduction, is evident within the flake debitage and core assemblage, indicating that knapping was executed in an ad-hoc, unskilled and careless manner.

The core assemblage included three flint (E3123:395:1; E3123:505:3) and three chert (E3123:538:10; E3123:54:104:4) cores; all but two of these were bipolar, with the remaining pieces being a flaked chunks found in C54 (E3123:54:104:4) and E3123:54:137: with the latter displaying some attempts to edge trim a planar platform prior to flaking: Plate 1). The best of these was a circular bipolar core found in C395 (E3123:395:1; Plate 2); it seems have been based on a small beach-rolled pebble, and yielded 5–6 long blades. Given its 'disc' morphology, it is possible that it was intended to be made into a biface or other tool, but it is has not been completed and in its current state it is by no means clear that it was ever intended as anything other than simply a core. Another core formed on a flat flint water-rolled pebble was reduced using bipolar methods, leaving a core which produced 5–6 long bipolar

blades (E3123:505:3; Plate 3), and a small, heavily reduced bipolar core was found in C54 (E3123:54:86; Plate 4). The small bipolar core (chert) found in C538 (E3123:538:10; Plate 5) was of poor flaking quality and therefore its features are difficult to read, but it may have provided 2–3 long flakes or blades.

Of the 110 flakes and blades, the majority are chert (75 pieces), with most of the remainder being flint (34 pieces) and one quartz. platform (77 pieces) and bipolar (43 pieces) flake debitage was found, with the former being dominant (especially within the flint flake debitage), but platform techniques were simply applied and there was little sign of significant core preparation. Of the platform debitage, many were irregular core trimming flakes (17 pieces; only a small number are likely to have been related to fine core preparation or tool production (13 pieces), and a single possible bifacial thinning flake was found (E3123:54:147).

Despite the poor quality of much of the flake and angular debitage assemblage, some technical trends were noted within the assemblage. A small heavy bipolar flake found in C100 (E3123:100:6; Plate 6) was very similar to a flake used to produced a small thumbnail scraper, found in topsoil (E3123:1:6; Plate 7). It is very possible that these two artefacts are floating refits (i.e. non-sequentially produced flakes, produced during a single knapping episode, but not directly conjoinable). Occasionally, chert of very fine flaking quality was found (e.g. E3123:525:2; Plate 8) and in these cases, more formalized flaking methods were evident (and indeed readable: in this case, planar platform flaking).

Secondary Technology

In total, 37 modified tools were recovered. These included small scrapers, edge retouched and utilised cutting tools and a number of irregular projectiles, with similar numbers of flint (21 pieces) and chert (16 pieces) being found. It is significant, however, that modified tools account for almost one-third of the flint assemblage, while the account for only one-twentieth of the chert assemblage (Table 3), indicating that the ratio of tools to debitage was massively increased on flint than it was in chert; this clearly shows that, while flint seems to have been a limited resource at Grange 3, it was preciously converted into tools, whereas more wastage occurred in the knapping of chert.

Scrapers

A large number of scrapers were found at Grange 3 (22 pieces), being evenly split between flint and chert examples; they were clearly concentrated in C54, with 17 (9 chert, 8 flint) being found in this deposit. The vast majority are thumbnail scrapers, a type of scraper which first appears in Ireland during the final Neolithic/Grooved ware period, and is particularly commonly found during early Bronze Age period (19/22 pieces: if an arbitrary maximum length for thumbnail scrapers of 25mm is applied). While the length of such tools and divisions by metric length alone is a modern and probably inappropriate method of analysis, the remaining scrapers (which might be considered slightly larger than most thumbnail scrapers) were still quite small (3 pieces: E3123:54:134 (chert 28mm; Plate 9); E3123:54:91 (chert 31mm; Plate 10); E3123:54:47 (flint 42mm; Plate 11)).

A small scraper based on a flint bipolar flake was found in C504 (E3123:504:1; Plate 12; Ring-ditch feature). This a small heavy flake, steeply retouched on all edges, leaving a slightly irregular scraping edge; it is probably a thumbnail scraper, although it is a larger example than is typical for these. Another small scraper was formed on a bipolar chert flake (E3123:539:4; linear ditch fill); it has a steep and slightly irregular scraping edge, formed by minimalist edge retouch, and not unlike the flint example found in C504, it is broader than it is long, with a slightly irregular, steep scraping

edge. A very small minimally retouched flint thumbnail scraper was found in C253 (E3123:253:2; Plate 13). It was formed on a small bipolar flake, taken from a water-rolled pebble, and has been minimally worked into a small round scraper; it is possible that the bipolar proximal end was the scraping edge. A small chert thumbnail scraper was found in C1 (E3123:1:6; Topsoil). This was formed on a fragment of a bipolar flake, and is a small, thick thumbnail scraper with a square scraping edge. (A similar flake, probably a floating refit of this piece (though not directly conjoinable) was found in C100 (E3123:100:6); this was a similarly sized bipolar flake which had not been retouched). C142 yielded a small irregularly retouched flint piece, which may be an irregular thumbnail scraper (E3123:142:10); this is based on a small fragment of a flake (with no platform or termination surviving). It is retouched on all peripheral edges, and so is not a broken retouched tool; although it is probably a thumbnail scraper, it is certainly an unusual example.

A varied and prolific assemblage of chert and flint scrapers was found in C54. Five chert examples were found (E3123:54:104:1 & 2; 73; 91; 95): the first of these is a small thumbnail type minimally formed on a small, irregular bipolar flake on poor quality chert typical of the assemblage at Grange 3 (E3123:54:104:2; Plate 14). Another thumbnail type was minimally retouched on a fine core trimming flake (E3123:54:95; Plate 15), and a finely worked small round thumbnail scraper with a slightly irregular edge was also found (E3123:54:152; Plate 16). A larger than typical possible thumbnail scraper (or simply a small scraper: E3123:54:73; Plate 17) was also found; it was formed on chert and carried a heavy scraping edge with minimalistic edge retouch on all edges. A minimally retouched thumbnail scraper, with quite a worn scraping edge, was based on a splintered chert flake (E3123:54:127).

C54 also yielded a number of flint thumbnail scrapers, including a quite finely produced thumbnail scraper; it is leaf shaped in form, and retouched using edge retouch and some pressure flaking and carries an irregular denticulate scraping edge (E3123:54:3). A small square thumbnail scraper was minimally retouched using edge retouch along the distal end of a small core trimming flake (E3123:54:16). Another diminutive example was minimally retouched on the distal fragment of a flake (E3123:54:70; Plate 18), and a water-rolled pebble flake was retouched to form a fully corticated thumbnail scraper (E3123:54:94; Plate 19). C54 also yielded a fragment of a burnt thumbnail scraper (E3123:54:146).

Two double-ended and double-faced thumbnail scrapers were similarly produced: these included a small round double ended thumbnail scraper, with a scraping edge on both faces, formed on a small water-rolled pebble (E3123:54:42; Plate 20), and another double faced example on a bipolar flake was also found (E3123:54:90; Plate 21).

The remaining scrapers found in C54 are significantly different to the thumbnail examples (E3123:54:104(1)). These include a large, round chert scraper with a convex, slightly denticulate scraping edge, steep with edge and semi-invasive flaking; it seems to have been formed on the distal fragment of (possibly) a bipolar flake and may have been retouched along its medial fracture. Another large scraper was formed on a large core face rejuvenation flake, and had a steep but minimally retouched, sub-square scraping edge (E3123:54:91; Plate 22). A small scraper was based on a splintered bipolar flake, and was retouched quite steeply and bluntly along its right lateral edge, creating what must have been a poor scraping edge (E3123:54:135). A much larger flint scraper with a complex reduction history was also found in C54 (E3123:54:47; Plate 11). This was significantly larger than any of the remaining flint scrapers found at Grange 3 (with only chert example E3123:104(1)

being of similarly large proportions), but it is quite abraded by post-depositional processes and may well have derived from earlier activity at Grange 3; in its original form it seems to have been a large but thin convex end scraper with a cutting edge on its left lateral side. Attempts have been made (unsuccessfully) to rework this piece using bipolar methods, with bipolar scarring evident at both its platform and distal edges, where it removes a significant amount of its original scraping edge and platform. With this secondary working, it has clearly been seen as more valuable as a source of potential raw material than as a scraper, although the reworking has not been successful and seems to have been abandoned without success. C54 also yielded the distal fragment of a flint scraper with a slightly denticulate scraping edge (E3123:54:102), and the distal fragment of a chert scraper with a slightly irregular convex scraping edge (E3123:54:128; Plate 23).

A number of these scrapers are of particular interest in that they have an unusual feature in common: they appear to be formed on a distal flake fragment, with the proximal having been broken off leaving an oblique concave edge (e.g. E3123:54:73: Plate 17; E3123:54:104:1). Although this only occurs occasionally, it is a distinctive feature, and not one hitherto recognized as a possibly significant feature in scraper production during Irish prehistory: it may be relating to hafting, or (if the tool is not hafted) it may offer an additional function to the scraper (since they are left with a point which could be used for boring/piercing), but it is notable that it occurs on the larger scrapers, usually chert.

Arrowheads

A small and unusual assemblage of projectiles was found (6 pieces), all of which were flint. These included two percussion flaked bifaces (E3123:29:1: Structure 2 pit fill; C505:1: Ring-ditch fill) and two unusual ?leaf shaped arrowheads (E3123:1:3: topsoil; E3123:78:1: Structure 1 pit fill), as well as an elongated pointed type of petit tranchet derivative arrowhead (E3123:54:72; Plate 24; Flanagan 1968) and a probable fragment of an unfinished arrowhead (E3123:54:23).

One of the percussion flaked bifaces was small (measuring 21mm (E3123:505:1), and the remaining fragmentary example would also have been quite small when complete (fragmentary 17mm E3123:29:1; Plate 25) and so it is probable that they were intended for use as arrowheads (rather than larger javelins, as is commonly the case with percussion flaked bifaces. Both artefacts have been similarly produced on bipolar flakes, and using bipolar methods in their modification. On the small example found in C505 (E3123:505:1); both faces have multi-directional scars showing that numerous flakes had been removed during its production. It is probable that this example was intended as an arrowhead, but has not been finished, perhaps because its production was not entirely successful and it was also extremely small. The fragmentary example C29 (E3123:29:1) was shattered across its medial.

Two unusual arrowheads were also found. These include a minimally retouched leaf shaped arrowhead found in topsoil (E3123:1:3; Plate 26). This is unusual in being unifacially worked, and based on a bipolar flake; it is small and slightly irregular in shape (and is significantly reduced in size from the original flake size), with semi-invasive pressure flaking on its dorsal face. C78 yielded a minimally worked and possibly unfinished arrowhead (E3123:78:1; Plate 27), which seems to have been heat-treated prior to retouch. This is a technique aimed at making the flint easier to work, and is thought to have been associated with the production of arrowheads. In this case, a small leaf shaped flake has been minimally retouched along the right lateral edge.

The assemblage also included the fragment of a thin pressure flaked tool (E3123:54:23), probably an unfinished arrowhead which was broken during manufacture. It may have been formed on a double ventral flake, but it is too fragmentary to clearly indicate its intended morphology. Parts of its surface are in quite a worn condition, and so it may have been subject to extended post-depositional wear and may have been residually redeposited in this deposit from an earlier phase of activity. The same deposit yielded a petit tranchet derivative arrowhead (of the Irish elongated pointed types defined by Flanagan 1968, thought to date to late Neolithic activity in Ireland; E3123:54:72; Plate 24). It was formed on a small flake off a water-rolled pebble, and had some edge damage and retouch along its left lateral edge. Although these tools are thought to have functioned as projectiles, the focus of their retouch is usually along the long lateral edge, and it is probable that they also functioned as knives. Although they are certainly found during the late Neolithic, it is possible that they first appear later in the middle Neolithic, when hollow scrapers are still being used but becoming less common; their longevity beyond this period is not well understood, but they are not thought to continue into the early Bronze Age (Nelis 2003).

Edge retouched and utilised

The remaining modified tools included edge retouched (7 pieces) and utilised (1 piece) tools, as well as a possible hollow scraper (E3123:508:1; Plate 28). This was based on a small bifacial thinning chert flake, retouched into a concave cutting edge; while this piece is most similar to hollow scrapers, it would be a very unusual example of such a tool and may just be a concave retouched cutting tool. It was found in the fill of posthole C506.

Most of the edge retouched and utilised tools clearly functioned as cutting tools. The exceptions to this included a large chert flake (probably bipolar, although the poor flaking quality of the chert makes this unclear) with one lateral edge steeply and bluntly retouched; its function is unclear (E3123:522:1; Plate 29; Ring-ditch fill). Another much smaller edge retouched tool had some modification along one lateral edge of a small flint bipolar flake (E3123:54; 44); its function is unclear, although it may be a resharpening flake off a larger scraper; another possible resharpening flake was found in C54 (E3123:54:56).

All of the remaining edge retouched and utilised tools were used for cutting (4 edge retouched, 1 utilised). They include a small number of long chert blades, used as cutting tools with only minimal modification. These included a platform example from C538 which showed evidence for minimalist retouch and usewear along both lateral edges, (E3123:538:1; Plate 30; ?early med ditch fill), and an example from C504 which was minimally retouched along its right lateral edge (E3123:504:3; Plate 31; Ring-ditch fill); this latter piece was missing its tip, and although it has been retouched near its proximal end (perhaps butt trimmed for hafting?) it seems to have been based on a bipolar blade. The prolific deposit C54 (which yielded a large quantity of chert debitage) also produced an irregular core rejuvenation flake which has been minimally retouched edge retouch along its left edge, leaving a slightly convex cutting edge, and probably used as a cutting tool (E3123:54:104:3; Deposit over metalled surface). A small chert bipolar flake was minimally retouched along its left lateral edge, leaving an irregular cutting edge (E3123:527:2; ?early med fill of irregular feature; Plate 32).

The remaining tool was a blade of very fine quality flint, with naturally very sharp lateral edges, that seem to have been utilised for cutting without further retouch (E3123:21:1; Plate 33).

Ground stone: Summary

In total, 13 ground stone artefacts were found at Grange 3, including a stone axe, two very similar and unusual sub-cuboid ?hammerstones (E3123:4:3; E3123:229:1), as well as numerous quernstones/grinding stones (9 pieces) and an unworked stone fragment. Notably, the burnt fill (C4) of Structure 1 Bronze Age pit C174 produced a polished axe (E3123:4:1), a quernstone (E3123:4:2) and one of the sub-cuboid ?hammerstones (E3123:4:3). It is not clear if these artefacts represent a 'hoard' of everyday tools, as such, or if they were deposited after they had ceased to function, but it is notable that none could be considered broken or unusable, so perhaps the latter suggestion is less likely. It may be that their deposition was intended for an alternative purpose, and a ritualistic explanation is possible, although in such circumstances it is not possible to ascertain if the significance would centre on the function that the tools served, the act of deposition or the tools themselves.

Hammerstones

Two probable hammerstones were included within the assemblage, found in C4 and C229. Both had been used in a similar way, with extremely heavy working on numerous areas of the stones wearing them into sub-cuboid hammers (therefore with six working faces). The example from C4 is the smaller of the two, but is most heavily worked across 4 faces. This curious pattern of heavily wearing spherical hammerstones into sub-cuboid forms is quite unusual, with most hammerstones within the archaeological record having one or two small areas of abrasion which tends not to significantly change the stone's original morphology. It is probable that the regular reduction of these tools was in some way related to their function (rather than just an aesthetic production) and it is always possible that they functioned in some other way than hammers (perhaps as weights?); however, the main argument for their identification as hammers is that the patterns of modification do appear to be related to use-wear rather than pecking/intentional reshaping, because the wear is variable and sometimes damaging, and it does not appear to have the consistency that one might expect if these stones were 'modified' for use as something other than hammers.

E3123:4:3
Hammerstone
Sedimentary coarse sandstone: 78mm (L) x 82mm (B) x 61mm (T);
Sub-cuboid stone with all six faces having been flattened by use. The two largest faces are almost parallel; one of these is especially heavily used and damaged. A brown/red stone which has a coarse matrix consisting of large inclusions of various minerals including feldspar and quartz. It was found in the fill of pit C174 Structure 1.

E3123:229:1
Hammerstone (Plate 34)
Sedimentary sandstone: 52mm (L) x 51mm (B) x 63mm (T); 391.48g.
Small sub-cuboid stone with a light brown/red appearance. Four faces have been flattened, apparently by heavy use as a hammer, and some are pecked into concave through use; the remaining two 'faces' remain convex and it is unclear if they have been used. The matrix and its inclusions are all equally sized of medium grain. It was found in the fill of a possible cremation pit C275.

Querns/Grinding stones

A number of irregular shaped, flat slabs of stone were put to use as small saddle querns or grinding stones, with varying degrees of use (9 pieces). These were recovered from a number of contexts at Grange 3 (C3, C4, C12, C78; C103, C230, C249, C253). The largest was found in C4 and measured 349mm in maximum length, but most were approximately 250–300mm in length and/or breadth. The

smallest was found in C3, and probably functioned as a small mortar. Most had a smoothed grinding surface, sometimes resulting in a shallow concave, but only the example from C12 had been extensively used and the rest seem to have seen reasonably light use. With the exception of E3123:3:1, these stones do not appear to have been modified beyond the use-wear evident on their grinding face.

E3123:3:1 (Plate 35)
Mortar
Sedimentary greywacke: 138mm (L) x 122mm (B) x 24mm (T); 705.37g.
Sub-circular, flat grey stone; bifacially worked with a small ground concave centred on each of its two main faces. The lighter, more uniform of these measures: 38mm (Diameter) x 4mm (Depth), but the other face exhibits different use-wear, with its central concave being steeply pecked on one side, and heavily ground/polished over a greater area on the other side. Apparently used as a small mortar or grinding stone; it may have seen some light modification around its edges to give it a more regular, circular shape. The stone has a very fine matrix, but grains of quartz are visible. It was found in the fill of curving pit C30 Structure 1.

E3123:4:2
Grinding stone/quern
Sedimentary greywacke: 349mm (L) x 243mm (B) x 96mm (T); 14.8kg.
Split boulder with a fractured face which has been very finely flattened (but not concave) and smoothed through use. There is also some flaking/pecking around the edges of the fractured face, presumably to trim and create a flat plane. Grey/brown with a fine grained matrix and large inclusions of quartz and feldspar. It was found in the fill of pit C174 Structure 1.

E3123:12:1
Saddle quern
Sedimentary mudstone: 314mm (L) x 235mm (B) x 82mm (T); 6.3kg.
angular stone with a deep concave surface, both polished and pecked. Probably used as a saddle quern (grinding); the pecking may relate to the preparation of the quernstone, or may have been caused through use. The concave area measures approximately 240mm (L) x 145mm (B) x <35mm (D); it is grey in colour. It was found *in situ* on a metalled working floor.

E3123:78:3 or E3123:249:1
Grinding stone/quern
Sedimentary mudstone: 313mm (L) x 215mm (B) x 51mm (T); 4.1kg.
Sub-angular stone with a very smoothed surface, made slightly concave through use; grey in colour with areas of black possibly due to the presence of mica. C78 is the fill of pit C101 Structure 1; C249 is the fill of cut C250.

E3123:103:1
Grinding stone/quern
Sedimentary greywacke: 253mm (L) x 145mm (B) x 44mm (T); 2.7kg.
angular stone, with a slightly polished surface; however, it still retains an irregular surface morphology, so only seems to have been lightly used. Grey in colour, with a fine matrix and including coarser grained quartz. It was found in the fill of a large pit with stone packing C173.

E3123:249:1
Grinding stone/quern
Sedimentary greywacke: 224mm (L) x 138mm (B) x 37mm (T); 1.2kg.

A small irregular slab fragment with two polished faces (one moreso); grey with a fine matrix and visible grains of quartz and feldspar. It was found in the fill of cut C250.

E3123:253:3
Grinding stone/quern (Plate 36)
Sedimentary siltstone: 273mm (L) x 206mm (B) x 46mm (T); 3.3kg.
A split brown/grey stone, with one flat, polished face; with ripples of quartz minerals and frequent large feldspar and quartz grains throughout the finer matrix. Found in the fill of cut C254.

E3123:253:4
Grinding stone/quern fragment
Sedimentary greywacke: 176mm (L) x 132mm (B) x 61mm (T); 1.3kg.
An angular fragment of stone with possibly two polished faces; grey with a very fine matrix including visible quartz grains. Found in the fill of cut C254.

E3123:230:2
Possible grinding/polishing stone
Sedimentary greywacke: 207mm (L) x 122mm (B) x 62mm (T); 1.9kg.
angular grey stone with smoothed surface, may have been used as grinding/polishing stone; a very fine matrix with visible quartz grains and numerous fracture lines. It was found in the fill of posthole C270.

Other stones

E3123:4:1
Stone axe (Plate 37)
Sedimentary: greywacke: 221mm (L) x 72mm (B) x 43mm (T); 978g.
In addition to grinding stones/quernstones, a stone axe was found in the Bronze Age burnt fill (C4) of pit C174 (which also yielded the quernstone C4:2 and ?hammerstone C4:3). This is a cigar-shaped example, and has been quite minimally worked, being apparently based on a cobble; some flaking and pecking prior to polishing is evident on one flattened face and along blade, but the other face is convex and appears polished without flaking/pecking. Its outer surface has brown colouration, however, in areas where the inner matrix has been exposed the stone is grey, medium grained with small (1mm) grains of quartz and darker (brown) feldspar. It was found in the fill of pit C174 Structure 1.

E3123:527:1
Stone fragment with natural perforation
Sandstone: 48mm (L) x 34mm (B) x 24mm (T); 47.93g.
Irregularly shaped fragment with perforation (approx 13mm Diameter); apparently natural and unworked or unused. It was found in the fill of irregular feature C541.

Discussion: Grange 3 (E3123)
An assemblage of 367 chipped stone artefacts and 13 ground stone tools was found at Grange 3. The archaeological remains included two Bronze Age structures (Structure 1 and 2), and numerous related archaeological features, pits, spreads and surfaces. The contemporaneity of these two structures are is as yet unclear, but it may be that they represent a replacement construction sequence (Kelly 2008, 100). In addition, numerous ditch and boundary features (all which are thought to post-date the Bronze Age activity) were identified, and at least some of these were as late as medieval in date.

It is of interest that despite the prolific medium/large-scale chert and flint assemblage at Grange 3, only two small pieces of flint were recovered during soil sample processing; this is strongly suggestive that micro-debitage had a limited distribution at Grange 3, further echoed by the excavated assemblage which only produced a small quantity of micro-debitage. This in turn suggests that small scale flaking and retouch occurred rarely in the area of excavation.

Unusually for M3 C4 sites, and indeed Irish chipped stone assemblages in general, chert was by far the most commonly found utilised raw material at Grange 3, with over four-fifths of all artefacts being chert (Table 3).The majority of the remaining artefacts are flint (66 pieces), with a small number of quartz pieces also being found (2 pieces). This suggests that flint availability was extremely limited, and that locally sourced chert was tested and explored as the main resource; the plentitude of discarded material indicates that the poor quality of this material may have been well understood by the knappers, who seem to have rejected most of it.

Another unusual aspect of the Grange 3 chipped stone assemblage is the types of artefacts found: only a few cores were found (6 pieces), but the bulk of artefacts are angular shatter (over 57%) and flake debitage (commonly the dominant artefact type in a given assemblage) constitutes just one-third of all artefacts found (Table 3). These assemblage proportions very much reflect the content of the artefacts found in C54, where a concentration of artefacts mainly contained angular debitage, with fewer numbers of flake debitage making up the remainder. There appears to be a rational explanation for this unusual assemblage composition: the majority of chert found at Grange 3 is large grained and of poor quality; consequently, the flaking properties of this material is poor, and therefore much of the attempts to flake it would result in failure, producing angular shatter instead. Furthermore, where flaking is successful, the techniques were generally applied in a very ad-hoc manner, with little or no attempt to reduce the raw material in an organized way. Platform techniques were rarely used, and bipolar techniques were often very carelessly applied. Consequently, the cores, flake and angular debitage resulting from this methodology (accounting for much of the primary assemblage at Grange 3, and certainly most of that found in C54) have resulted from a ‘bashing, splintering’ approach to knapping. This hints at a reduction strategy aimed at exploring the quality of the raw material, perhaps moreso than attempting to produce useable flakes and tools.

The modified tool assemblage is mainly comprised of scrapers and edge retouched tools, with the majority of scrapers being minimally retouched (and occasionally slightly irregular) thumbnail scrapers, mainly found on bipolar flakes. These are a scraper type which appear (at the earliest) during the final Neolithic/Grooved ware period, but are particularly commonly found during the Beaker/early Bronze Age period. Their longevity throughout the Bronze Age is not clear, since lithic industries are usually diminished in both skill and quantity as the Bronze Age progresses, and become even more difficult to define chronologically than during previous periods, but it may be that thumbnail scrapers continue in use for some considerable time and there is no evidence that post-early Bronze Age scrapers again increase significantly in size.

While most of the scrapers were minimally retouched thumbnail types which were minimally retouched onto a small bipolar (or less frequently, platform) flake, a small number of discreet scraper types were discernable: (1) multi-functional scrapers with scraping and piercing/boring point; (2) double ended and double faced thumbnail scrapers; and (3) irregular edged/serrated/denticulate scrapers. These included some of the larger (probably not thumbnail type) examples, which carried an oblique

concave fracture at the hafted area (2 examples in C54: E3123:54:104(1) and E3123:54:73; Plate 17). This fracture leaves a point along the fractured edge where it meets the lateral side of the tool, meaning that the scraper might also have functioned as a piercer/borer, and this appears to have been a recognized and replicated method of producing a multi-functional tool (i.e. scraping and boring/piercing). A small number of double ended, double faced thumbnail scrapers were formed on small circular bipolar flakes (E3123:54:42 and E3123:54:90; Plate 20–21), and again this seems to have been a recognized method of producing a small scraping which offered two scraping edges. Types of scrapers: with oblique concave at distal offering a possible borer; bipolar flake with double faced rounded thumbnail scraper; scraper with denticulate edge. The remaining group of scrapers include minimally worked denticulate/irregular edged thumbnail scrapers (e.g. E3123:54:3; E3123:54:102; E3123:54:128: Plate 23), which would have functioned very differently to the regular convex thumbnail scrapers. It is probable that such tools were produced with a specific purpose in mind, to increase their usefulness in working with a particular type of material.

In terms of lithic activity at Grange 3, undoubtedly the most prolific deposit was C54, a deposit overlying a metalled surface associated with Structure 2. But in addition to being prolific, it was also clearly a very significant area and period for lithic activity, and yielded the main concentration of all artefacts, including primary debitage and modified tools. Given the large quantity of primary debitage found in C54 (particularly chert angular debitage) there can be little doubt that a significant amount of knapping occurred in this area, and that it functioned as a knapping area. Much of the work seems to have focused on a quite unskilled and ad-hoc reduction of chert, with little or no attention to detail, and given the poor quality of the raw material, it is probable that much of the debitage was discarded immediately. But there were other working activities taking place on this metalled surface, because 19 (out of 22) scrapers were found in this deposit, which represents a huge concentration of tools. It is notable that these tools were probably used in this area, but it is less clear that they were produced there (which, of course, they need not have been); this is because few cores or associated reduction debitage were found in this area, and given the less than tidy approach to debitage in this area, it is probable that if significant amounts of knapping and tool production had happened here, then they would not have been tidied away and the assemblage would contain much more related debitage, including small scale core trimming and retouch flakes. It is of considerable importance that not only most of the scrapers but all of the discreet scraper types were found in this deposit, and it is entirely probable that they were produced by one knapper (or a group of knappers) with a common vision for tool production and the functions they needed to serve). There may be some issues with residual redeposition in C54, however, because the assemblage yielded an Irish pointed type of petit-tranchet derivative (E3123:54:72; Plate 24) which probably relates to late Neolithic activity; it does, however, have some visible post-depositional damage, and so while it has probably been residually redeposited from an earlier phase of activity, most of the remaining C54 artefacts have not suffered such damage, and redeposition may not be a significant factor in the content of this deposit.

The Bronze Age tends to see lithic industries that are depleted in terms of skill and artefact range, and so ad-hoc bipolar/platform reduction is a common feature at this time (Nelis 2003). Consequently, the Bronze Age tool repertoire is limited in range and tool morphology tends to be highly variable and non-standardised. This is reflected in the remaining tool assemblage at Grange 3, which mainly include a small number of edge retouched and utilised cutting tools (tools which are found throughout Irish prehistory and history, and eminently undatable) as well as bipolar flaked and minimally retouched projectiles. It is perhaps notable that the well-

produced and highly formalized early Bronze Age arrowheads types (i.e. barbed and tanged, and hollow based examples; the former being so commonly associated with Beaker ware and thumbnail scrapers: *ibid.*) are not found at Grange 3; rather, the examples within this assemblage are quite poorly executed, morphologically irregular and therefore quite likely to have been produced by a knapper with limited skill and an inability to source high quality tools and better quality raw material. Furthermore, they have been executed without any stylistic reference to these early Bronze Age forms and skill-sets (this lack of knowledge being reflected in the remainder of the assemblage). Given this pattern, it is very possible that the Grange 3 arrowheads hint at a post-early Bronze Age date for their production.

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Plates

Plate 1: Grange 3 E3123:54:137 Chert platform core

Plate 2: Grange 3 E3123:395:1 Disc-shaped bipolar core on flint water-rolled pebble

Plate 3: Grange 3 E3123:505:3 Flint water-rolled pebble: bipolar core

Plate 4: Grange 3 E3123:54:86 Flint bipolar core

Plate 5: Grange 3 E3123:538:10 Chert bipolar core

Plate 6: Grange 3 E3123:100:6: Chert bipolar flake

Plate 7: Grange 3 E3123:1:6: Chert thumbnail scraper on bipolar flake

Plate 8: Grange 3 E3123:525:2 Chert bipolar flake, fine quality chert

Plate 9: Grange 3 E3123:54:134 ?Thumbnail scraper

Plate 10: Grange 3 E3123:54:91 Large chert scraper on platform flake

Plate 11: Grange 3 E3123:54:47 Reworked scraper showing (left) dorsal, with original scraper edge at top of photo, and (right) ventral, with bipolar damage to proximal and distal, and edge retouched cutting edge along right edge

Plate 12: Grange 3 E3123:505:1 Flint ?thumbnail scraper

Plate 13: Grange 3 E3123:253:2 Flint ?thumbnail scraper

Plate 14: Grange 3 E3123:54:104(2) Flint ?thumbnail scraper

Plate 15: Grange 3 E3123:54:95 Chert thumbnail scraper

Plate 16: Grange 3 E3123:54:152 Thumbnail scraper

Plate 17: Grange 3 E3123:54:73 Flint scraper with oblique concave fracture, creating a point which could be used as a borer or piercer

Plate 18: Grange 3 E3123:54:70: Thumbnail scraper with irregular/serrated or denticulate edge

Plate 19: Grange 3 E3123:54:94: Flint thumbnail scraper on water-rolled beach flint

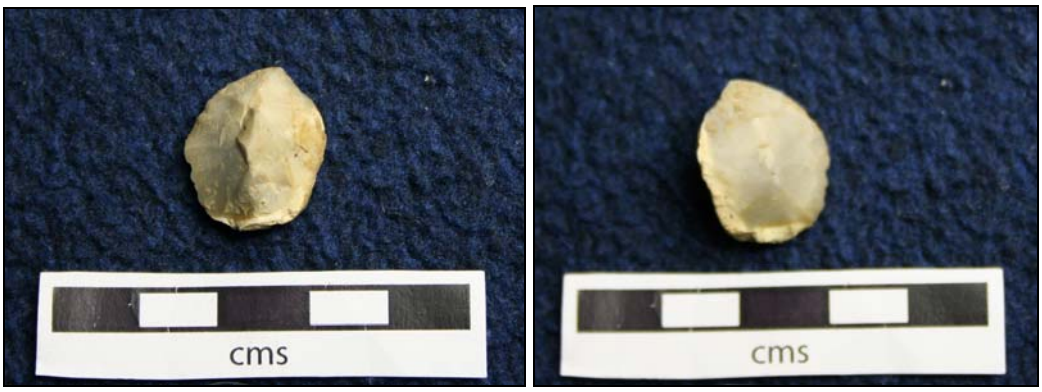

Plate 20: Grange 3 E3123:54:42 Thumbnail scraper: double ended and double faced on small, circular bipolar flake

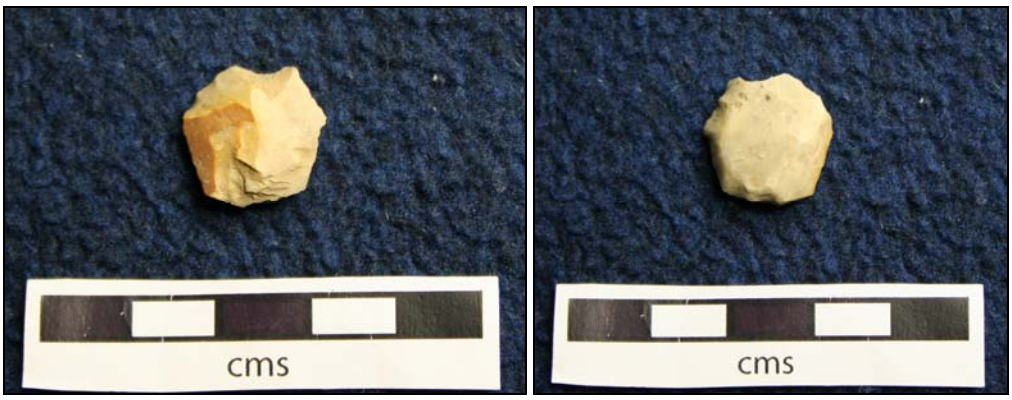

Plate 21: Grange 3 E3123:54:90 Thumbnail scraper: double ended and double faced on small, circular bipolar flake

Plate 22: Grange 3 E3123:54:91 Large chert scraper on platform flake

Plate 23: Grange 3 E3123:54:128 Chert scraper with irregular edge

Plate 24: Grange 3 E3123:54:72 Irish pointed type of petit tranchet derivative

Plate 25: Grange 3 E3123:29:1 Flint biface fragment

Plate 26: Grange 3 E3123:1:3 Flint arrowhead

Plate 27: Grange 3 E3123:78:1 Flint arrowhead

Plate 28: Grange 3 E3123:508:1 Possible chert hollow scraper

Plate 29: Grange 3 E3123:522:1 Chert edge retouched

Plate 30: Grange 3 E3123:538:1 Chert edge retouched

Plate 31: Grange 3 E3123:504:3 Chert edge retouched on long blade

Plate 32: Grange 3 E3123:527:2 Chert edge retouched

Plate 33: Grange 3 E3123:21:1 Flint utilised cutting tool

Plate 34: Grange 3 E3123:229:1 Pounder/hammerstone, sub-cuboid, worked on four flattened faces (two shown), with remaining two faces apparently unworked and convex (top and bottom of images).

Plate 35: Grange 3 E3123:3:1 ?Mortar, bifacially used

Plate 36: Grange 3 E3123:253:3 Grinding stone/quern, showing polished, flat face

Plate 37: Grange 3 E3123:4:1 Polished stone axe, showing damage/reworking on blade

THE METAL FINDS

GRANGE 3 (E3123)

JACQUELINE MAC DERMOTT.

JULY 2009

An early medieval iron penannular ring pin or ring brooch, the broken shank of a pin of similar date and a portion of a bronze pin were recovered from early medieval levels. The remaining objects consisted of badly corroded nails and a fragment of a metal dish or pan, all relatively modern.

Personal dress.

Pins.
Linear ditch C584/C611 produced two fragments of iron pins. 585:1 is the upper portion of a penannular ring pin or ring brooch with terminals scrolled inwards, the ring and upper shank remaining. Fanning (1994, 5) differentiates this type of ring from the classic ringed pins of the Viking era, relating them more closely to penannular brooches. The Grange 3 pin is similar to both bronze and iron examples found at Cahercommaun (Hencken 1938, figs 19 and 22) and Lagore (Hencken 1950, figs. 15 and 35), which Hencken dates to between the 7th and 9th centuries AD. Although this type of pin generally pre-dates the Dublin ringed pin series, Fanning does admit that two pins with simple scrolled terminals were found at Christchurch place which "bears witness to the late survival of earlier forms" (1994, 5).

The second iron pin fragment (585:2) is the twisted lower portion of an iron pin found in the same context as 585:1. The shanks of both fragments are the same shape and thickness. There is a faint possibility that 585:2 is the lower shank of 585:1, although the two objects do not fit seamlessly together and this would make the pin exceedingly long. In any case, given that 585:1 was found in the same context, it can be assumed a pin fragment of similar date.

The tip and lower shank of small copper alloy pin 655:2 was taken from the early medieval field division C655. Its diminutive size would suggest it was either a small dress pin or a large sewing needle.

Catalogue.
E3123:585:1
Ring pin with penannular scrolled ring. Iron. Plain looped shank. Penannular ring with terminals scrolled inwards. Ring rests in loop in C-shape. Shank has round section, ring has rectangular section. Lower portion of shank missing. Length (mm): 78. Width of shank (mm): 4.2. Thick of ring (mm): 3.5. Diam of ring (mm): 16. Context C585. Fill of ditch C584/C611. Early medieval / disturbed.

E3123:585:2
Lower portion of pin shank. Iron**.** Rounded section, bent in shallow S-shape. Slight splaying in middle, tapering to corroded point. Length (mm): 75. Width (mm): 4.3. Context C585. Fill of ditch C584/C611. Early medieval / disturbed.

E3123:655:2
Pin or needle shank fragment. Copper Alloy. Lower portion of shank, round section tapering to point. Length (mm): 27.3. Width (mm): 2.4. Context C655. Cut of land/field division. Early medieval.

Metal vessel.
A small base fragment of an iron vessel was taken from the topsoil layer. It appears to have been part of a small circular pan or bowl with a flat base. It is possibly relatively modern.

Catalogue.
E3123:1:1
Base fragment of pot or dish. Iron. Originally circular, flat base with straight side. Badly corroded. Diam (mm): 92. Width (mm): 36. Thick (mm): 36.4. Context C1. Topsoil.

Nails.
Little can be said about the badly corroded objects 531:1, 539:3, 583:3 and 657:1. Judging from the x-rays, they are probably nail fragments of uncertain date.

Catalogue.
E3123:531:1
Nail fragment. Iron. Badly corroded and encrusted. Context C531. Fill of linear drain C532.

E3123:539:3
Nail fragment. Iron. Badly corroded and encrusted. Context C539. Fill of linear ditch C638.

E3123:583:3
Nail fragment. Iron. Badly corroded and encrusted. Context C583. Fill of land/field division C655.

E3123:657:1
Nail fragment. Iron. Badly corroded and encrusted. Context C657. Fill of land/field division C656.

Recommendations:
None.

Objects for illustration/photography.
Ring pin 585:1
Pin shank 585:2

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WORKED BONE NEEDLE

GRANGE 3 (E3123)

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APRIL 2009

Bone Needle

The fragmentary bone needle has been shaped with some care to provide a spatulate head with a flat apex. The surviving portion of the shaft is straight, and oval in section. Bone needles produced from pig fibulae are common implements of the early medieval period in Ireland. Large assemblages of over a hundred examples are known from Cahercommaun, Dublin and Lagore, and two groups of 18 pig fibulae needles were found in excavations across the southern part of the M3 road scheme, at Castlefarm 1 and Roestown 2 (Hencken 1938, 38; 1950, 194; Riddler and Trzaska-Nartowski 2009A and B). The practice of shaping pig fibulae to provide needles goes back to the Bronze Age in Ireland, although earlier prehistoric examples tend to use fibulae with fused distal ends, stemming from animals aged at least two and a half years. From the Iron Age onwards, unfused fibulae were preferred for the object type. The latest examples from English contexts occur in the 12th–13th centuries, as at Dover, for example, and similar dating is likely in Ireland (Riddler and Walton Rogers 2006, 294–7). Several examples were found in 12th century contexts at Waterford (Hurley 1997, 671 and fig 17.5.18–22). Hencken regarded modified pig fibulae as pins, an interpretation that has often been repeated since (Hencken 1938, 38). In recent years, however, it has been realised that they are not pins, but were used as needles for loose mesh textile work, for which they are eminently suitable (Westphalen 1999, 60–3 and taf 12.1–23; Andersson 2003, 145–7 and fig 74; Beaudry 2006, 75; Riddler 2006, 175).

E3123:513:1

A fragmentary bone needle, produced from a pig fibula with the head cut from the distal end of the bone. The apex has been neatly trimmed by knife to provide a spatulate head, pierced by a knife-cut oval perforation. The head tapers evenly to a straight shaft of oval section; the lower part of the needle is missing.

Length:	47.9mm
Width:	12.2mm
Thickness:	4mm
Perforation Diameter:	3.6 x 3.9mm
Weight:	0.9g

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THE WORKED STONE
GRANGE 3 (E3123)

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MAY 2009

General Introduction

Hand spinning of fibres was the earliest method to make yarn for clothing until the invention of the spinning wheel in the medieval period. The hand spinning was generally done using a spindle, usually of wood, weighted at one end with a perforated object giving balance and equilibrium during spinning. This weight was classed as the spindle whorl. This method of hand spinning was still in use today in under-developed countries. Spinning, however, can be done without using a whorl; a thin relatively straight branch with a bulbous end can serve the purpose adequately.

As hand spinning was such an integral part of everyday life any materials to hand were utilised by the spinner. Raw materials as diverse as human femur ends, lead, wood, animal bone, antler, clay, Samian ware, jet, lignite, amber, bronze, iron, stone (generally sandstone but occasionally mudstone, limestone and slate), glass, coal and even dried cow dung have been used as whorls. Spindle whorls were also used in necklaces with many examples known from Africa: the same object served a dual function.

Irish Spindle Whorl Evidence

In Ireland early prehistoric whorls were rare as the raw materials were probably organic, and thus generally do not survive, although in the last ten years more examples have been found in response to increased excavation activity. It was likely than Neolithic people spun wool and other fibres into thread for clothing, but no definitive examples exist except for a potential example from the court tomb at Ballyalton, Co. Down, excavated in 1934 (Evans and Davies 1934). This whorl was found, at the side of orthostat socket E3 in Court C, apparently in association with a hoard of 44 flints including two flint axeheads, a chopper, a plano–convex knife and other flint tools (Herity 1987, 206, 209 & Figure 37). Another possible whorl was recovered from the disturbed cairn base of the wedge tomb at Baurnadomeeny, Co. Tipperary, excavated in 1959 (O'Kelly 1960, 104, Figure 4). The excavator favoured a bead function for this object but as no weight was given the possibility remained that it was a whorl.

Disc-shaped whorls found in association with houses / domestic contexts include a highly decorated whorl from Killemly, Co. Tipperary (E2126:15) firmly dated to the middle Bronze Age 1260–1020 cal BC (UB-7205) (O'Brien 2009c) and an undecorated whorl from a round house in Tober Co. Offaly (Walsh 2007, 15 [illustrated]). Potential late Bronze Age spindle whorls (two bone hemispherical and one stone disc-shaped) were said to have derived from occupation levels at Ballinderry 2 crannóg Co. Offaly (Hencken 1942, 9 & Fig 6) although the dating of this site was later questioned. There were potential late Bronze Age whorls from Freestone Hill Co. Kilkenny where three bone whorls (two hemispherical and one bowl-shaped) were found along with two fragments of stone whorls (Raftery 1969, 61).

A number of possible Iron Age spindle whorls were known: one with hour-glass perforation was found from a hut-circle site dated to the early Iron Age from Scrabo, Co. Down (Owens 1970). A bone whorl was also found on an earthwork dated to the late Iron Age / early medieval period in Grannagh, Co. Galway (Rynne 1971).

It was from the early medieval and Hiberno-Norse periods that the vast majority of spindle whorls were recorded with important assemblages from Garryduff ringfort Co. Cork and Lagore crannog Co. Meath. A number of lead examples have been recorded from Woodstown, Co. Waterford (O'Brien 2004). The stone varieties naturally survive better, but on some early medieval sites bone spindle whorls predominate. The classic example was Cahercommaun stone fort in Co. Clare where

Hencken, excavating in 1934, defined a four-stage classification based on sectional profiles; disc-shaped, hemispherical, cylindrical and bowl-shaped (Hencken 1938, Fig. 27, 43). The latter varieties invariably were made from cut-ends of femurs or humerii with the bowl-shaped whorls representing lathe-turned and finely decorated examples. Recently published whorls include a roughly cylindrical-shaped, possibly lathe-turned example made of antler burr, decorated on the edge, and a disc-shaped stone example, both from the enclosure site of Killickaweeny 1 Co. Kildare dated from the 8th to 10th centuries (Carlin *et al*. 2008, Fig 3.10, 48).

Irish Spindle Whorl classification (Based on Author's Masters Thesis 1994)
The primary consideration for spindle whorls was weight and this must be known for each object. Generally a weight range lying between 7.8g and probably not exceeding 500g, depending on the type of yarn desired, and the source fibre, was the acceptable range for spindle whorls. Often the lighter the whorl used the finer the yarn was produced. A diameter range between 34–134mm was standard with most whorls measuring less than 70mm in diameter. A diameter less than 30mm was probably too small to have allowed the whorl turn clock-wise during the spinning movement. A thickness range between 2.8mm–24.3mm was acceptable - thickness does not have to be completely uniform across the surface. The thicker the whorl at the centre the better the grip on the spindle during rotation, making the spinning movements smoother.

The overall shape was generally circular to allow the correct clock-wise movement on the spindle: once there was sufficient balance across the whorl a perfect circular shape was not a prerequisite for good whorl functionality. The sectional profile largely depends on the material used, so stone generally was disc-shaped, bone being hemispherical. A central or almost central perforation with a profile not overtly slanted was desirable, with a perforation size between 7.5–33.9mm in diameter. A diameter below 4mm was probably too thin to have gripped the spindle sufficiently to spin even the lightest of fibre. Such objects with narrow perforations were probably beads: conversely a large perforation relative to the overall whorl size meant the necessity of a thicker spindle, contributing to less weight where it was needed most.

Decoration should not be used to date whorls as the common concentric circles around the perforation were the simplest and most obvious way to decorate such objects: examples were found from the Bronze Age right through to the medieval era. The bowl-shaped examples from Cahercommaun, Co. Clare included perfectly concentric circles with ring-and-dot motifs but these were rarities. Type and degree of decoration was down to the spinner's preference so variation was to be expected.

Description
This perforated stone came from C436 and was considered early medieval in date. It was sub–rectangular in plan, with one end being wider than the obverse and disc–shaped in section. The stone measured 35.5mm in length, 24–29.5mm in width, 12–13.5mm in thickness and weighed 9g. The perforation was worked from both faces giving the classic hourglass profile in section. The perforation measured 4.5–5.5mm in diameter while the splay of the perforation measured 12–15mm wide. There were no indications of wear suggestive of a bead / pendant function.

The defining characteristic of this object was the decoration on both edges, giving a milled effect. On the wider edge there were seven angled notches cut into the stone, with those at either end of the sequence slightly cut into the upper face of the stone too. On the thinner edge there were four angled notches at a more pronounced angle than the other seven. All the notches ran from top right to bottom left of the stone.

Discussion

The Grange 3 object was a probable disc-shaped spindle whorl of sub–rectangular shape. This type of whorl was rare in Ireland and an exact parallel was not found. There were no indications of suspension around the perforation suggestive of a bead / pendant function. Although unusual, the shape would not have prevented spinning and the thickness and weight would have aided spinning for fine fibres. The decoration on both edges was unique but the use of milled edges for a spindle whorl was also noted on the Baurnadomeeny wedge tomb example (see above), although the Baurnadomeeny whorl was circular in shape. Similar edge decoration was also present on a bead recovered from a ringfort at Cush, Co. Limerick (O'Riordain, 1940), however this bead at 14mm diameter was much smaller than the Grange spindle whorl.

Conclusion

The Grange 3 object was a probable disc-shaped spindle whorl. In shape and decoration it is unique in Irish whorl assemblages.

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THE CHARCOAL REMAINS
GRANGE 3 E3123

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1 Introduction

Two Bronze Age house structures with associated working areas were excavated at Grange 3. A middle Bronze Age date for Structure 2 and also for cremation pits were excavated outlying the structures. Middle and late Bronze Age dates have been received from a large ring-ditch on the site. Figure of eight kilns likely dating to the Iron Age/early medieval period. Furnaces relating to ironworking are dated to the Iron Age (Kelly 2008). Grange 3 was excavated as part of Contract 4 of the M3 Navan–Kells bypass. The aim of the work is to provide a floristic background to the area. The analysis can also identify any wood selection patterns at Grange 3, either for fuel or for construction. Charcoal was identified for radiocarbon dating by Ellen O'Carroll, which has been included.

2 Methodology (After IAC Ltd)

2.1 Processing

- A mechanical flotation tank using a pump and water recycling system is used for soil flotation
- The soil is washed using a 1mm mesh in the flotation tank and a 300 micron and 1mm sieve is used to catch floated material.
- The volume of all soil samples are recorded in litres using a measuring jug.
- The sample is then placed into the 1mm mesh in the flotation tank, the tank is then filled with water and the sample washed. Any large lumps of soil can be carefully broken down by hand, but the jets of water in the flotation tank gently clean the rest of the sample.
- Once the sample is clean (just stones, charcoal, artefacts remaining in the mesh) the tank is filled up with water and at this stage any floating material (charcoal, seeds etc) should flow over the spout and into the sieves.
- The retent is then gently poured into a labelled tray (containing site code, site name, sample number and context number) and place on a shelf to dry.
- The flots are securely packaged in tissue, labelled and hung up to dry. This prevents any loss of light material (seeds) which could result once the flots are dry and being moved (if they are dried on trays).
- Before washing a new sample all equipment used (measuring jugs, 1mm mesh, sieves etc) are thoroughly washed using clean water.
- The large black settling tanks (and water) are cleaned between every site, or if a large site is being processed, every 1–2 weeks.
- Any samples containing a high clay content will be soaked in water for 1–2 days to aid the sieving process.

2.2 Charcoal identification

Each piece of charcoal was examined and orientated first under low magnification (10x–40x). They were then broken to reveal their transverse, tangential and longitudinal surfaces. Pieces were mounted in plasticine, and examined under a binocular microscope with dark ground light and magnifications generally of 200x and 400x. Each taxon or species will have anatomical characteristics that are particular to them, and these are identified by comparing their relevant characteristics to keys (Schweingruber 1978; Hather 2000 and Wheeler *et al* 1989) and a reference collection supplied by the National Botanical Gardens of Ireland, Glasnevin. It was aimed to identify fifty fragments per sample.

2.3 Details of charcoal recording

The general age group of each taxa per sample was recorded, and the growth rates were classified as slow, medium, fast or mixed. It was not within the scope of this project to measure all the ring widths from the charcoal, however, some measurements were taken with a microscopic graticule in order to make the scale of

slow, medium and fast growth less subjective. Slow growth within the charcoal from this site was considered to be approximately 0.4mm per annum, medium approximately 1mm per annum and fast approximately 2.2mm per annum.

The ring curvature of the pieces was also noted – for example weakly curved annual rings suggest the use of trunks or larger branches, while strongly curved annual rings indicate the burning of smaller branches or trees (Fig. 1). Tyloses in vessels in species such as oak can denote the presence of heartwood. These occur when adjacent parenchyma cells penetrate the vessel walls (via the pitting) effectively blocking the vessels (Gale 2003, 37). Insect infestation is usually recognised by round holes, and is considered to be caused by burrowing insects. Their presence normally suggests the use of decayed degraded wood, which may have been gathered from the woodland floor or may have been stockpiled.

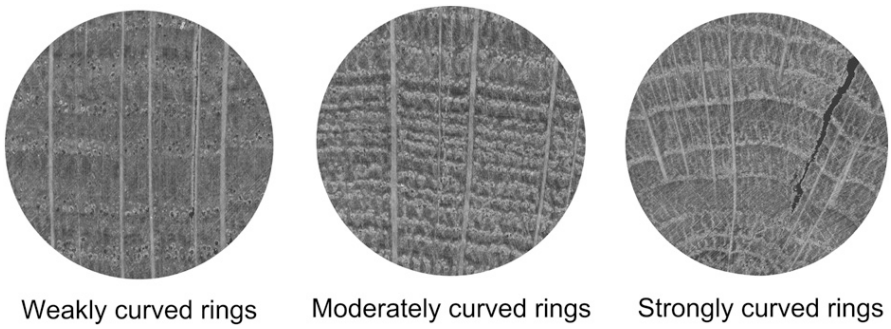

Figure 1 Ring curvature. Weakly curved rings indicate the use of trunks or large branches (After Marguerie and Hunot 2007 1421, Fig. 3).

3 Results

Charcoal was identified from forty eight contexts from Grange 3. Thirteen wood taxa were identified, including alder (*Alnus* sp.), alder/hazel (*Alnus/Corylus*), spindle (*Euonymus* sp.), ash (*Fraxinus* sp.), holly (*Ilex aquifolium*), pomaceous fruitwood (Maloideae), wild/bird cherry (*Prunus avium/padus*), *Prunus* sp., oak (*Quercus* sp.), willow (*Salix* sp.), gorse (*Ulex* sp.) and elm (*Ulmus* sp.). Overall the level of charcoal from the site is low. In most samples it was not possible to identify fifty fragments. Oak, hazel, pomaceous fruitwood and ash were frequently identified from the site (Fig. 2).

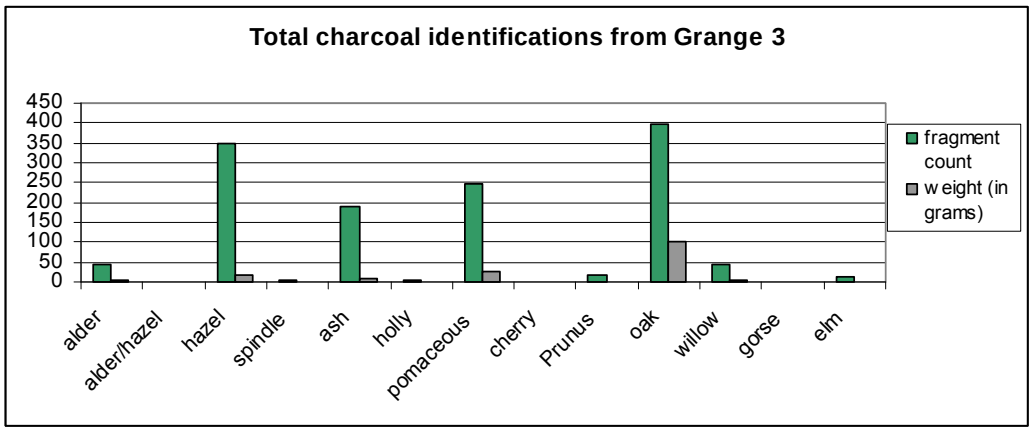

Figure 2 Charcoal identifications from Grange 3

The results will be discussed by context.

Structures 1 and 2

Pits along the perimeter of Structure 1

Charcoal was examined from three pits located on the perimeter of Structure 1. A high fragment count of ash with some hazel and alder was identified from the lower fill C227 of pit C228. Hazel, ash, pomaceous fruitwood and *Prunus* were identified from C78, the fill of pit C101. Hazel nut shells were identified within this pit they may have been accidentally burnt on a hazel branch. Hazel and ash were identified from C150, the fill of pit C123.

Hazel, ash, pomaceous fruitwood and elm were identified from C23, the fill of C177, a charcoal rich spread.

Postholes and stakeholes in interior of Structure 1

Charcoal was identified from four post/stakeholes within Structure 1 (Fig. 3). Pomaceous fruitwood, elm, oak, ash and hazel were identified from here. The level of charcoal within these postholes is too low to determine if they were burnt *in situ* or not.

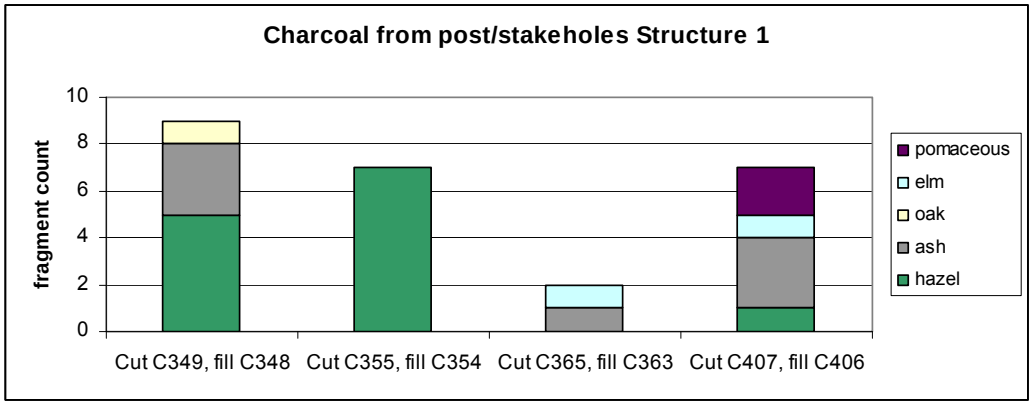

Figure 3 Charcoal from post/stakeholes Structure 1

Stone spreads associated with structure

Hazel only was identified from C436, the fill of pit C437. A possible spindle whorl was identified from the pit, which is described as charcoal rich, the level of charcoal from sieving is, however, low (1.1g).

Hazel, ash and oak were identified from C449, the fill of posthole C450. This posthole is possibly related to furnace pit C473.

Alder, hazel, spindle and oak were identified from C51, the fill of stakehole C209.

Given the variety of wood taxa identified from posthole C450 and stakehole C209, it is not possible to determine that the posts were burnt *in situ*.

Features between Structures 1 and 2

Mainly ash with a small amount of hazel was identified from C104, the fill of stakehole C113 which is associated with hearth C88/Structure 2. It is likely that this stake was made from ash.

One fragment of hazel only was identified from C146, the fill of stakehole C179.

Alder (1 fragment) and pomaceous fruitwood (2 fragments) were identified from C72, fill of posthole C126.

A variety of wood taxa including alder, hazel, ash, pomaceous fruitwood, Prunus sp., oak and elm were identified from C9, the fill of C88, a shallow hearth associated with Structure 2.

Pits forming perimeter of Structure 2

Alder, hazel, ash, holly and pomaceous fruitwood were identified from C10, the upper fill of pit C90. A radiocarbon date of Cal 1408–1269 BC (2 sigma calibration) has been received from C10.

Hazel, ash and pomaceous fruitwood were identified from both pit C112 (fill C11) and from pit C85 (fill C32).

Charcoal was identified from three post/stakeholes within a pit C256 associated with Structure 2 (Fig. 4). Oak, alder, cherry, pomaceous fruitwood, ash and hazel were identified from here. The variety of wood taxa indicates that the posts did not burn *in situ*.

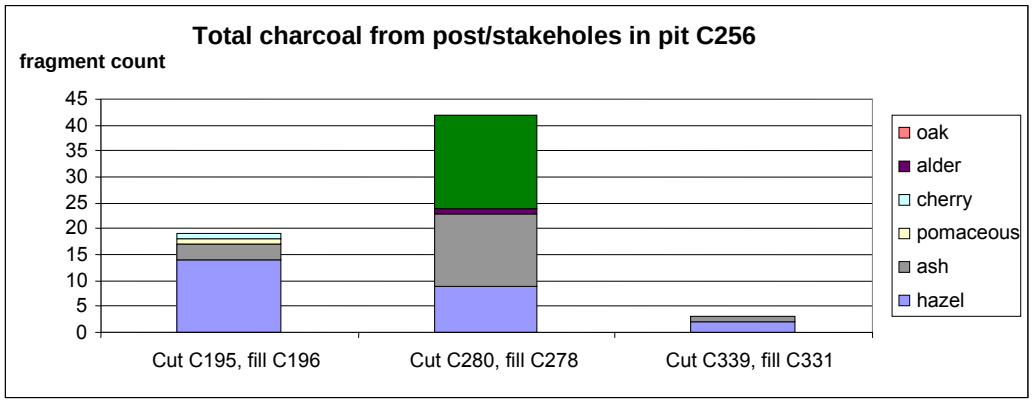

Figure 4 Total charcoal from post/stakeholes, in pit C256

Postholes and stakeholes in interior (and adjacent south-western perimeter) of Structure 2

Charcoal was identified from a stake and posthole within this grouping. Alder, hazel, spindle, ash, pomaceous fruitwood, willow and gorse were identified from C14, the fill of stakehole C122.

Hazel, ash, holly, pomaceous fruitwood and oak were identified from C408, the fill of posthole C415.

Stone spreads/metalled surfaces (and related pits and postholes). Associated with Structure 2.

Pomaceous fruitwood and hazel were identified from C454, the fill of posthole C455. Hazel, ash and pomaceous fruitwood were identified from C456, the fill of posthole C457. Both of these posts were located underneath the metalled surface relating to Structure 2.

Mainly hazel, with spindle, ash, pomaceous fruitwood and *Prunus* were identified from C54, a deposit over the stone working spread C142 from the working area, Structure 2. A radiocarbon date of Cal AD 433–611 (2 sigma calibration) has been received from C54.

Outlying features (in the close surrounds). Associated with Structures 1 and 2.

Mainly hazel with a small amount of *Prunus* was identified from pit C266 (fill C276). Oak only was identified from stakeholes C317 and C157 (fills C276 and C89) respectively). It is likely that these stakes were made from oak.

In comparison, oak only was identified from C95, the fill of C138 a pit (or possible hearth) located close to cremation pit C203.

Outlying cremations

Charcoal was examined from four outlying cremation pits. Pits C203, C290 and C330 are dominated by pomaceous fruitwood. In contrast, pit C275 is dominated by oak.

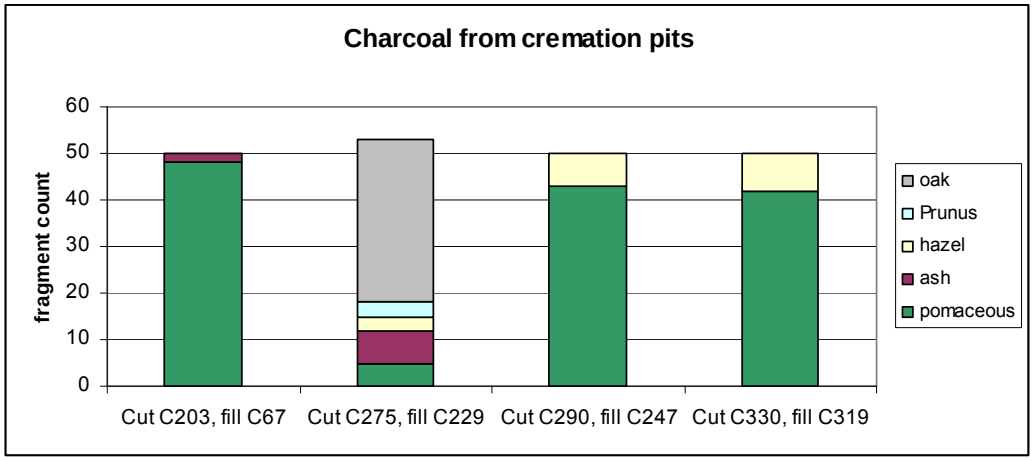

Figure 5 Charcoal from cremation pits

Figure of 8 kilns and related activity

Alder, hazel, ash, pomaceous fruitwood, *Prunus*, oak and willow were identified from the primary fill C243 of kiln C273. With the exception of alder, the same wood taxa were identified from the fill C274 of the kiln C243. In both cases, the main wood identified is hazel.

Mainly oak, with some ash was identified from C315, the primary fill of kiln C130. A radiocarbon date of AD 427–570 (2 sigma calibration) has been received from this

context. Oak also dominated the results from the fill C309 of the same kiln. Alder, hazel, ash and elm were also identified in low quantities.

Oak only was identified from the fills (C245 and C292) of pit C491. A radiocarbon date of Cal 2460–2210 BC (2 sigma calibration) has been received from C245. In comparison, oak only was identified from fill C624, of kiln C596.

Metalworking features

Pit furnaces

Alder and willow were identified from C92, the lower fill of furnace pit C114. Alder was identified from C600, the fill of pit C601 containing slag. A radiocarbon date of Cal 191–5 BC (2 sigma calibration) was received from C600. Ash only was identified from C633, the fill of furnace pit C632. A radiocarbon date of Cal 346–60 BC (2 sigma calibration) was received from C633. In the latter two cases one fragment of each taxa only was identified for the purposes of radiocarbon dating.

North–south ditches

Hazel, ash and pomaceous fruitwood were identified from C399, the fill of ditch C400.

Ring-ditch

Interior features of ring-ditch

Seven fragments of hazel only was identified from C501, the fill of a posthole/pit C502 in the interior of the ring-ditch.

Ring-ditch

Hazel, ash and oak were identified from C504, the fill of ring-ditch C503 (secondary recut). Hazel, oak and alder were identified from C514, the fill of ring-ditch C503. The main wood identified from C504 is oak, in contrast hazel is the main wood identified from C514. A date has been obtained for C505 (contemporary to C514) of 974–828BC (2 sigma calibration).

Alder/hazel was identified from C504, the primary deposit of the ring-ditch. A radiocarbon date of Cal 1372–1131 BC (2 sigma calibration) has been received from here.

Linears cutting ring-ditch

Mainly pomaceous fruitwood and some oak were identified from C538, from ditch C510.

4 Discussion

Charcoal was identified from a wide variety of contexts from Grange 3. The low quantities of charcoal present and the variety of wood taxa identified from post and stakeholes in the middle Bronze Age Structures 1 and 2 indicate that the posts were removed or decayed, but were not burnt *in situ*. The charcoal present is most likely the result of on site burning. In contrast, ash was selected for a posthole relating to Structure 2 (C113), while oak was used for posts C317 and C157, which is part of a group of outlying features, associated with Structures 1 and 2.

Seven wood taxa were identified from C88 a hearth associated with Structure 2. This indicates that a variety of trees were being used as fuel on the site.

A variety of wood taxa were identified from pits associated with Structures 1 and 2. These probably represent dump outs from hearths on the site.

Charcoal was identified from four cremation pits. The main wood type identified in three of them is pomaceous fruitwood, the Maloideae type (Pits C203, C290, C330). This includes crab apple (*Malus sylvestris*), wild pear (*Pyrus pyraster*), rowan (*Sorbus aucuparia*), whitebeam (*Sorbus aria*) and hawthorn (*Crataegus monogyna).* Pomaceous fruitwood has been identified in similar quantities from Bronze Age cremation pits on other large infrastructural schemes (O'Donnell 2007, O'Donnell *et al* 2009). It may be the case that this was selected for the cremation pyre because of the aromatic smells some of the wood species within the pomaceous fruitwood grouping emit such as apple. Most cremation pits from Bronze Age contexts in Ireland, however, are dominated by oak, which is the case with pit C275. This is likely because oak would have been easily capable of reaching the high temperatures required for cremation. It was not possible to identify the cremated bone to species. Given the charcoal signature from the pits it is the author's opinion that these do represent pyre material, as oak and pomaceous fruitwood are the two most frequently identified wood taxa from funerary contexts in Bronze Age Ireland.

Oak only was identified from pit C138. This was located close to cremation pit C203. The charcoal results from the two are very different, with mainly pomaceous fruitwood and ash being identified from C203. Based on the charcoal results, it is unlikely that these are linked.

A variety of wood taxa were identified from the Bronze Age ring-ditch, probably in blown charcoal from nearby burning activity.

It is likely that oak was selected as fuel in the Iron Age/early medieval figure of eight kiln C596. In comparison, oak was the main wood identified from C130, although other taxa are also present. In contrast, mainly hazel (with a variety of other wood taxa) was identified from kiln C243.

In total, alder, willow and ash were identified from the Iron Age furnaces C114, C601 and C632. This contrasts with charcoal from other furnaces and metal working contexts examined by the author, where oak is mainly used (O'Donnell 2007). Alder and willow are very soft trees, it is unlikely that they would reach the temperatures required for metal working if they had not been previously converted into charcoal. It may be the case that oak was not available in the Grange landscape during the Iron Age.

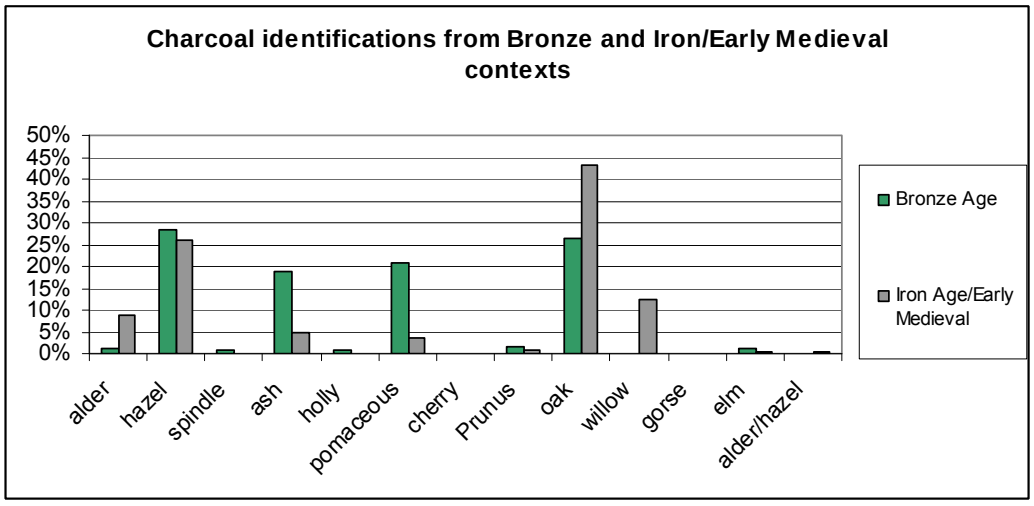

Figure 6 Charcoal identifications from Bronze and Iron/early medieval contexts

Hazel was important both during the Bronze Age and the Iron Age/early medieval period (Fig. 6). The percentages of ash and pomaceous fruitwood are higher in the Bronze Age than in the subsequent period. A higher percentage of oak was identified from the Iron Age/early medieval contexts than the Bronze Age ones. Willow and alder were also more important in the Iron Age/early medieval charcoal counts.

Charcoal from settlement activity at the nearby site of Grange 4 dating to the Neolithic, middle Bronze Age and early medieval period was examined by the author (O'Donnell 2010). Alder, hazel, ash, pomaceous fruitwood, oak and elm were identified (oak is the dominating taxa) which compares well to Grange 3.

5 The Grange environment

The charcoal results indicate that Grange was located close to a mosaic of different woodland types when the site was in use, including canopy, shrub/scrub and wet woodlands.

Oak was the most frequently identified wood taxa. There are two native Irish oaks, and they cannot be separated by wood anatomy. The two species will grow in quite different habitats. The pedunculate oak (*Quercus robur*) will usually grow on heavy, lowland soils, where it will also tolerate flooding. In contrast, the sessile oak (*Quercus petraea*) will grow on less fertile, acidic soils. Oaks can reach a height of 40 metres and live for 1,000 years or more (Hickie 2002, 60). It makes excellent firewood. It splits and is easy to work with, which combined with durable heartwood makes it a preferred choice for all larger structural timbers. Hazel will often grow in association with oak. It is a medium sized, deciduous tree, and can reach a height of 15m. It will grow on a wide range of soils, including limestone, mildly acid soils and clays (Lipscombe and Stokes 2008, 102).

Holly can also often be seen growing in association with oak. Holly tolerates shade well and often grows in the understorey in woodlands, but also likes open situations (Lipscombe and Stokes 2008, 110).

Ash trees prefer moist, well drained and fertile soils. It is very intolerant of shade (Lipscombe and Stokes 2008, 188). Elm trees will grow well on rich, alluvial soils and do prefer riverine habitats (Gale and Cutler 2000, 264).

Some scrub or shrub trees were also identified from Grange 3 in the presence of pomaceous fruitwood, spindle, cherry, *Prunus* sp and gorse. The Maloideae group, a sub family of the Rosaceae includes crab apple, wild pear, rowan/whitebeam and hawthorn. It is extremely difficult to separate these through wood anatomy. Crab apple (*Malus sylvestris*) tends to be found on woodland edges (Hickie 2002, 55). Wild pear (*Pyrus pyraster*) is mostly found as an isolated tree (Stuijts 2005). Rowan (*Sorbus aucuparia*) is a tough colonizer which can tolerate peaty soils and exposed conditions. It needs plenty of light to thrive (Hickie 2002, 65). Whitebeam (*Sorbus aria*) grows up to 20m high and has a preference for limestone soils (Orme and Coles 1985, 11). Hawthorn (*Crataegus monogyna)* can thrive in all but the most acid of soils (Gale and Cutler 2000). As wild pear is not a native Irish species, it is likely that the charcoal represents other types encompassed in the Maloideae group.

Spindle will grow as a shrub or a small tree, in hedges and woodland edges (Lipscombe and Stokes 2008, 60). Wild cherry (*Prunus avium*) needs light to grow, on or near woodland margins and on light well drained soils (Orme and Coles 1985, 11). Bird cherry (*Prunus padus*) occurs particularly in marginal forests, and is generally solitary (Stuijts 2005, 142). Blackthorn grows in woodland where the canopy has been opened, on woodland margins, in scrub and along streams where it may be found with alder. It does not survive under heavy shade (Orme and Coles 1985, 11). Gorse will commonly grow in disturbed areas, grasslands, shrublands, forest margins, coastal habitats and waste places.

The presence of alder indicates nearby wetlands. Ireland's native tree is the black or grey alder (*Alnus glutinosa*). It is a wetland tree, and can often be seen growing alongside rivers, lakes, in marshes or in fens. A consistent and abundant supply of moisture is essential for its germination and early growth. The tree can grow up to 25m, and can attain a maximum girth of up to 1m. The tree can reach ages of between eighty and one hundred years (Stuijts 2005, 139). In comparison, all willows favour wet conditions, and it may be a pioneer species on wet soils (Orme and Coles 1985, 10).

6 Summary

Charcoal was identified from forty eight samples from Grange 3. Thirteen wood taxa were identified. The results are dominated by oak, hazel, pomaceous fruitwood and ash. Ash and oak were selected in some cases for posts related to Structures 1 and 2. It was not possible, however, to determine what wood taxa were used for building these structures. Nearby cremations are dominated by pomaceous fruitwood and oak. The pomaceous fruitwood type may have been selected for its aromatic qualities, the oak for the high temperatures it can achieve. Mainly oak and hazel were used for fires within the figure of eight kilns. Willow and alder (most likely pre-produced charcoal) were burnt in the Iron Age furnaces. A variety of wood taxa were identified from the ring-ditch, probably reflecting on site burning activity.

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Table 1 Charcoal identifications from Grange 3

Sample number	Context number	Feature type	Wood taxon	Flot weight	No. of fragments	Charcoal weight (grams)	Size of fragments (mm)	No. of growth rings	Growth	Ring curvature	Insect holes	Tyloses	Comment
1	C10	upper fill of pit C90, perimeter of S2	Alnus sp. (alder)	7.1g	2	0.03	4–6	2–6	medium				
1	C10	upper fill of pit C90, perimeter of S2	*Corylus avellana* (hazel)	7.1g	11	0.39	4–6	2–6	medium	strongly curved			
1	C10	upper fill of pit C90, perimeter of S2	*Fraxinus* sp (ash)	7.1g	5	0.31	4–6	2–6	medium				
1	C10	upper fill of pit C90, perimeter of S2	*Ilex aquifolium* (holly)	7.1g	5	0.04	4–6	2–6	medium	strongly curved			
1	C10	upper fill of pit C90, perimeter of S2	Maloideae spp. (pomaceous)	7.1g	1	0.03	5	5	medium	strongly curved			
2	C11	fill of pit C112, perimeter of S2	*Corylus avellana* (hazel)	2.2g	6	0.26	4–5	4–5	medium	strongly curved			
2	C11	fill of pit C112, perimeter of S2	*Fraxinus* sp (ash)	2.2g	1	0.05	5	5	medium				
2	C11	fill of pit C112, perimeter of S2	Maloideae spp. (pomaceous)	2.2g	5	0.2	4–5	4–5	medium	strongly curved			
4	C9	fill of C88 - shallow hearth, assoc with S2	*Alnus* sp. (alder)	18.0g	4	0.5	5–8	3–7	medium				
4	C9	fill of C88 - shallow hearth, assoc with S2	*Corylus avellana* (hazel)	18.0g	25	2.77	5–8	3–7	medium	strongly curved			
4	C9	fill of C88 - shallow hearth, assoc with S2	*Fraxinus* sp (ash)	18.0g	1	0.04	4	4	medium				

Sample number	Context number	Feature type	Wood taxon	Flot weight	No. of fragments	Charcoal weight (grams)	Size of fragments (mm)	No. of growth rings	Growth	Ring curvature	Insect holes	Tyloses	Comment
4	C9	fill of C88 - shallow hearth, assoc with S2	Maloideae spp. (pomaceous)	18.0g	11	0.9	5–8	3–7	medium	strongly curved			
4	C9	fill of C88 - shallow hearth, assoc with S2	*Prunus* sp.	18.0g	1	0.06	4	4	medium				
4	C9	fill of C88 - shallow hearth, assoc with S2	*Quercus* sp. (oak)	18.0g	1	0.05	4	4	medium	weakly curved			
4	C9	fill of C88 - shallow hearth, assoc with S2	*Ulmus* sp. (elm)	18.0g	8	0.45	5–8	3–7	medium	strongly curved			
13	C78	fill of pit C101, perimeter S1	Maloideae spp. (pomaceous)	5.9g	5	0.25	4–5	4–5	medium	strongly curved			
13	C78	fill of pit C101, perimeter S1	*Corylus avellana* (hazel)	5.9g	12	0.49	4–5	4–5	medium	strongly curved			
13	C78	fill of pit C101, perimeter S1	*Fraxinus* sp (ash)	5.9g	1	0.03	5	5	medium				
13	C78	fill of pit C101, perimeter S1	*Prunus* sp.	5.9g	1	0.04	4–5	4–5	medium				
16	C10	upper fill of pit C90, perimeter of S2	*Fraxinus* sp (ash)		1	0.57							
17	C104	fill of C113 – stakehole, associated with hearth c88 /structure 2	*Corylus avellana* (hazel)	7.4g	1	0.05	4	3	medium	strongly curved			

Sample number	Context number	Feature type	Wood taxon	Flot weight	No. of fragments	Charcoal weight (grams)	Size of fragments (mm)	No. of growth rings	Growth	Ring curvature	Insect holes	Tyloses	Comment
17	C104	fill of C113 – stakehole, associated with hearth c88 /structure 2	*Fraxinus* sp (ash)	7.4g	49	1.99	2–6	2–5	medium	strongly curved			
21	C92	lower fill of furnace pit C114	*Alnus* sp. (alder)	66.5g	22	2.3	4–8	4–8	medium	strongly curved			
21	C92	lower fill of furnace pit C114	*Salix* sp. (willow)	66.5g	28	3.21	4–8	4–8	medium	strongly curved			
25	C95	fill of C138 – pit (possible hearth), near cremation pit C203	*Quercus* sp. (oak)	25.7g	50	5.66	4–8	4–8	medium	weakly curved			
28	C93	fill of C157 – stakehole (outlying SH, assoc. With S1+S2)	*Quercus* sp. (oak)	21.2g	50	6.28	5–10	4–8	medium	strongly and weakly curved			
29	C67	cremation pit C203	*Fraxinus* sp (ash)	291.2g	2	0.15	4–8	4–8	medium	strongly curved			
29	C67	cremation pit C203	Maloideae spp. (pomaceous)	291.2g	48	10.75	4–8	4–8	medium	strongly curved			
30	C72	fill of C126 – posthole assoc with cluster of stakeholes and postholes between S1 & S2	*Alnus* sp. (alder)	0.8g	1	0.1	5	5	medium				

Sample number	Context number	Feature type	Wood taxon	Flot weight	No. of fragments	Charcoal weight (grams)	Size of fragments (mm)	No. of growth rings	Growth	Ring curvature	Insect holes	Tyloses	Comment
30	C72	fill of C126 – posthole assoc with cluster of stakeholes and postholes between S1 & S2	Maloideae spp. (pomaceous)	0.8g	2	0.08	5	5	medium				
36	C14	fill of C122 – stakehole (structure 2)	*Alnus* sp. (alder)	3.7g	1	0.05	4–5	2–5	medium				
36	C14	fill of C122 – stakehole (structure 2)	*Corylus avellana* (hazel)	3.7g	15	0.63	4–5	2–5	medium	strongly curved			
36	C14	fill of C122 – stakehole (structure 2)	*Euonymus* sp. (spindle)	3.7g	1	0.03	5	3	medium	strongly curved			
36	C14	fill of C122 – stakehole (structure 2)	*Fraxinus* sp (ash)	3.7g	3	0.13	4–5	2–5	medium				
36	C14	fill of C122 – stakehole (structure 2)	Maloideae spp. (pomaceous)	3.7g	6	0.31	4–5	2–5	medium	strongly curved			
36	C14	fill of C122 – stakehole (structure 2)	*Salix* sp. (willow)	3.7g	1	0.03	5	3	medium	strongly curved			
36	C14	fill of C122 – stakehole (structure 2)	*Ulex* sp. (gorse)	3.7g	1	0.03	5	3	medium	strongly curved			
48	C150	fill of C123 – rectangular feature (pit) perimeter of S1	*Corylus avellana* (hazel)	0.7g	1	0.01	5	5	medium	strongly curved			

Sample number	Context number	Feature type	Wood taxon	Flot weight	No. of fragments	Charcoal weight (grams)	Size of fragments (mm)	No. of growth rings	Growth	Ring curvature	Insect holes	Tyloses	Comment
48	C150	fill of C123 – rectangular feature (pit) perimeter of S1	*Fraxinus* sp (ash)	0.7g	7	0.12	5	3	medium				
51	C23	fill of C177 – charcoal spread, perimeter of structure 1	*Corylus avellana* (hazel)	4.1g	12	0.5	4–8	3–5	medium				
51	C23	fill of C177 – charcoal spread, perimeter of structure 1	*Fraxinus* sp (ash)	4.1g	7	0.25	5	5	medium				
51	C23	fill of C177 – charcoal spread, perimeter of structure 1	Maloideae spp. (pomaceous)	4.1g	3	0.09	5	5	medium				
51	C23	fill of C177 – charcoal spread, perimeter of structure 1	*Ulmus* sp. (elm)	4.1g	1	0.09	5	5	medium				
68	C146	fill of C179 – stakehole assoc with cluster of stakeholes and postholes between S1 & S2	*Corylus avellana* (hazel)	0.2g	1	0.02	4	3	medium				
91	C51	fill of C209 – stakehole asso with cluster of stakeholes, metalled area S1	*Alnus* sp. (alder)	0.5g	1	0.1	4	4	medium				

Sample number	Context number	Feature type	Wood taxon	Flot weight	No. of fragments	Charcoal weight (grams)	Size of fragments (mm)	No. of growth rings	Growth	Ring curvature	Insect holes	Tyloses	Comment
91	C51	fill of C209 – stakehole asso with cluster of stakeholes, metalled area S1	*Corylus avellana* (hazel)	0.5g	4	0.1	5–7	2–5	medium	strongly curved			
91	C51	fill of C209 – stakehole asso with cluster of stakeholes, metalled area S1	*Euonymus* sp. (spindle)	0.5g	1	0.05	4	4	medium				
91	C51	fill of C209 – stakehole asso with cluster of stakeholes, metalled area S1	*Quercus* sp. (oak)	0.5g	1	0.1	4	4	medium				
94	C196	fill of C195 – stakehole (S2)	*Corylus avellana* (hazel)	1.8g	14	0.7	4–5	4–5	medium	strongly curved			
94	C196	fill of C195 – stakehole (S2)	*Fraxinus* sp (ash)	1.8g	3	0.08	4–5	2–5	medium	strongly curved			
94	C196	fill of C195 – stakehole (S2)	Maloideae spp. (pomaceous)	1.8g	1	0.09	5	5	medium				
94	C196	fill of C195 – stakehole (S2)	*Prunus avium/padus* (wild/bird cherry)	1.8g	1	0.09	5	5	medium				
110	C54	deposit over stone spread C142 from working area, structure 2	*Euonymus* sp. (spindle)	42.2g	4	0.19	5–8	4–6	medium	strongly curved			

Sample number	Context number	Feature type	Wood taxon	Flot weight	No. of fragments	Charcoal weight (grams)	Size of fragments (mm)	No. of growth rings	Growth	Ring curvature	Insect holes	Tyloses	Comment
110	C54	deposit over stone spread C142 from working area, structure 2	*Corylus avellana* (hazel)	42.2g	30	3.33	5–8	4–6	medium	strongly curved			
110	C54	deposit over stone spread C142 from working area, structure 2	*Fraxinus* sp (ash)	42.2g	2	0.12	5–8	4–6	medium	strongly curved			
110	C54	deposit over stone spread C142 from working area, structure 2	Maloideae spp. (pomaceous)	42.2g	6	0.58	5–8	4–6	medium	strongly curved			
110	C54	deposit over stone spread C142 from working area, structure 2	*Prunus* sp.	42.2g	7	0.96	5–8	4–6	medium	strongly curved			
115	C227	lower fill of pit C228, perimeter S1	*Alnus* sp. (alder)	8.9g	1	0.02	4	2	medium				
115	C227	lower fill of pit C228, perimeter S1	*Corylus avellana* (hazel)	8.9g	4	0.09	4	4	medium				
115	C227	lower fill of pit C228, perimeter S1	*Fraxinus* sp (ash)	8.9g	46	0.98	4–6	2–4	medium	strongly curved			
117	32	Fill of pit C85, related to Str 2	*Corylus avellana* (hazel)		1	0.05	2–4	2	medium				
117	32	Fill of pit C85, related to Str 2	*Fraxinus* sp (ash)		5	0.08	3	2–4	medium				
117	32	Fill of pit C85, related to Str 2	Maloideae spp. (pomaceous)		1	0.02	5	5	medium				

Sample number	Context number	Feature type	Wood taxon	Flot weight	No. of fragments	Charcoal weight (grams)	Size of fragments (mm)	No. of growth rings	Growth	Ring curvature	Insect holes	Tyloses	Comment
129	C276	fill of C 266 – burnt pit, peripheral activity assoc with structures	*Corylus avellana* (hazel)	12.2g	49	0.39	4–5	2–5	medium				
129	C276	fill of C 266 – burnt pit, peripheral activity assoc with structures	*Prunus* sp.	12.2g	1	0.1	4	4	medium				
130	C229	cremation pit C275	*Corylus avellana* (hazel)	14.0g	3	0.14	5	2–5	medium				
130	C229	cremation pit C275	*Fraxinus* sp (ash)	14.0g	7	0.3	4–8	4–6	medium	strongly curved			
130	C229	cremation pit C275	Maloideae spp. (pomaceous)	14.0g	5	0.27	5	2–5	medium				
130	C229	cremation pit C275	*Prunus* sp.	14.0g	3	0.19	5	2–5	medium				
130	C229	cremation pit C275	*Quercus* sp. (oak)	14.0g	35	1.54	4–8	2–7	medium	strongly curved			
133	C243	fill of C273 figure-of-eight-shaped kiln (primary fill)	*Alnus* sp. (alder)	14.6g	1	0.04	4	2–4	medium				
133	C243	fill of C273 figure-of-eight-shaped kiln (primary fill)	*Corylus avellana* (hazel)	14.6g	24	1.26	4–7	4–6	medium	strongly curved			
133	C243	fill of C273 figure-of-eight-shaped kiln (primary fill)	*Fraxinus* sp (ash)	14.6g	2	0.12	4	2–3	medium				
133	C243	fill of C273 figure-of-eight-shaped kiln (primary fill)	Maloideae spp. (pomaceous)	14.6g	6	0.72	4–7	4–6	medium	strongly curved			

Sample number	Context number	Feature type	Wood taxon	Flot weight	No. of fragments	Charcoal weight (grams)	Size of fragments (mm)	No. of growth rings	Growth	Ring curvature	Insect holes	Tyloses	Comment
133	C243	fill of C273 figure-of-eight-shaped kiln (primary fill)	*Prunus* sp.	14.6g	2	0.04	4	2	medium				
133	C243	fill of C273 figure-of-eight-shaped kiln (primary fill)	*Quercus* sp. (oak)	14.6g	16	1.05	4–7	4–6	medium	strongly curved			
134	C274	fill of C273 figure-of-eight-shaped kiln	*Corylus avellana* (hazel)	3.0g	10	0.38	4–5	2–5	medium	strongly curved			
134	C274	fill of C273 figure-of-eight-shaped kiln	*Fraxinus* sp (ash)	3.0g	4	0.11	4–5	2–5	medium				
134	C274	fill of C273 figure-of-eight-shaped kiln	Maloideae spp. (pomaceous)	3.0g	6	0.21	4–5	2–5	medium				
134	C274	fill of C273 figure-of-eight-shaped kiln	*Prunus* sp.	3.0g	1	0.06	4	4	medium	strongly curved			
134	C274	fill of C273 figure-of-eight-shaped kiln	*Quercus* sp. (oak)	3.0g	1	0.03	5	5	medium				
134	C274	fill of C273 figure-of-eight-shaped kiln	*Salix* sp. (willow)	3.0g	2	0.06	4–5	4–5	medium				
135	C278	fill of C280 – stakehole (S2)	*Alnus* sp. (alder)	2.4g	1	0.03	4–5	2–6	medium				
135	C278	fill of C280 – stakehole (S2)	*Corylus avellana* (hazel)	2.4g	9	0.22	4–5	2–6	medium	strongly curved			
135	C278	fill of C280 – stakehole (S2)	*Fraxinus* sp (ash)	2.4g	14	0.27	4–5	2–6	medium	strongly curved			

Sample number	Context number	Feature type	Wood taxon	Flot weight	No. of fragments	Charcoal weight (grams)	Size of fragments (mm)	No. of growth rings	Growth	Ring curvature	Insect holes	Tyloses	Comment
135	C278	fill of C280 – stakehole (S2)	*Quercus* sp. (oak)	2.4g	18	0.35	4–8	2–6	medium				
138	C247	lower fill of cremation pit C290	*Corylus avellana* (hazel)	27.3g	7	0.66	5–8	4–7	medium	strongly curved			
138	C247	lower fill of cremation pit C290	Maloideae spp. (pomaceous)	27.3g	43	3.75	5–8	4–7	medium	strongly curved			
156	C243	lower fill of C273 – figure of eight kiln	*Alnus* sp. (alder)	10.2g	1	0.06	4	4	medium				
156	C243	lower fill of C273 – figure of eight kiln	*Corylus avellana* (hazel)	10.2g	30	3.87	5–14	2–6	medium	strongly curved			
156	C243	lower fill of C273 – figure of eight kiln	Maloideae spp. (pomaceous)	10.2g	1	0.49	5	5	medium	strongly curved			
156	C243	lower fill of C273 – figure of eight kiln	*Quercus* sp. (oak)	10.2g	7	0.9	5–6	2–6	medium	strongly curved			
156	C243	lower fill of C273 – figure of eight kiln	*Salix* sp. (willow)	10.2g	14	1.72	5–6	2–3	fast	strongly curved			
157	C309	fill of C 130 – figure of eight kiln	*Alnus* sp. (alder)	22.0g	5	0.82	4–8	3–6	medium	strongly curved			
157	C309	fill of C 130 – figure of eight kiln	*Corylus avellana* (hazel)	22.0g	2	0.19	4–8	3–6	medium	strongly curved			
157	C309	fill of C 130 – figure of eight kiln	*Fraxinus* sp (ash)	22.0g	6	1.13	4–8	3–6	medium	strongly curved			
157	C309	fill of C 130 – figure of eight kiln	*Quercus* sp. (oak)	22.0g	40	7.13	5–8	2–7	medium	weakly curved		20%	
157	C309	fill of C 130 – figure of eight kiln	*Ulmus* sp. (elm)	22.0g	1	0.08	4–8	3–6	medium	strongly curved			

Sample number	Context number	Feature type	Wood taxon	Flot weight	No. of fragments	Charcoal weight (grams)	Size of fragments (mm)	No. of growth rings	Growth	Ring curvature	Insect holes	Tyloses	Comment
166	C315	fill of C 130 - figure of eight kiln (primary fill)	*Fraxinus* sp (ash)	207.0g	2	0.33	2–4	2–4	medium	strongly curved			
166	C315	fill of C 130 - figure of eight kiln (primary fill)	*Quercus* sp. (oak)	207.0g	48	53.13	5–45	5–30	medium	weakly curved		20%	
176	C331	fill of C 339 – stakehole (S2)	*Corylus avellana* (hazel)	0.2g	2	0.1	4–5	4–5	medium	strongly curved			
176	C331	fill of C 339 – stakehole (S2)	*Fraxinus* sp (ash)	0.2g	1	0.05	4–5	4–5	medium	strongly curved			
183	C319	cremation pit C330	*Corylus avellana* (hazel)	7.3g	8	0.5	4–8	4–10	medium	strongly curved			
183	C319	cremation pit C330	Maloideae spp. (pomaceous)	7.3g	42	3.16	4–8	4–10	medium	strongly curved			
192	C354	fill of C 355 – stakehole (S1)	*Corylus avellana* (hazel)	0.3g	7	0.2	4–5	4–5	medium	strongly curved			
193	C348	fill of C 349 – stakehole (S1)	*Corylus avellana* (hazel)	2.9g	5	0.1	4–5	2–6	medium	strongly curved			
193	C348	fill of C 349 – stakehole (S1)	*Fraxinus* sp (ash)	2.9g	3	0.09	4–5	2–6	medium	strongly curved			
193	C348	fill of C 349 – stakehole (S1)	*Quercus* sp. (oak)	2.9g	1	0.03	5	4	medium	strongly curved			
200	C362	fill of C 130 - figure of eight kiln	*Corylus avellana* (hazel)	0.5g	1	0.02	5	5	medium				
200	C362	fill of C 130 - figure of eight kiln	*Quercus* sp. (oak)	0.5g	9	0.24	5	5	medium				

Sample number	Context number	Feature type	Wood taxon	Flot weight	No. of fragments	Charcoal weight (grams)	Size of fragments (mm)	No. of growth rings	Growth	Ring curvature	Insect holes	Tyloses	Comment
201	C363	fill of C 365 – stakehole, interior S1	*Fraxinus* sp (ash)	<0.1g	1	0.04	5	5	medium				
201	C363	fill of C 365 – stakehole, interior S1	*Ulmus* sp. (elm)	<0.1g	1	0.04	5	5	medium				
228	C89	fill of C 317 - stakehole (S2)	*Quercus* sp. (oak)	1.1g	30	0.42	5–6	2–5	slow			100%	
230	C406	fill of C 407 - posthole (S1)	*Corylus avellana* (hazel)	0.1g	1	0.02	4–5	4–5	medium	strongly curved			
230	C406	fill of C 407 - posthole (S1)	*Fraxinus* sp (ash)	0.1g	3	0.02	4–5	4–5	medium				
230	C406	fill of C 407 - posthole (S1)	Maloideae spp. (pomaceous)	0.1g	2	0.02	4–5	4–5	medium				
230	C406	fill of C 407 - posthole (S1)	*Ulmus* sp. (elm)	0.1g	1	0.02	4–5	4–5	medium				
233	C408	fill of C 415 - posthole (S2)	*Corylus avellana* (hazel)	0.3g	1	0.1	4–5	4–5	medium	strongly curved			
233	C408	fill of C 415 - posthole (S2)	*Fraxinus* sp (ash)	0.3g	2	0.04	4–5	4–5	medium				
233	C408	fill of C 415 - posthole (S2)	*Ilex aquifolium* (holly)	0.3g	1	0.03	4–5	4–5	medium				
233	C408	fill of C 415 - posthole (S2)	Maloideae spp. (pomaceous)	0.3g	2	0.1	4–5	4–5	medium	strongly curved			
233	C408	fill of C 415 - posthole (S2)	*Quercus* sp. (oak)	0.3g	1	0.03	4–5	4–5	medium				

Sample number	Context number	Feature type	Wood taxon	Flot weight	No. of fragments	Charcoal weight (grams)	Size of fragments (mm)	No. of growth rings	Growth	Ring curvature	Insect holes	Tyloses	Comment
238	399	Fill of ditch C400	*Fraxinus* sp (ash)		3	0.22							
238	399	Fill of ditch C400	*Corylus avellana* (hazel)		1	0.03							
238	399	Fill of ditch C400	Maloideae spp. (pomaceous)		1	0.05							
243	C436	fill of C 437 - pit, assoc with S1 filled with charcoal containing perforated artefact	*Corylus avellana* (hazel)	1.1g	15	0.66	4–7	2–8	medium	strongly curved			
247	C449	fill of C 450 - posthole, poss related to pit furnace C473	*Corylus avellana* (hazel)	1.0g	4	0.12	4–6	3–4	medium	strongly curved			
247	C449	fill of C 450 - posthole, poss related to pit furnace C473	*Fraxinus* sp (ash)	1.0g	2	0.03	4–6	3–4	medium				
247	C449	fill of C 450 - posthole, poss related to pit furnace C473	*Quercus* sp. (oak)	1.0g	1	0.18	4–6	3–4	medium				
251	C454	fill of C 455 - posthole (under metalled surface, S2)	*Corylus avellana* (hazel)	5.2g	6	0.27	4–7	2–5	medium	strongly curved			
251	C454	fill of C 455 - posthole (under metalled surface, S2)	Maloideae spp. (pomaceous)	5.2g	4	0.23	5	5	medium				

Sample number	Context number	Feature type	Wood taxon	Flot weight	No. of fragments	Charcoal weight (grams)	Size of fragments (mm)	No. of growth rings	Growth	Ring curvature	Insect holes	Tyloses	Comment
252	C456	Fill of C457 - posthole (under metalled surface, S2)	*Corylus avellana* (hazel)	0.4g	1	0.02	4	3	medium	strongly curved			
252	C456	Fill of C457 - posthole (under metalled surface, S2)	*Fraxinus* sp (ash)	0.4g	2	0.02	4–5	4–5	medium				
252	C456	Fill of C457 - posthole (under metalled surface, S2)	Maloideae spp. (pomaceous)	0.4g	1	0.02	4	3	medium				
270	C245	Fill of pit C491	*Quercus* sp. (oak)	0.5g	1	0.5							
274	C492	Fill of pit C491	*Quercus* sp. (oak)	150.7g	50	23.58	5–20	5–25	medium	weakly and strongly curved		20%	
319	C504	Fill of C 503 - ring-ditch	*Corylus avellana* (hazel)	2.4g	2	0.09	5	5	medium				
319	C504	Fill of C 503 - ring-ditch	*Fraxinus* sp (ash)	2.4g	2	0.28	5	8	medium				
319	C504	Fill of C 503 - ring-ditch	*Quercus* sp. (oak)	2.4g	25	1.63	5–7	4–10	medium	weakly and strongly curved		50%	
333	C514	Fill of C 503 - ring-ditch	*Alnus* sp. (alder)	3.6g	1	0.02	5	5					
333	C514	Fill of C 503 - ring-ditch	*Corylus avellana* (hazel)	3.6g	21	1.07	4–6	4–7	medium	strongly curved			
333	C514	Fill of C 503 - ring-ditch	*Quercus* sp. (oak)	3.6g	1	0.04	5	5					

Sample number	Context number	Feature type	Wood taxon	Flot weight	No. of fragments	Charcoal weight (grams)	Size of fragments (mm)	No. of growth rings	Growth	Ring curvature	Insect holes	Tyloses	Comment
407	C522	Secondary cut of ring-ditch	*Alnus/Corylus* (alder/hazel)		1	0.05							
411	C538	Ditch (from poss early med ditch C510)post dates ring-ditch	Maloideae spp. (pomaceous)	16.3g	45	3.65	4–6	4–6	medium	strongly curved			
411	C538	Ditch (from poss early med ditch C510) post dates ring-ditch	*Quercus* sp. (oak)	16.3g	5	0.22	5	5	medium	weakly curved			
426	C501	Fill of posthole/pit C502 in interior of ring-ditch	*Corylus avellana* (hazel)	0.1g	2	0.05	5	5	medium				
461	C600	Pit C601 containing slag	*Alnus* sp. (alder)		1	0.55							
476	C623	Fill of a figure-of-eight-shaped kiln C596.	Ch too small for id	<0.1g									
477	C624	Fill of a figure-of-eight-shaped kiln C596.	*Quercus* sp. (oak)	0.1g	7	0.1	4–6	4–5	medium				
485	C633	Pit C632, circular furnace pit	*Fraxinus* sp (ash)		1	0.27							

THE PLANT REMAINS
GRANGE 3 (E3123)

SUSAN LYONS MSC MIAI
JOB CODE: PR/088.30

FEBRUARY 2010

1 Introduction

Twenty five flot samples were analysed from excavations associated with prehistoric and medieval activity recorded at Grange 3, Co. Meath. Grange 3 was excavated as part of the archaeological mitigation programme associated with Contract 4 of the M3 Navan–Kells and Kells Bypass, which formed part of the proposed M3 Clonee to North Kells Motorway Scheme. The site consisted of four main areas of activity – two Bronze Age structures with associated cobbled working areas and cremation pits located at the east of the site; early medieval field boundary/land division ditches and four cereal drying kilns; a ring barrow and several metalworking features (Kelly, 2008).

Eight radiocarbon dates were obtained for the site; ash charcoal from C10 returned a date of 1408–1269 BC; a barley grain from C54 returned a date of AD 433–611; oak charcoal from C245 returned a date of 2460–2210 BC; animal bone from C505 returned a date of 974–828 BC; alder/hazel charcoal from C522 returned a date of 1372–1131 BC; a barley grain from C646 returned a date of AD 617–666; ash charcoal from C633 returned a date of 346–60 BC and alder charcoal from C600 returned a date of 191–5 BC. All dates are calibrated to 2 sigma deviation.

The primary objective of the plant remains project is to identify, analyse and interpret the charred and any waterlogged botanical remains present in order to help with understanding the change in the floral environment and activities at the site over time and to help with highlighting the function of certain areas of the site or indeed the features recorded within. This report will later form part of an overall scheme-wide report encompassing all sites along the M3 Clonee to North Kells Motorway Scheme (Lyons, *forthcoming)*.

2 Methodology

2.1 Sample processing (after IAC Ltd)

- A mechanical flotation tank using a pump and water recycling system is used for soil flotation
- The soil is washed using a 1mm mesh in the flotation tank and a 300 micron and 1mm sieve is used to catch floated material.
- The volume of all soil samples are recorded in litres using a measuring jug.
- The sample is then placed into the 1mm mesh in the flotation tank, the tank is then filled with water and the sample washed. Any large lumps of soil can be carefully broken down by hand, but the jets of water in the flotation tank gently clean the rest of the sample.
- Once the sample is clean (just stones, charcoal, artefacts remaining in the mesh) the tank is filled up with water and at this stage any floating material (charcoal, seeds etc) should flow over the spout and into the sieves.
- The retent is then gently poured into a labelled tray (containing site code, site name, sample number and context number) and place on a shelf to dry.
- The flots are securely packaged in tissue, labelled and hung up to dry. This prevents any loss of light material (seeds) which could result once the flots are dry and being moved (if they are dried on trays).
- Before washing a new sample all equipment used (measuring jugs, 1mm mesh, sieves etc) are thoroughly washed using clean water.
- The large black settling tanks (and water) are cleaned between every site, or if a large site is being processed, every 1–2 weeks.
- Any samples containing high clay content will be soaked in water for 1–2 days to aid the sieving process.
- Flots were sorted and botanical remains separately removed by IAC Ltd

2.2 Quantification and identification of plant remains

The flot samples are viewed under a low powered binocular microscope (Nikon SMZ645) at magnification x0.8 to x5 and any carbonised or potentially waterlogged botanical materials were identified to genus/species level where applicable. Where preservation allowed, all charred and waterlogged plant remains recovered were identified to species level where applicable and the constituents quantified numerically. Those plant remains which were abraded or fragmented were recorded using an abundance key to highlight the concentrations of material identified from each sample;

+ = rare (1–10) **++ = occasional (11–50)**
+++ = common (51–100) **++++ = abundant (>100)**

To fully identify charred remains, a series of morphological characteristics are recorded, which includes length, breadth, shape on the longitudinal and transerve planes, texture of the seed coat (smooth or reticulate), attachments (pappus), scars (hilum) and the presence of the embryo and endosperm components in cereal grains (Pearsall, 2000, 135–6). Cereal chaff fragments were noted for glume base angle, ventral/dorsal keels, nerves, size of lemma scars etc (Hillman, 1981).

Plant species are made using reference to the author's seed collection and standard seed atlases and references; *Flora of the British Isles* (Clapham, A R, Tutin, T G, Warburg, E F, 1957), *Zadenatlas der Nederlandsche Flora* (Beijerinck, W.1976), *New Flora of the British Isles 2nd Edition* (Stace, C, 1997) and *Digital Seed Atlas of the Netherlands* (Cappers, R.T.J., R.M. Bekker and J.E.A. Jans, 2006).

3 Results

Twenty five samples from features associated with both prehistoric and medieval deposits were submitted for archaeobotanical analysis;

- Structure 1 – fill of pit C177 (C23), posthole C349 (C348), irregular feature C242 (C70)
- Structure 2 – working surface C142 (C54), posthole C464 (C463)
- Features associated with Structures 1 and 2 – pit C132 (C156), irregular features C170 (C21)
- Cremations – C290 (C247)
- Kilns – C273 (C243 [Samples 133, 156, 222] and C274); C130 (C309, C314, C315 and C362 [Samples 200 and 214]); C596 (C622, C623 and C624)
- Pit/furnaces - C497 (C495), C305 (C324)
- Ring-ditch – C503 (C504)
- Land division ditch - C584/C611 (C646)
- Modern ditch – C268 (C237)

The results are summarised in Table 1.

Carbonised cereal remains **-** Carbonised cereal grains were recorded in low to high concentrations, with the most notable assemblages identified from kiln C273 (C243 and C274), kiln C130 (C309 and C362), kiln C596 (C624), hearth/pit C305 (C324) and ring-ditch C503 (C504). Barley (*Hordeum* sp.) in the form of hulled barley (*Hordeum vulgare)* was the dominant cereal crop recorded. Lower incidences of oat (*Avena* sp.) and wheat (*Triticum* sp.), especially the bread/club wheat (*Triticum aestivum/compactum)* variety, were also recorded. The oat grain was in a poor state of preservation and free of palea/lemma (hulls) for the most part, but based on grain size and the absence of a distinct basal scar (suckermouth) (Stanton, 1955, 103), the

cultivated/common oat type (*Avena sativa)* is likely to be the most common oat species recorded from the assemblage

A number of vesicular and eroded grains were also recorded, most notably from kilns C130 and C273 and these vappear in the tables as indeterminate grain. Cereal grains can become eroded and abraded as a result of charring at high temperatures, that the grain was damp when burnt or that this material had degraded due to redeposition and/or exposure.

The only evidence for cereal chaff, in the form of possible rachis fragments, was recorded from pit C177 (C23). Since no diagnostic features were present on this material is was difficult to identify this to species level.

Carbonised nutshell - Carbonised nutshell, tentatively identified as hazelnut (*Corylus avellana)* shell was identified from C21 (fill of irregular feature C170) and C70 (fill of irregular feature C242). Hazelnut shell is also a frequent occurrence on archaeological sites (Moffett *et al,* 1989; Greig, 1991) and its presence is usually interpreted as:

- the waste debris of gathered foodstuffs that have been discarded onto fires
- the remnants of drying or parching hazelnuts near or over a fire.
- material collected with hazel wood for fuel or kindling

Since the hazelnut shell recovered at Grange 3 is in such small quantities, its origin here is uncertain.

Carbonised wild taxa – Carbonised seeds (nutlets) of *Polygonum convolvulus* (black bindweed) and *Polygonum* sp. (knotgrass) were recorded from kiln C273 (C243), kiln C130 (C309) and furnace C305 (C324). All species are common weeds of disturbance and waste ground.

Uncarbonised wild taxa – Uncarbonised *Rubus* sp. (blackberry/raspberry/ bramble - type) were recorded from field boundary C268 (C237). This material is likely to be modern material and may bear no relation to the activity within this feature.

4 Discussion

4.1 Carbonization of plant remains

Charred plant remains are those which have been heated to more than about 200° C, but where there is not enough oxygen to complete the burning process. Instead, the organic components are converted to a more carbon-rich resilient material or to carbon itself rather than to ash (Broadman & Jones, 1990). Despite being subjected to high temperatures, many charred remains retain a morphology or exterior detail which can aid plant identification to genus or even species level. Some remains are found in the same place that they were charred (hearths, fires, kilns, ovens, burnt stores). More are found thinly spread and scattered across a wider area entering deposits such as occupational layers, pits and potholes for example. Over time, this material can move and be re-distributed due to disturbances such as soil movement, extreme climatic conditions, root penetration or worm/animal action. The carbonisation process obviously affects different species and plant components in different ways, where finer, lighter material can be destroyed more easily than larger elements. It most therefore be noted that the charred plant remains recovered from archaeological features can as much reflect the results of the carbonisation process as how and what plant remains were used on a site.

4.2 Carbonised plant remains from Grange 3

The carbonised cereal assemblage recorded from Grange 3 was confined to features associated with the Bronze Age structures and cremation pits and from the medieval kilns, furnaces and ditch deposits. Carbonised cereal grain recovered from archaeological sites and features represents the charred residual remains from corn-drying events. Charred plant remains can sometimes cause problems on multi-period sites, if remains from one period have become disturbed, mixed or re-deposited during subsequent occupational phases. This 'residual material' is therefore often out of its true stratigraphical context and can alter interpretations of the plant material present at a site (Boardman and Jones 1990).

The presence of hulled barley and bread/club wheat are both cereal types which have been cultivated from the prehistoric period into modern times in Ireland (Monk, 1986). The cultivation of oat is primarily dated from the early medieval period in Ireland (Monk, 1986) and so the presence of all three crops collectively at Grange 3 is indicative of a medieval crop assemblage and therefore medieval crop drying activities in the area. Oat, wheat and barley would have been cultivated and consumed by all social classes during the medieval period and into modern times, with oat also being possibly used as animal fodder.

The prehistoric deposits recorded at the site (C21, C23, C54, C70, C156, C247, C348 and C463) from structural and funerary features contained a very low number of charred cereal remains. Carbonised cereal grains from prehistoric settlement sites are generally found in low frequencies scattered within structural deposits (Johnston, 2004, 17). Many of the Bronze Age settlement sites analysed for plant remains from the excavations along the Bord Gáis pipeline to the West (Johnston, 2007, 75) also contained low quantities of grain in no particular pattern. These were very low in numbers and are most probably the result of residual charred debris from one or more crop processing events. Whether the charred plant elements are domestic remains or form part of another activity however is difficult to ascertain. Much work carried out from Bronze Age cemetery sites has suggested that the recovery of cereal grains from burial and ritual deposits are often interpreted as deliberate votive offerings deposited as part of the funerary rite (Johnson, 2007, 76). In the absence of a larger grain assemblage however, such assumptions are unfounded for this site.

The absence of a large cache of burnt grain from archaeological sites and features can as much reflect the results of the carbonisation process, which is a method of destruction, as how and what plant remains were used on a site. It must also be noted that a successful crop drying episode would also result in little or no charred remains to analyse. The low incidence of charred cereal remains from these earlier deposits at Grange 3, coupled with a lack of *in situ* burning for the most part suggest that this material was residual debris from local small-scale crop drying events. It is also likely that the grain recorded from these prehistoric deposits are attributed to interference from the later medieval activity carried out at the site.

The highest concentration of cereal grain at the site was recorded from the medieval kilns (C130, C273 and C596), pit/furnaces (C305) and ditch (C503). The presence of charred grain coupled with *in situ* burning from pits/furnaces C305 and C497 also suggests that these may have functioned as crop drying facilities at one point. Corn drying kilns would have required regular maintenance and cleaning and so the high cereal grain content from the kilns C130 and C273 implies that these features were not cleaned out and possibly even abandoned after a fire or conflagration event. Kiln C596 and possible kilns C305 and C497 contained a much lower incidence of charred grain. This could be explained a) if the kiln had burnt down but had

subsequently been cleaned out and re-built or b) if the grain represented a build-up of material that had accumulated in the bowl of the kiln during several kilnings.

Based on the high barley grain content, it is likely to have been the last crop kilned at the site. It is difficult to ascertain however whether the remains reflect one or more burning episodes or whether the kiln activities recorded were contemporary. The presence of oat and wheat may represent residual material from earlier kilning activities or that these crops were being processed in a much lower capacity.

The periodic cleaning of kilns would have produced charred cereal debris and this is likely to have been dumped and raked out into nearby open features. This would therefore account for the high quantities of carbonised cereal grains recorded from ditch C503 (C504). Such material would also have become re-deposited and re-distributed around the site mixing and entering nearby features and deposits. This may account for smaller cereal assemblages identified from many of the earlier and later features and deposits recorded at Grange 3.

An interesting observation is the absence of chaff and low occurrence of weed seeds from the assemblage, which can indicate that cereals were processed as clean grain either being prepared for long-term storage or for grinding and milling. Grains would require full processing (removal of chaff and weeds) prior to storage to prevent spoilage of the crop (van der Veen, 1989, 304). The charred weed seeds of knotgrass and black bindweed may have also been brought to the site with the gathered crop and inadvertently charred during the kilning process. A mixture of cereal chaff and weed seeds together with wood can also form a very suitable fuel for parching grain (Hillman, 1981). It must also be remembered that during the carbonisation process some cereal and weed seed components are more readily destroyed depending on the temperatures they are exposed to. This will obviously alter the interpretation of the material where the surviving plant remains cannot be taken as a true reflection of the original assemblage (Boardman and Jones, 1990).

5 Summary

Twenty five samples associated with the Bronze Age and medieval dated features and deposits recorded from Grange 3 were selected for archaeobotanical analysis. The low cereal assemblage recorded from the prehistoric deposits makes the exact nature of this material difficult to interpret. The carbonised plant remains assemblage was dominated by barley, followed by much lesser oat and wheat. Collectively these crops are typical of a medieval cereal assemblage, which confirms that that medieval crop drying activities were being undertaken at the site. These activities would have been carried out within kilns C130, C273, C596 and potentially C305 and C497, at one point. Charred kilning debris would have been dumped into open features, such as ditch C503 and become re-deposited across the site to enter other negative features and become mixed with earlier and later deposits. This is likely to account for the presence of smaller cereal assemblages from many of the Bronze Age structural and funerary deposits as well as the later medieval field/land division ditches recorded at the site. The high concentration of cereal grain recorded along with the number of kilns identified at Grange 3 serves to illustrate the importance of arable farming at the site and suggests an organized management of crop processing during the medieval period.

6 Recommendations

1. There is no further identification work required on the sample submitted for Grange 3. Any additional processed samples associated with prehistoric and medieval features excavated at the site should also be scanned to determine

if there are any other plant remains present, which may help with the interpretations put forward.

2. All flot samples associated with Grange 3 should be retained permanently in accordance with the National Monuments Act 1930 (Section 2) and the National Monuments Act 1994 (Section 9) and for future archaeobotanical research studies to be carried out.

3. A record of the methodology and results of this assessment should be included in any final report.

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Table 1. Composition of plant remains from Grange 3 (E3123)
Key: + = rare (1–10), ++ = occasional (11–50), +++ = common (51–100) and ++++ = abundant (>100)

Feature	Context number	Sample Number	Flot volume (grams)	Context description	Carbonised cereal grains	Carbonised cereal chaff	Carbonised nutshell	Carbonised wild taxa	Comments
Pits Along Perimeter of Structure 1	23	51	<0.1 grams	Fill of pit C177 along SW perimeter of Structure 1	+	+			Barley (x9) cf Wheat (x1) cf Oat (x1) Cereal chaff: sheath indet +
Postholes & Stakeholes in Interior of Structure 1	348	193	<0.1 grams	Fill of posthole C349	+				Barley (x3) Cereal indet +
Features Between Structure 1 & 2	70	54	0.1 grams	Sterile fill of irregular feature C242			+		
Stone Spreads/Metalled Surfaces-Structure 2	54	110	0.3 grams	Clay deposit over metalled working surface C142	++				Barley (x4)
	463	253	<0.1 grams	Fill of posthole C464, under large stone layer C142	+				Barley (x1) Cereal indet +
Outlying Features Associated with Structures 1 & 2	156	104	0.1 grams	Lower fill of sub oval pit C132	+				Barley (x9) Cereal indet +
	21	111	0.1 grams	Fill of oval irregular feature C170, which contained internal postholes and stakeholes			+		
Outlying Cremations	247	138	<0.1 grams	Fill of cremation pit C290	+				Cereal indet +

Feature	Context number	Sample Number	Flot volume (grams)	Context description	Carbonised cereal grains	Carbonised cereal chaff	Carbonised nutshell	Carbonised wild taxa	Comments
Figure of Eight Shaped Kilns	243	133	4.3 grams	Primary fill of kiln C273	++++				Barley (x289) Wheat (x4) Oat (x2) Cereal indet ++
	243	156	5.7 grams	Primary fill of kiln C273	++++			+	Barley (x221) Oat (x8) Wheat (x4) Cereal indet +++ *Polygonum convolvulus* (x3)
	243	222	1.5 grams	Primary fill of kiln C273	+++				Barley (x88) Oat (x6) Cereal indet +
	274	134	3 grams	Upper fill of kiln C273	+++				Barley (x82) Wheat (x4) Oat (x2) Cereal indet ++
	309	157	46.2 grams	Black compact silt fill of kiln C130, containing charcoal and animal bone	++++				Barley (x2842) Oat (x16) Wheat (x3) Cereal indet ++++ *Polygonum* sp. (x1)
	314	158	0.9 grams	Compact grey/dark red silty fill of kiln C130 with a high degree of charcoal and badly preserved animal bone	++				Barley (x47) Cereal indet ++
	315	166	114.7 grams	Compact black silty fill of C130, containing a high degree of charcoal, pieces of burnt wood and bone	++				Barley (x25) Cereal indet +
	362	200	6.4 grams	Red/orange clay fill of C130, containing charcoal, one large piece of charcoal/wood and some smaller fragments	++++				Barley (x210) Oat (x9) Cereal indet ++
	362	214	0.3 grams	Red/orange clay fill of C130, containing charcoal, one large piece of charcoal/wood and some smaller fragments	+				Barley (x14) Cereal indet+
	622	475	0.1 grams	Upper fill of kiln C596	+				Barley (x8) Wheat (x1) Cereal indet +
	623	476	<0.1 grams	Lower fill of kiln C596	+				Barley (x4) Cereal indet +
	624	477	0.4 grams	Middle fill of kiln C596	+++				Barley (x46) Wheat (x2) Cereal indet +
Pit Furnaces	495	283	0.3 grams	Fill of oval pit C497	++				Barley (x36) Cereal indet +

Feature	Context number	Sample Number	Flot volume (grams)	Context description	Carbonised cereal grains	Carbonised cereal chaff	Carbonised nutshell	Carbonised wild taxa	Comments
Features Possibly related to Furnace Activity	324	167	3.1 grams	Fill of possible small furnace C305 to the north-east of linear ditch C398	+++			+	Barley (x182) Oat (x33) Cereal indet ++ *Polygonum convolvulus* (x3)
Ring-ditch	504	403	4.3 grams	Upper fill of ring-ditch C503	++++				Barley (x363) Oat (x8) Cereal indet ++
Early Medieval Land Division Ditches	646	500	<0.1 grams	Fill of Early Medieval field/ land division ditch C584/C611, running east-west	+				Barley (x3)
Modern Ditches Traversing the Site	237	126	0.1 grams	Upper fill of C268 modern field boundary					Uncarbonised *Rubus* sp. ++ (modern)

THE FAUNAL REMAINS
GRANGE 3 (E3123)

MARGARET MCCARTHY

DECEMBER 2009

Introduction

The excavations at Grange 3 revealed the existence of a complex multi-period site the full details of which are outlined in the stratigraphic report. Two Bronze Age structures with associated metalled working areas were exposed as well as a possible contemporary ring-ditch/barrow. Unburnt butchered animal bones were found in relatively large quantities in the primary fills of the ring-ditch while features associated with the Bronze Age structures mostly contained indeterminate burnt bone fragments. Animal bones were also recovered from later features including linear ditches cutting across the backfilled ring-ditch and early medieval kilns and land divisions. The animal bones are described below according to the various phases and context groupings recognised by the excavators and the numerical details are presented in Table 1. The quantities of bones recovered from the ring-ditch and from the later early medieval land divisions were high with the densest concentrations and the widest range of species coming from the land divisions.

Methodology

The bone material was recorded by individual context and sorted into identifiable and non-identifiable specimens. Many bones could not be positively identified to species and these were sorted into three higher taxonomic categories. When a specimen could not be assigned to sheep or pig, the category 'medium-sized mammal' (MM) was used. In the same way, specimens that could not be positively identified as cattle and may also have belonged to horse or red deer were assigned to the category 'large-sized mammal' (LM). All ribs and many skull and vertebra fragments were classified as large and medium mammal remains only. The third group included those specimens that could not be identified to species, element or size category. These bones were counted and butchery marks, traces of burning and carnivore gnawing were recorded. The ageing of domestic animals was established using the epiphyseal fusion rates quoted by Silver (1971) for limb bones. Post-mortem tooth loss was a particular problem at the site and none of the mandibles found could be assigned to a precise wear stage. The relative frequencies of the animals represented were estimated by the percentage of bones for each species identified and by the minimum number of individuals present. The latter figure was estimated for each context and was based on longbones only.

Sheep were distinguished from goat by close examination of suitable bones as outlined by Boessneck (1969) and Prummel and Frisch (1986) and by comparison with modern skeletal material. The ovicaprid bones are all referred to as 'sheep' in the text as many of them were definitely identified to this species by morphological traits and just six bones were positively identified as belonging to goat. Measurements were taken wherever possible according to the methods of Von den Driesch (1976) using a hand-operated digital callipers. The fragmentary nature of the assemblage meant that there were no complete bones on which detailed metrical analysis could be undertaken.

Table 1: Distribution of species by context grouping

	Horse	Cow	S/G*	Pig	Cat	Red Deer	LM*	MM*	Indet*	Total
Bronze Age Structures			1				5	12	123	141
Metalworking Activity									7	7
Ring-ditch	1	41	5	1		85	100	30	164	427
Linears cutting ring-ditch		40	1	33			45	32	187	338
Early Medieval Kilns		1							43	44

	Horse	Cow	S/G*	Pig	Cat	Red Deer	LM*	MM*	Indet*	Total
Early Medieval Land Divisions	7	481	74	72	1		562	288	1750	3235
Modern Ditches		3								3
TOTAL	8	566	81	106	1	85	712	362	2274	4195

S/G* Sheep/Goat LM* Large mammal MM* Medium mammal Indet* Indeterminate

Bronze Age Houses
Small amounts of extremely fragmented burnt animal bone were recovered from a number of postholes and pits forming the two Bronze Age structures identified at the site. A number of bones were also found in various spreads and pits associated with the structures. In all, 141 bones were recovered from the two structures and the results are described below by individual house.

Structure 1
The fill of a pit (C30) along the perimeter of Structure 1 produced 18 bones none of which are identifiable to species although five fragments are sufficiently large to indicate that they come from a medium-sized mammal such as sheep/goat or pig. Two fragments of indeterminate bone were found in the fill of posthole C376 forming the entrance to the structure. A fragment of an adult sheep/goat mandible was found in a pit (C123) along the perimeter of the structure and the remaining 31 bones from this feature consist of three medium mammal fragments, five large mammal fragments and 23 indeterminate bones.

Structure 2
A posthole (C216) within Structure 2 contained a long bone fragment of a medium-sized mammal. Two pits (C195, C256) along the perimeter of the house produced 27 small fragments of indeterminate bone as well as a fragment of a scapula of a medium-sized mammal. Ten indeterminate bones were found in a deposit (C54) associated with metalworking activity and two skull fragments from a medium-sized individual were found in the fill of a posthole (C428) associated with spreads around the house.

Features between Structure 1 and Structure 2
The fill of a posthole (C126) between the two Bronze Age structures yielded a total sample of 26 indeterminate pieces of burnt bone. Two deposits (C103, C253) associated with activity outside the houses produced 23 burnt fragments of unidentifiable bone.

Metalworking activity
The fill (C234) of a pit (C31) associated with prehistoric metalworking activities produced seven indeterminate fragments of burnt bone.

Ring-ditch
The excavation of a ring-ditch in the north-west corner of the site presumed to be contemporary with the Bronze Age houses produced relatively substantial amounts of animal bones. A total sample of 427 fragments was recovered from various fills of the ditch of which 15 are totally calcined from being in contact with intense heat. The remaining unburnt bones are generally poorly preserved with high rates of fragmentation and a disproportionate amount of loose teeth, often indicative of poor preservation conditions. There is a certain consistency in the representation of skeletal elements linked presumably to taphonomic processes with high scores for loose teeth and fragments that can only be classified into the size groupings

described in the methods section. No complete bones were found, so no conclusion can be made concerning the size and sex of the animals present at the site. Some of the bones show definite traces of butchery relating to the dismemberment of the carcass. Despite the fragmented condition of the bones, the samples from the ring-ditch produced a wide range of identifiable species in comparison to the other three sites excavated in Grange townland.

The two main fills (C505, C507) of the ring-ditch collectively yielded 409 bones. A deposit of compacted stone (C505) that ran throughout the middle level of the ditch contained the largest sample with 252 bones being recovered from this fill. The bones are extremely weathered and eroded and contain a high proportion of material that can only be classified into size groupings or have to remain unidentified. Cattle are the dominant species amongst the identified sample contributing 15 bones and representing a collection of meat-bearing and peripheral elements. Skeletal element analysis indicates that loose teeth predominate and the sample also includes fragments of humerus, radius, mandible, scapula, tibia and tarsal bones. The range of elements present in the fill indicates local slaughter and consumption of the animals. The limited ageing data available shows that all cattle were slaughtered when they had just reached maturity i.e. 2–3 years of age. Sheep/goat is attested from a single adult molar and a complete first phalanx of an adult horse was also recovered. Red deer, *Cervus elaphus,* and mouse*, Mus* sp.*,* are the only species of wild animals present, the latter being represented by two complete limb bones recovered from a sieved soil sample. Red deer was identified from the tip of an antler tine which had been broken off the main beam. The remainder of the sample consists of 71 large mammal fragments, 16 medium mammal fragments and 143 bone fragments are indeterminate to species or size grouping.

A total of 158 animal bones were found in the primary fill (C507) of the ditch that underlay the compacted stone deposit and analysis of these remains identified the presence of cattle, sheep/goat, pig and red deer. The most commonly identified species was red deer present as 82 small fragments of antler as well as fragmented portions of a scapula and tibia. The proportion of fragmented antler fragments has obviously had a significant bearing on the overall fragment total for this species. The post-cranial bones both bear traces of crude butchery indicating that red deer existed in nearby areas of woodland and was hunted for its meat and its secondary product in the form of antler. The sample of 24 cattle bones includes disproportionate amounts of loose teeth and single fragments of metapodia, tibia, radius, scapula, mandible and sesamoid bones. An adult sheep/goat was attested from three loose teeth as well as fragments of a mandible and vertebra. There was just one pig bone identified as a large portion of a maxilla from an adult individual. The remainder of the assemblage from the primary fill consists of 21 fragments of long bones from large-sized animals and 14 fragments from medium-sized animals, probably sheep or pig. Nine fragments are indeterminate. A small sample of bone from another deposit (C517) in the ditch includes a cow metatarsus, eight large mammal fragments and four indeterminate bones. Just five indeterminate burnt bones were recovered from the upper fill (C504) of the ditch and these represent later intrusive material.

Linears cutting ring-ditch

A total of 338 animal bones were recovered from the fills of five linear ditches (C510, C532, C541, C543, C638) that cut the ring-ditch. The recovered faunal material has clearly undergone a considerable erosion of the surface, due to post-depositional taphonomic processes and most fragments are brittle and flaky. The distribution of identified species is shown in Table 1 and the predominance of the three main livestock species suggests an episode of food waste disposal that post-dates the earliest phase of prehistoric settlement at the site. The fill of a narrow linear gully

(C532) produced the proximal portion of an adult cow humerus together with 25 indeterminate fragments. The fill of second linear gully (C543) contained three pig bones, six cattle bones and 38 indeterminate fragments. A curving narrow ditch (C510) also yielded animal bone including eight cattle limb bones, one pig scapula, 13 large mammal fragments, 11 medium mammal fragments and 61 indeterminate bones. The sample of 59 bones found in the fill of a narrow ditch (C638) contained a relatively high proportion of identifiable bones consisting of the remains of cattle, sheep/goat and pig. The 25 cattle bones consist of a wide range of post-cranial elements including humerus, radius, scapula, femur, pelvis, metapodia and vertebrae suggesting local slaughter and consumption of these animals. A complete calcaneum from an adult sheep was also identified as well as a maxilla, molar and humerus of pig. The remainder of the sample consists of 15 large mammal bones and 17 indeterminate fragments. The fill of a shallow pit (C541) cutting the backfilled ditch was rather unique in that it produced a large sample of post-cranial pig bones representing a single episode of slaughtering of a female pig. The 26 recovered bones represent the remains of primary and secondary butchery waste and two of the five teeth are identified as female canines. Epiphyseal fusion evidence from the long bones indicates that the individual was less than two years of age at slaughter. The remainder of the sample from this pit consists of 21 medium mammal remains, four large mammal remains and 52 indeterminate fragments.

Figure-of-eight shaped kilns

Three large figure-of-eight shaped early medieval kilns produced a total sample of 44 animal bones. These are mostly fragmented and calcined and presumably represent incidental finds in the backfill of the kilns. The largest individual sample of bones (27 specimens) came from the kiln (C130). The only identifiable specimen is the proximal portion of a cow radius from kiln (C596) representing an individual that was over two and a half years of age at death. The third kiln (C273) contained 11 indeterminate fragments of burnt bone.

Early Medieval Land Divisions and Related Features

Two substantial linear ditches of early medieval date were located to the east of the ring-ditch. The earlier of these ditches contained large amounts of unburnt butchered animal bones found in association with two ring-pins.

Ditch – C584/611

The density of bones in the earlier ditch was substantially higher than the second ditch with a total sample of 2759 bones being presented for analysis. Preservation of the material was quite poor which resulted in high fragmentation rates and consequently a high incidence of material that can only be classified into size categories of have to remain indeterminate. Cattle (68%) dominate the identified assemblage followed by considerably smaller but equal amounts of sheep/goat (14%) and pig (14%). Skeletal element analysis for cattle indicates that a variety of cranial and post-cranial elements are present indicating local slaughter and consumption of the animals. Ageing evidence suggests meat production was significant with most individuals (78%) being slaughtered when they had reached their maximum age for meat production i.e. 2–3 years of age. Sheep/goat and pig are almost equally well represented numerically and together they account for 28% of the identified assemblage. There are no specific goat identifications and two horn cores represent adult female sheep that were probably kept for breeding and wool production. No complete bones of the three main livestock animals were recovered nor are there any teeth-bearing mandibles with which to assess ageing patterns using eruption and wear of teeth. That cats were kept at the site is attested from the recovery of a right mandible representing an adult individual. The remainder of the

sample consists of fragments of large and medium-sized mammals (699 specimens) and 1528 fragments are too small to take to species level. In addition to the mammalian remains, the fills of this early medieval ditch also produced evidence for a range of bird species including two domestic fowl long bones, a goose humerus and a sample of 18 crow*, Corvus corone,* bones representing a single adult individual. A humerus of teal, *Anas crecca*, a small species of wild duck, was also identified.

Ditch - C656
The later ditch produced a relatively small sample of 246 animal bones and the bulk of these came from the main fill (C653) with this deposit alone accounting for 62% of the recovered bone assemblage. Preservation conditions are again poor and the various categories of unidentified material form a high proportion of the total recovered sample. The bulk of the assemblage consists of the remains of cattle with pig and sheep/goat being only nominally represented. The sample of 42 cattle bones represents a mixture of meat-bearing and peripheral elements indicating that the animals were slaughtered nearby with the remains from primary butchery as well as food waste being disposed into the ditch. Traces of butchery are quite common and there is evidence for considerable axial division of the long bones associated with the extraction of marrow. Four sheep/goat bones are present including two loose teeth and butchered fragments of a pelvis and a scapula. A single adult pig is represented by a portion of a mandible and a lower molar and horse is attested by fragmented proximal and distal portions of a radius from an adult individual. Small faunal samples were also recovered from two other fills (C655, C659) in the ditch and identified bones from here include 17 cattle post-cranial elements representing primary butchery waste and prime meat-bearing bones. At least two sheep are present from the recovery of just two bones from C655; a complete lamb calcaneum and the distal fused portion of a radius from an individual over three and a half years of age at slaughter. The remaining 73 bones from this fill are not identifiable to species.

Pits associated with the land division features
Three shallow pits associated with the land division features produced a total sample of 203 animal bones with the bulk of these being found in C618 (91%). Cattle are the only species present in the major bone-producing pit and the 20 identified elements consist mostly of loose teeth and a few fragments of upper limb bones. The bulk of the fragments from this pit consist of small fragments of indeterminate bone although 30 specimens are sufficiently large to indicate that they derive from a large-sized mammal, probably cattle. The other two pits (C642, C647) collectively yielded just 17 bones of which two are identified as fragments of a cow scapula.

Modern Ditches
Three loose cattle teeth and 21 indeterminate fragments were recovered from two modern ditches (C572, C620).

Conclusions
The excavations at Grange 3 resulted in the collection of a relatively large assemblage of animal bones recovered from a wide range of features and stratified to a number of different phases of occupation. The bones seem to represent the food remains of the former Bronze Age and early medieval occupants of the site and can be interpreted as including waste from the initial slaughter and dismemberment of animals to food preparation activities and eventual consumption. The identified species suggest a diet based almost entirely on the exploitation of the three main livestock species. There was a notable preponderance of cattle over other domestic livestock in most of the samples and the rate of consumption of beef at the site seems significant for both phases of occupation. The analysis of the bones also

identified the presence of horse, dog and red deer from features associated with the two main phases of occupation. Red deer was present only in the Bronze Age deposits and the identified sample is dominated by the fragmented remains of antler, an essential raw material for craft-working. While it is possible that this material represents offcuts from naturally shed antler the recovery of two butchered post-cranial elements from the fill of the ring-ditch indicates that red deer living in nearby areas of woodland were also hunted for their meat during the Bronze Age.

The bulk of the identified bone and the greatest number of individuals come from domestic animals and the presence of teeth and skull fragments indicates that livestock were reared in the vicinity of the site and were slaughtered and consumed locally. Very few butchery marks were recorded which is linked to the poor conditions of preservation and the fact that a large proportion of the bones are fragmented and calcined. Few measurements were also obtained due to the fragmentary nature of the sample and there were no complete bones with which to assess the original height of the animals. In addition to the main livestock species and the red deer remains, small amounts of bird bones were recovered from the early medieval land divisions including domestic fowl and goose, a small species of wild duck and crow. Horses and cats were also kept and there are no marks on the bones to suggest that horseflesh formed part of the meat diet. In conclusion, the species identified from the various phases of occupation at Grange 3 are precisely those that would be expected on almost any site of the Bronze Age and early medieval periods. Analysis of the bones indicates that the samples are typical domestic assemblages consisting of the remains of meals and carcass preparation and there is no suggestion that any of the bones are ritually derived.

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THE BURNT BONE
GRANGE 3 E3123

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AUGUST 2009

Summary
This report details the results of the osteological analysis of the cremated bone recovered during archaeological investigations in the townland of Grange, Co. Meath. Excavations at Grange 3 (A029/005) were directed by Amanda Kelly for Irish Archaeological Consultancy Ltd. as part of a series of archaeological investigations along the proposed route of the M3 Clonee to the north of Kells road scheme. Osteological analysis of the cremated bone was undertaken to quantify and, where possible, identify the skeletal elements contained within the burnt bone deposits. Where applicable additional analysis was undertaken to assess the demographic and pathological profile of the individual(s) interred. Additional consideration was given to aspects of bone colouration and fragmentation as evidence for pyre technology.

1 Introduction

Excavations at Grange 3, located to the south-east of Kells, uncovered the remains of a series of features of archaeological interest ranging in date from the prehistoric period through to the post-medieval period. Identified features included two Bronze Age house structures, a number of pits, postholes and spreads of prehistoric date, a Bronze Age ring-ditch and a number of possible early medieval linear ditches. There were also some modern linear ditches cutting across the site. Varying quantities of burnt bone were recovered from the fills of four of the pits (C203, C275, C290 & C330), from the upper fill of the ring-ditch (C503) and from the fill of a north-south running linear ditch (C637) (Table 1.1). Although no direct dating evidence was recovered from the pits they have provisionally dated to the Bronze Age. The north-south linear feature was provisionally dated to the early medieval period.

Initial on-site interpretation suggested that the four pits containing burnt bone represented cremation pits, associated with either the Bronze Age houses or the ring-ditch. The pits were not grouped together but were dispersed across the site extending from the eastern perimeter (south of Structure 2) westwards. Pit (C203) and pit (C275) were closest to the house structures and the fill of pit (C275) contained a rubbing stone similar to one which was recovered from the fill of a pit associated with Structure 1. This would suggest a possible relationship between these features. The remaining two pits (C290 & C330) were located in the outlying area between the houses and the ring-ditch. Analysis of the burnt bone remains indicated that none of the four pits contained identifiable human remains with two (C275 & C330) found to contain small fragments of burnt animal bone.

Excavation of the ring-ditch failed to uncover any conclusive burial remains. Small quantities of burnt bone were recovered from two of the upper fills of the ditch (C504 & C545) but, as with the material recovered from the pits, the majority of bone fragments were unidentifiable. A small number of animal/possible animal bone fragments were identified in the deposits.

Only one of the burnt bone assemblages contained identifiable human remains. At the northern limit of the excavation the terminus of a north-south orientated ditch (C637) was uncovered. Unfortunately the ditch extended beyond the limits of excavation and its full extent was not determined. Initial interpretation suggested that this ditch represented the remains of a linear feature of probable early medieval date. Notably, however, this feature produced not only the greatest quantity of burnt bone recovered during excavation but also contained the only diagnostically human remains recovered from the site. The presence of burnt human bone in the fill of this feature would suggest that it relates to prehistoric use of the site.

Cut	Fill	Weight of bone (g)	Description of context	Dimensions	Depth	Additional comments
203	67	17.1g	Pit	0.70m x 0.57m	0.12m	no diagnostic material identified in the assemblage
275	229	2.6g	Pit	0.33m x 0.26m	0.27m	small quantity of animal bone identified in the assemblage
290	247, 300	24.5g	Pit	0.80m x 0.57m	0.12m	no diagnostic material identified in the assemblage
330	319	9.6g	Pit	0.54m x 0.54m	0.11m	small quantity of animal bone identified in the assemblage
521	504, 545	53.4g	Ring-ditch	width = 0.75m–1.20m	1.40m	small quantity of animal bone identified in the assemblage
637	636	309.3g	n–s linear ditch	0.27m x 8.60m	0.96m	cremation burial: quantity of human bone identified in the assemblage

Table 1.1 Total weight of burnt bone by context

2 Materials and Process

All burnt bone was separated from the surrounding matrix prior to analysis as part of post-excavation procedures. The bone from each context was examined in accordance with standards recommended by BABAO and the IFA (Guidelines to the Standards for Recording Human Remains, Brickley and McKinley 2004). Each sample was sieved through laboratory-grade stack sieves of 2mm, 5mm and 10mm diameter mesh and the material from each sieve was weighed to the nearest 0.1gram. All material was examined macroscopically.

Once the bone from each sample was sieved, each sieved portion of bone was weighed as a whole and examined for identifiable bone. Identifiable human skeletal elements were divided into five main categories during osteological analysis; namely skull, axial, upper limb, lower limb and unidentified long bone. Identified elements were weighed separately and described in detail.

3 Reasons for Analysis and Scope of Reporting

Osteological analysis is undertaken to determine the demographic and pathological profile of an individual or population group. The osteological analysis of cremation burials considers various aspects of the burial deposit including the total weight of bone, identification of individual skeletal elements and minimum number of individuals represented in the deposit. The identification of demographic and pathological details is more difficult in cremated remains as the fragmented and fire-damaged nature of the bone can limit the amount of information retrieved during analysis. In addition to individual details the analysis of cremated remains can also reveal aspects of cremation ritual, including pyre technology and depositional practices.

4 Osteological Analysis

4.1. North–south linear: C637

C637 was a partially excavated north–south linear feature extending northwards beyond the limits of excavation. Although there was no direct dating evidence recovered, this feature was provisionally dated to the early medieval period. The total weight of burnt bone retrieved from the fill of the ditch was 309.3g. The identification of human remains within the assemblage may indicate that this feature related to a prehistoric period of funerary activity.

4.1.1. *Quantification of skeletal material*

The total recovered bone weight (309.3g) fell below the expected weight for an adult individual. Data from modern crematoria suggests that the weight of bone produced by a single adult individual during the cremation process would commonly range from approximately 1000.5g to 2422.5g (McKinley 1993). It has been found, however, that

cremated bone deposits from archaeological contexts frequently contain smaller quantities of burnt bone. This discrepancy in expected cremated bone weight versus recovered bone weight can be contributed to a variety of factors including partial and/or preferential collection of specific skeletal elements for deposition and/or post-depositional disturbance. While post-depositional disturbance can be identified and recorded during the excavation process, it is only through the identification of specific skeletal elements in individual burials that aspects of partial or preferential collection and deposition can be recognised.

Preservation of the bone was generally good and the majority of bone fragments measured greater than 10mm in diameter (32.1%) and between 10mm and 5mm in diameter (56.8%) (Table 4.1). Only 11.1% of fragments were less than 5mm in diameter. The maximum recorded length of a single fragment was of 48.3mm.

Fragmentation of cremated bone can result from a number of different processes. The act of cremation itself causes the bones to warp and crack, leaving bone elements vulnerable to breakage along these weakened lines. In the immediate aftermath of the cremation raking of the remains can further damage the skeletal elements while post-depositional disturbance and erosion can further reduce the size of bone fragments. Commonly the fragment size of cremated bone deposits placed in the protective environment of a pottery vessel and/or cist is greater than that of bone that has been placed unprotected in a pit, although this is not always the case.

cut	**fill**	**sample**	10mm (g)	*%*	5mm (g)	*%*	2mm (g)	*%*	<2mm (g)	*%*		Total (g)	max. length
637	**636**	**488**	99.2	*32.1*	175.7	*56.8*	30.4	*9.8*	4.0	*1.3*		309.3	48.3mm

Table 4.1 Quantification of cremated bone: C637

4.1.2. *Identification and body part representation*

In total, 103.8g, equating to 33.6% of the total recovered bone weight, was identifiable as human (Table 4.2). The majority of identifiable bone elements comprised of skull and dental fragments (17.4%) and long bone fragments (14.8%). This weighting in favour of skull and long bone fragments is commonly observed in the study of cremated remains. Long bone fragments appear frequently in burial deposits and the distinctive morphology of the skull makes the identification of cranial fragments, even when fire-damaged and fragmented, relatively straightforward.

Identifiable skull fragments comprised almost exclusively of vault elements although the majority of these were too incomplete to identify as specific regions of the vault. One of the fragments was identifiable as deriving from the parietal bone. Additional identified skull fragments included a partial left mandibular condyle, a fragment of unsided mandibular coronoid process and two small fragments of the mandibular body. In addition to skull fragments a small number of dental fragments were also identified in the assemblage. These included three incomplete molar roots and two incomplete canine/premolar roots. All dental fragments were incomplete and individual teeth could not be identified.

The postcranial skeleton was poorly represented in the assemblage. The upper limb was represented by a single unsided distal hand phalanx (0.1g) while the lower limb was represented by three probable fibular shaft fragments (3.0g). Identifiable axial elements included three small rib shaft fragments, two superior thoracic articular facets and a partial spinous process of a thoracic vertebra (3.0g).

In addition to the identifiable human bone elements there were a small number of cranial fragments in the assemblage that were identifiable as animal bone. The total weight of these fragments was 10.0g and their presence in the assemblage would suggest that an animal/animals were included as part of the cremation ritual.

cut	Skull (g)	*% of identifiable bone*	Axial (g)	*% of identifiable bone*	Upper limb (g)	*% of identifiable bone*	Lower limb (g)	*% of identifiable bone*	Long bone (g)	*% of identifiable bone*	Identifiable bone (g)	*% of total weight*	Total weight (g)
637	53.9	*17.4*	3.0	*1.0*	0.1	-	3.0	*1.0*	43.8	*14.2*	103.8	*33.6*	309.3

Table 4.2 Summary of identifiable elements: C637

4.1.3. *Minimum number of individuals*

There was no duplication of identifiable skeletal elements in the burial deposit and all recovered bone elements were comparable in robusticity. This would suggest that the burnt bone assemblage contained a minimum number of one individual.

4.1.4. *Age and sex determination*

In general, the pelvis is considered to exhibit the highest degree of sexual dimorphism in skeletal material, as it is adapted in females to allow for childbirth. Essentially a broad pelvic structure in the female skeleton contrasts with a narrow and high pelvis found in the male skeleton. The skull can also be used as a primary indicator of sexual differentiation in skeletal material and it is often found that males display more robust or prominent features than their female counterparts. Reliable sex differences in skeletal remains first appear at puberty, when increasing hormone levels begin to act on the body and skeletal structure. Commonly, however, subadult remains, even those that have reached puberty, show little skeletal sexual differentiation. In this assemblage none of the identified skeletal elements could be used to determine the sex of the individual.

Methods used to assess age at death rely on characteristics of skeletal/dental development through childhood, adolescence and early adulthood and, thereafter, on processes of degeneration. In this assemblage the criteria normally used in age determination were not identified and age determination was based on less reliable indicators, including bone size and robusticity. The development of the skeletal elements combined with the robusticity of the surviving fragments suggested an adult age for this individual.

4.1.5. *Pathology*

There are only a small number of pathological conditions that visibly affect the skeleton, with most conditions affecting the skeleton resulting from periods of longstanding disease and/or nutritional stress. In this assemblage evidence for pathology was limited to one example of possible porotic hyperostosis.

Slight surface porosity was visible on a single cranial vault fragment, identified as a fragment of parietal bone. Porosity on the surface of the cranial vault is commonly found in association with iron deficiency anaemia, one of the most commonly encountered metabolic diseases in archaeological populations. Documented changes associated with this disorder are termed *cribra orbitalia* when the orbits are affected and *porotic hyperostosis* when the cranial vault is affected. As surface porosity was identified on only one small cranial vault fragment, it is impossible to

determine the severity of the deficiency in this example although the porous lesions did appear healed indicating that the period of nutritional stress had resolved at time of death.

Causes of iron deficiency are variable, ranging from aspects of diet - including both a diet lacking in iron rich foods and/or a diet rich in foods that inhibit the absorption of dietary iron - to blood loss through injury or disease. In addition, iron deficiency may indicate that the body was fighting a high pathogen load (Weinberg 1992; Stuart-Macadam 1992, 158). As the body reduces the amount of iron present in the blood stream it becomes a less suitable medium for bacterial development. While it is therefore possible to identify signs of iron deficiency on the skeleton it is more difficult to determine the cause of such deficiency. Whatever the cause, a lack of iron can result in general fatigue, lack of energy and even palpitations (Roberts and Manchester 1995, 167).

4.1.6. *Bone colour*

To achieve effective cremation a combination of high temperatures and continued maintenance of the pyre over a sustained period of time is required. Differences in colour, visible on cremated bone fragments, can be used to indicate variations in pyre performance. Total loss of the organic portion of the bone, producing an overall white colour (complete oxidisation), requires pyre temperatures of greater than 600°C maintained over a number of hours. Lesser temperatures produce variations in bone colour with a blue-grey colour produced when bone is subject to temperatures of approximately 600°C and blackened (charred) elements occurring at approximately 300°C. All bone fragments were fully oxidised indicating that pyre technology was developed enough to produce an even and effective process of burning over a sustained period of time.

4.2. Outlying pits: C203, C275, C290 & C330

A total of four outlying pits were found to contain small quantities of burnt bone. Original on-site interpretation identified these as outlying cremation pits although osteological analysis failed to identify any human bone remains within the assemblages.

4.2.1. *Context 203*

C203 was a shallow concave pit measuring 0.70m by 0.57m and with a maximum recorded depth of 0.12m. The charcoal rich fill of the pit (C67) contained a total weight of 17.1g of burnt bone. Preservation of the bone was poor and none of the fragments were greater than 10mm in diameter. In all only twelve of the recovered fragments, equating to 16.4% of the total bone weight, were greater than 5mm in diameter. The maximum recorded length for a single fragment was 16.6mm. All bone fragments were fully oxidised and were affected by slight to moderate erosion

Poor preservation and fragmentation of the assemblage affected identification and only one fragment, equating to 2.3% of the total bone weight, could be identified as a possible cranial vault fragment. Although the distinctive morphology of the skull makes the identification of cranial fragments, even in a fire-damaged and fragmented state, relatively easy, in this example marginal and surface erosion impeded identification, and the bone could not be identified as animal or human.

4.2.2. *Context 275*

C275 was a roughly circular pit measuring 0.33m by 0.26m and with a depth of 0.27m. This pit had steep sides and a flat base and was located adjacent to a burnt spread (C293). Excavation of the pit revealed a charcoal rich soil containing a total of 2.6g of burnt bone. The pit also contained a rubbing stone similar to one which

was recovered from the fill of a pit associated with Structure 1. A total of approximately 100 burnt bone fragments were recovered from the fill of the pit of which only 9 had a surviving diameter of between 5mm and 10mm (Table 4.2). The remaining fragments were less than 5mm in diameter. There was a maximum surviving length of 19.8mm and a minimum surviving length of only 0.9mm. All fragments were fully oxidised and were affected by slight to moderate erosion. The majority of bone fragments were too small and fragmented to identify although two of the fragments, with a combined weight of 0.3g, were identifiable as animal bone.

4.2.3. *Context 290*

C290 was a shallow, convex pit measuring 0.80m by 0.57m and with a depth of 0.12m. Two distinct fills were identified during excavation of the pit. C300, a loose grey silty ash, formed the upper fill of the pit and contained a total of 15.2g, equating to approximately 500 small fragments, of burnt bone. C247, the lower fill of the pit, comprised of a loose charcoal rich soil which contained 9.3g, equating to approximately 150 small fragments, of burnt bone. The majority of bone fragments were less than 5mm in diameter (Table 4.3) although a total of seventeen measured between 5mm and 10mm in diameter. There was a maximum surviving length of 22.6mm and a minimum surviving length of 2.6mm. All bone fragments were fully oxidised and exhibited moderate to severe levels of erosion. None of the fragments were identifiable.

4.2.4. *Context 330*

C330 was a shallow concave pit containing a loose sandy fill (C319). The pit measured 0.54m in diameter and had a depth of 0.11m. The total quantity of bone retrieved from the fill of the pit was 9.6g. As with the other pits discussed all bone fragments were fully oxidised. The total number of fragments retrieved from the fill of the pit was approximately 110 of which only two were greater than 10mm in diameter and seven were between 5mm and 10mm in diameter (Table 4.3). The maximum surviving fragment length was 16.8mm with a minimum surviving length of 2.5mm. The majority of fragments were unidentifiable although a total of six fragments were identified as animal/probable animal. There was an additional single fragment of cranial vault although this could not be distinguished as animal or human.

4.2.5. *Quantification of skeletal material*

Preservation of the burnt bone remains from the four pits was poor with the majority of fragments (75.4%) measuring less than 5mm in diameter (Table 4.3). Only one of the contexts, pit (C330) contained any fragments greater than 10mm in diameter. The quantity of bone retrieved from the pits ranged from a minimum of 2.6g (c275) to a maximum of 24.5g (C330).

cut	fill	10mm (g)	%	5mm (g)	%	2mm (g)	%	<2mm (g)	%		Total (g)	max. length
203	**67**	-	-	2.8	*16.4*	14.0	*81.8*	0.3	*1.8*		17.1	16.6mm
275	**229**	-	-	1.3	*50.0*	1.1	*42.3*	0.2	*7.7*		2.6	8.8mm
290	**247,300**	-	-	5.3	*21.6*	14.9	*60.8*	4.3	*17.6*		24.5	22.6mm
330	**319**	1.8	*18.8*	2.0	*20.8*	5.8	*60.4*	-	-		9.6	16.8mm
	Total	1.8	*3.4*	11.4	*21.2*	35.8	*66.5*	4.8	*8.9*		53.8	

Table 4.3 Quantification of cremated bone: outlying pits

4.3. Ring-ditch: C503

At the western limit of the excavation a ring-ditch, with an external diameter of 16.5m, was uncovered. No burials were identified within the limits of the ring-ditch but small quantities of burnt bone were retrieved from the upper fills (C504 & C545) of the ditch (Table 4.4).

The total weight of bone retrieved from C504 was 20.9g, equating to thirty-seven fragments. The majority of these were unidentifiable although there was one fragment of animal tooth and three possible fragments of animal long bone identified in the assemblage. There was some evidence to suggest that this context represented a disturbed fill of the ditch as a number of intrusive finds, including fragments of medieval pottery, were recovered from the fill.

C545 was a charcoal rich soil containing a total of 32.5g, equating to 127 fragments, of burnt bone. As with the remains from C504 the majority of fragments were undiagnostic although three of the fragments were identified as possible animal bone.

4.3.1. *Quantification of skeletal material*

Although the quantity of bone retrieved from the fill of the ring-ditch was very small there was a high percentage (90.4%) of fragments greater than 5mm in diameter (Table 4.4) .

cut	fill	sample	10mm (g)	%	5mm (g)	%	2mm (g)	%	<2mm (g)	%		Total (g)	max. length
503	**504**	**419**	-	-	-	-	0.2	*100.0*	-	-		0.2	5.1mm
503	**504**	**450**	-	-	0.1	*25.0*	0.3	*75.0*	-	-		0.4	6.6mm
503	**504**	**451**	12.4	*61.1*	7.2	*35.5*	0.7	*3.4*	-	-		20.3	48.2mm
503	**545**	**415**	2.6	*11.8*	15.5	*70.5*	3.9	*17.7*	-	-		22.0	18.5mm
503	**545**	**448**	9.8	*96.1*	0.4	*3.9*	<0.1	-	-	-		10.2	47.3mm
		Total	24.8	*46.7*	23.2	*43.7*	5.1	*9.6*	-	-		53.1	

Table 4.4 Summary of bone fragment size: C503

5. Discussion

Excavations at Grange 3 uncovered the remains of a series of archaeological features ranging in date from the prehistoric period through to the post-medieval period. Burnt bone remains were recovered from four pits provisionally dated the Bronze Age, the fill of a ring-ditch and the fill of a north–south linear feature. Initial interpretation of this latter feature suggested that it dated to the early medieval period but the identification of a large deposit of cremated human bone within its fill suggests that it represents evidence for prehistoric funerary activity at the site. The weight of burnt bone recovered from the features ranged from a minimum of 2.6g (C275) to a maximum of 309.3g (C637).

Analysis of the cremated deposit from the north–south linear feature (C637) identified a total of 309.3g of fully oxidised burnt bone remains of which 103.8g (33.6%) were identifiable as human. Identifiable elements included fragments of the skull, a single hand phalanx, a small number of fibular shaft fragments and a small number of vertebral fragments. While the identification of a range of skeletal elements within the deposit suggests that there was not selective collection of specific skeletal

elements for deposition, the relatively low weight of bone recovered from the pit may indicate that there was only partial collection of the skeletal remains after the cremation process.

Osteological analysis of the assemblage indicated that it contained the remains of a minimum number of one adult of undetermined sex. Visible pathological changes were mild in form and comprised of slight cranial porosity, indicative of iron deficiency anaemia. There was evidence to suggest that this period of nutritional stress was not active.

Although a number of features were identified containing burnt bone remains only one of these (C637) contained identifiable human skeletal fragments. All other features contained only small quantities of burnt bone. Although the majority of bone fragments in these deposits were unidentifiable a number of the features also contained small quantities of animal bone. While it is possible that some or all of these features represented token burial deposits associated with funerary activity, it is also possible that they may have served a non-funerary function.

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Radiocarbon Dating Results – QUB Laboratory

The "Measured radiocarbon age" is quoted in conventional years BP (before AD 1950). The error is expressed at the one-sigma level of confidence.

The "Calibrated date range" is equivalent to the probable calendrical age of the sample material and is expressed at the one Sigma (68.3% probability) and two-Sigma (95.4% probability) level of confidence.

Calibration dataset:
Calibration programme: CALIB REV5.0.2 - used in conjunction with Stuiver, M., and Reimer, P.J., 1993, Radiocarbon, 35, 215–230.

Context	Sample No	Material	Species id/ Weight	Lab	Lab Code	Date Type	Calibrated date ranges	Measured radiocarbon age (BP)	13C/12C Ratio ‰
C54 deposit sealing metalled surface	110	Seed	Hulled Barley (0.1g)	QUB	UB12052	AMS(Std)	Cal AD 470–599 (1 Sigma), Cal AD 433–611 (2 Sigma)	1518+/-30	-22.5
C505 Fill of Ring-ditch	401	Bone	Horse Tibia (64.5g)	QUB	UB12053	AMS(Std)	Cal 919–843 BC (1 Sigma), Cal 974–828 BC (2 Sigma)	2753+/-26	-20.5
C522 Ring-ditch	407	Charcoal	*Alnus glutinosa/ Corylus avellana* Hazel / alder (0.05g)	QUB	UB12054	AMS(Std)	Cal 1301–1212 BC (1 Sigma), Cal 1372–1131 BC (2 Sigma)	3001+/-22	-27.5
C646 Land division ditch	500	Seed	Hulled Barley (0.1g)	QUB	UB12055	AMS(Std)	Cal AD 643–659 (1 Sigma), Cal AD 617–666 (2 Sigma)	1388+/-20	-26.9
C633 circular furnace pit	485	Charcoal	*Fraxinus excelsior* Ash (0.27g)	QUB	UB12056	AMS(Std)	Cal 201–114 BC (1 Sigma), Cal 346–60 BC (2 Sigma)	2132+/-21	-29.7
C600 Pit containing slag	461	Charcoal	*Alnus glutinosa* Alder (0.55g)	QUB	UB12057	AMS(Std)	Cal 158–52 BC (1 Sigma), Cal 191–5 BC (2 Sigma)	2082+/-29	-30.6
C10 pit, structure 2	16	Charcoal	*Fraxinus excelsior* Ash (0.57g)	QUB	UB12058	AMS(Std)	Cal 1388–1313 BC (1 Sigma), Cal 1408–1269 BC (2 Sigma)	3065+/-24	-30.5
C245 figure of eight kiln C491	270	Charcoal	*Quercus* sp. Oak (0.5g)	QUB	UB12059	AMS(Std)	Cal 2451–2236 BC (1 Sigma), Cal 2460–2210 BC (2 Sigma)	3858+/-24	-27.9
C315 figure of eight kiln C130	166	Seed	Hulled Barley (0.1g)	QUB	UB12073	AMS(Std)	Cal AD 435–549 (1 Sigma), Cal AD 427–570 (2 Sigma)	1552+/-28	-20.5
C28 Pit Structure 1	34	Burnt Bone	(1.7g)	QUB	UB12937	AMS(Std)	Cal 1493–1430 BC (1 Sigma), Cal 1499–1415 BC (2 Sigma)	3182+/-25	-25

Context	Sample No	Material	Species id/ Weight	Lab	Lab Code	Date Type	Calibrated date ranges	Measured radiocarbon age (BP)	13C/12C Ratio ‰
C67 Cremation Deposit	29	Burnt bone	Unidentifiable (5.5g)	QUB	UB12942	AMS(Std)	Cal 1408–1316 BC (1 Sigma), Cal 1420–1294 BC (2 Sigma)	3083+/-24	-26
C229 pit fill	130+132	Burnt bone	Unidentifiable (1.4g)	QUB	UB 15475	AMS(Std)	Cal 902–832 BC (1 Sigma), Cal 971–807 BC (2 Sigma)	2726+/-24	-30.9
C653 linear ditch fill	400	Bone	Cow Ulna (7.36g)	QUB	UB 15476	AMS(Std)	Cal AD 676–768 (1 Sigma), Cal AD 669–772 (2 Sigma)	1287 +/- 25	-23.8

Radiocarbon Dating Results – SUERC Laboratory

The ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal3).

Context	Sample No	Material	Species id/ Weight	Lab	Lab Code	Date Type	Calibrated date ranges	Measured radiocarbon age (BP)	13C/12C Ratio ‰
C399 Fill of linear ditch	328	Charcoal	*Maloideae* Apple / pear (0.05g)	SUERC	SUERC-29329	AMS(Std)	Cal 1010–910 BC (1 Sigma), Cal 1090–840 BC (2 Sigma)	2810 ± 40	-24.5
C92 Fill of furnace pit	21	Charcoal	*Salix* sp. Willow 0.38g	SUERC	SUERC-29330	AMS(Std)	Cal 380–200 BC (1 Sigma), Cal 390–200 BC (2 Sigma)	2235 ± 40	-24.7
C227 Fill of pit in structure 1	115	Charcoal	*Corylus Avellana* Hazel (0.09g)	SUERC	SUERC-29331	AMS(Std)	Cal 1495–1400 BC (1 Sigma), Cal 1520–1310 BC (2 Sigma)	3155 ± 40	-27.5
C32 Fill of pit in structure 2	117	Charcoal	*Corylus Avellana* Hazel (0.05g)	SUERC	SUERC-29332	AMS(Std)	Cal 1500–1430 BC (1 Sigma), Cal 1540–1390 BC (2 Sigma)	3190 ± 40	-23.6
C495 Fill of furnace pit	283	Charcoal	*Alnus glutinosa* Alder (0.3g)	SUERC	SUERC-29333	AMS(Std)	Cal 160 BC–AD 0 (1 Sigma), Cal 190 BC–AD 30 (2 Sigma)	2060 ± 40	-26

GRANGE 3: ARCHAEO-MATERIALS ANALYSIS PHASE 2 REPORT

M3 CLONEE–NORTH OF KELLS, CONTRACT 4 NAVAN–KELLS AND KELLS BYPASS

ANGELA WALLACE MSC
&
LORNA ANGUILANO BSC, MSC, MSC, AIM

JUNE 2010

1.0 Introduction

A total of 5.24kg of metallurgical residues were submitted for examination, of this material 2.61kg was closely associated with contexts which could be classified as metallurgical. A total of eight shallow pits were identified on the site which had evidence for high temperature activities being carried out, i.e. scorched soil and charcoal, of these eight pits only three had associated slag C114, C251 and C601. The remaining slag from the assemblage (1.63kg) is associated with C504 top fill of ring-ditch C503, the material is believed to post-date the ring-ditch and also one sample (334) was recovered from a small linear drain (C504) and from C655 upper fill of a ditch (sample 486) and C539/540 (sample 389) linear ditch.

Examination of the material from pit C600 indicates it may have been used as a smelting furnace, perhaps originally with a low clay shaft over the surviving pit. The small black-grey drippy slags from this pit are indicative of iron smelting or high-temperature smithing activity. It is hoped analysis of two fragments will shed further light on this.

The material from pit C114 has the appearance of smithing slag lumps (SSL's) which are formed during primary (refining of the bloom) and secondary (manufacture and repair of artefacts) smithing.

The material from pit C251 has an unusual morphology and is possibly more closely linked to smelting than smithing, however further analysis is required to confirm this.

2.0 Examination and Analysis of metallurgical remains recovered at the sites of Gardenrath 2, Grange 3, Kilmainham 3 and Kilmainham 1C, and comparative discussion of all sites including Grange 2.

Lorna Anguilano, ETC Brunel

2.1 Introduction

Ten samples of metallurgical debris recovered at the sites of Gardenrath 2, Grange 3, Kilmainham 3 and Kilmainham 1C were selected and sent to ETC for further analyses and characterisation. Analysis was aimed, at examining the production process, and identifying the conditions involved, such as: raw material, ore and flux, temperature and red-ox conditions. Given the geographical proximity of all sites excavated on the M3 Clonee–Kells, a brief comparative study was carried out on the geochemistry of all samples (including those from the important iron smelting site at Grange 2) to determine if processes being used were similar.

Site	Sample No.	Context Description	Description of Sample
Gardenrath 2 (E3145)			
25115_2_1	77	Fill of pit C181	2 small pces, non-diagnostic
25115_2_2			
Grange 3			
25115_3_1	462	C600 Fill of circular pit furnace C601 (dated to Cal 191–5 BC)	2 small drippy pieces grey black slag
25115_3_2			
25115_3_3	38	C115 Fill of circular pit furnace C114	1 possible SSL
25115_3_4	124	C267 Fill of circular pit furnace C251	1 large lightweight piece of slag with clay and ashy material

Site	Sample No.	Context Description	Description of Sample
25115_3_5	329	Upper disturbed fill of C503 cut of ring-ditch	1 large oval piece slag, L150mm, W120mm, Th. 30mm. Concavo-convex profile, dark grey colour in broken section, upper surface light brown with rust patches. Possible SHC or furnace bottom, 984.6g
Kilmainham 3			
25115_4_1	141	C196, fill of pit C237	2 medium irregular frags 80–85mm, non-diagnostic poss assoc. with Fe smelting.
25115_4_2			
Kilmainham 1C			
25115_5_1	3002:002	Upper fill of small pit C3001	Baked clay mixed with small stones

Table 1: ETC Brunel Sample ID's, Excavation Sample No.'s, Associated Features and Description of Material

2.2 Investigation

2.2.1. Visual Inspection and Methodology

The samples were visually inspected to determine their typology. The two samples recovered from the site of Gardenrath 2, are identified as furnace lining with associated slag and superficial glazing.

Four of the samples from Grange 3 are slag samples, black and glassy in appearance, and with limited porosity, the fifth sample (3_3) is a glazed furnace lining slag sample.

The two samples from Kilmainham 3 are: one (4_1) of slag with an extensive oxidised superficial layer, and the second (4_2) a porous furnace lining.

The only sample (5_1) selected from site Kilmainham 1C is of a red ceramic tempered with quartz and feldspar rounded grains.

After initial screening samples were cut, and small fragments were mounted in epoxy resin and polished to a mirror-like surface in order to undergo analyses using optical and scanning electron microscopy. A second fragment from each was pulverised to a powder in order to undergo X-ray diffraction analyses.

The techniques used can be summarised and explained as follows:

- Optical Microscopy (OM) allows the identification of the crystal phases including iron bearing phases, their texture and their formation relationship. The microscopic observation (both with OM and SEM) allows the identification of the steps of the process from the mineral to the iron metal in case of smelting slag. The efficiency of the process due to the amount of iron oxide formed both in case of smelting and smithing slag. The observation of the silicate morphologies allows on the other hand identifying a cooling rate range which gives indication of the length of the process and the amount of material involved. This is mainly useful in case only fragments of slag are recovered and we cannot retrieve information from slag hearth cake macro-morphology for example in the case of smithing, or for what concerns the smelting the big slag heaps linked to the bloom production have not yet been discovered. The length of the process is very important in case of smithing sites to identify primary from secondary smithing.

- Scanning Electron microscope (SEM) is also used to perform chemical analyses of the phases identified with OM technique and a more detailed imaging of the samples due to the higher magnification achievable. In this case, the use of SEM was crucial to observe and analyse the relationship and interaction between slag and associated ceramics.

- X-Ray Diffraction (XRD) allows the determination of the mineralogical phases present in the samples and their relative proportions. Examining the various iron oxides phases present in iron smelting and smithing residues can help with determining oxidation conditions during the process. The mineralogical phases determined by XRD gives an indication of the overall red-ox conditions during the process and also the variation of those conditions. Information on the varying oxidation conditions can give us clues about the abilities and technological choices of the ancient smelters.
-
- X-Ray Fluorescence (XRF) gives bulk chemical analyses of the main compounds and trace elements. The main compounds give an indication of the temperature of the process, while trace elements can indicate if different workshops or different raw materials are involved at the site. In this case the main compounds where also used to determine the degree of interaction with the technical ceramics (tuyeres and furnace linings).

2.2.2. Chemical and Petrographic Analysis

The samples were initially analysed using optical microscopy to reconstruct the mineralogical association. Subsequently the bulk chemical analyses were performed by SEM-EDS, five areas per sample were analysed in order to gain a representative composition for the material. The five areas were then averaged and the average is used as indication of the bulk chemistry of the samples.

X-ray diffraction was performed on the powders to determine the oxidation state of the oxides present in the slag and to identify the mineral phases present in the ceramic. The oxidation state in the slag facilitates the identification of the red-ox conditions to which they were subjected, in order to identify if the slags come from the smelting or smithing process. The identification of the ceramic phases, allows the estimation of the temperature reached at the wall of the furnace, indicating the range of temperature within the furnace itself.

2.2.3 Chemical and Mineralogical Results

Half of the samples analysed from these four sites are slags, and the other half are ceramics. Looking firstly at the slags, the majority of the samples come from the site of Grange 3 (four of the five samples from the site). Although four samples are not a statistically representative number it is possible to observe that they divide into two groups:

Sample 25115_3_1 higher in silica compared to the other three samples (3_2, 3_4 and 3_5). This composition makes sample 1 closer to optimum 1 and the other three samples close to optimum 2. The only other slag sample analysed is the sample 25115_4_1 recovered at the site of Kilmainham 3 plotting on the isotherm at 1100degrees between the two optima.

All the other samples are mainly ceramics with an associated layer of slags. Interestingly the chemistry of the ceramic samples from the sites, including Grange 2

is very similar, and looks very much linked with the slag composition plots, indicating the clay was an “ingredient” in the metallurgical process.

Mineralogically, the slag samples are mainly composed of fayalite/wustite, typical of smelting slag (wustite indicating reductive conditions typical of the bloomery process), except for sample 25115_3_4 showing the association olivine/magnetite, indicating more oxidising conditions.

The ceramic material is mainly composed of quartz that is the principal phase used as temper in the clay matrix. The aggregates look rounded in shape in all the samples analysed.

2.3 Discussion and Conclusions for Analytical Results

From the debris recovered from the site of Grange 2, 3 and Kilmainham 3 we can infer that smelting was the process carried out at the sites. The ore smelted was an iron oxide or carbonate; in fact there is no trace of sulphur in the slag. The flux (quartz) was added to the iron ore through the high temperature reaction with the ceramic furnace lining during the smelting. The ceramic furnace lining presents quartz and feldspar aggregates as temper. The smelting was carried out at temperatures around 1100 ºC, typical of bloomery smelting.

The ceramic samples coming from the aforementioned sites and the sites of Gardenrath 2 and Kilmainham 1C all present quartz and feldspar aggregates as temper, and their chemical composition is comparable indicating that the clay used is similar, as well as the use of rounded shape temper aggregates. The chemical composition of these ceramics links with the slag chemical composition, indicating that the clay used to produce the technical ceramics had a similar source.

The field of stability for the melt is included in the field of stability of fayalite (figure 6) that presents two minima. The chemical composition of the slags under study plot mainly near the minimum at 1148 ºC, while only sample 3_1 plots closer to the other minimum at a slightly lower temperature (1088 ºC). We must bear in mind that the field of fayalite, of which the two mentioned minima are the eutectic points, indicates the necessary temperature to form a liquid phase (mainly fayalitic) through which the iron can coalesce and form the bloom. Not only is the temperature lower in the second minimum mentioned, but also the amount of iron lost in the slag is lower (50 against 70%). The gain in having a smelt with such a loss is that the chemical environment surrounding this minimum is less steep, indicating that a mistake in the proportion can still result in the formation of the slag and consequently the bloom, while the minimum at 1088 ºC does not have the same environment (Charlton, 2007).

Such a technological choice tends to indicate the use of a very rich ore and a non-professionally skilled smelter (Charlton, 2007), while indicating that sample 3_1 may indicate an “error” or a “trial” in the process.

The mineralogical association of sample 3_4 (olivine/magnetite) indicating red-ox conditions far too oxidising for a successful bloomery process (Figure 9) further indicates a poorly controlled and standardised process. This difficulty in controlling the process may be due to a lack of experience or experimenting, such factors cannot be determined with such a small amount of samples, a more comprehensive analytical study of the material would be required (around 25 slag samples per site)

in order to identify if the “error” was due to “experimental learning” of the smelters, or unskilled processing of the ores.

Charlton, talking about the eutectic at 1088 ºC, states that “creating slag with this chemical signature, without introducing significant contributions of silica from the furnace walls, demands exacting control of both reducing conditions and temperature”. As we see from the analytical results the red-ox conditions are not uniformly controlled, but the highly tempered quartz furnace lining is the main source of quartz in the system, so the plot around the eutectic at 1088 ºC could be justified by this condition.

Overall we can state that smelting was performed at the sites using similar ores and using the furnace lining as source of alumina and quartz to flux the slags. A low yield process was carried on, possibly linked to an economic environment where the costs of acquiring resources are low, the benefits of producing iron are high, but demand is low, or very little competition exists between ironworkers.

Proof of a higher yield is visible in one of the samples analysed, but the lack of data from other related samples for statistical analyses does not facilitate an interpretation of whether the sample is due to an error, experimenting or different technological choice.

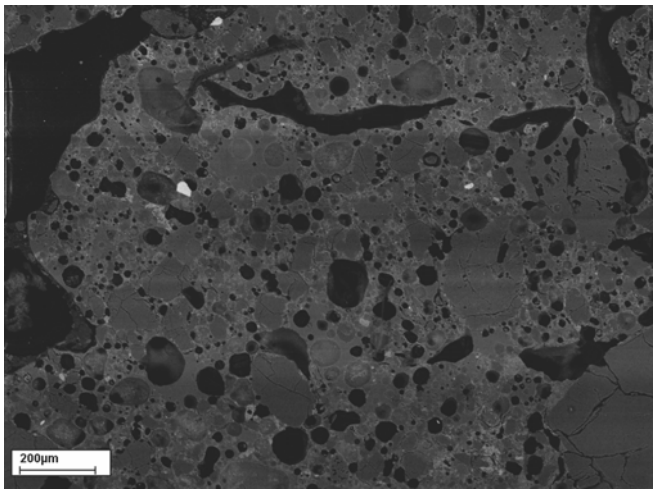


Figure 1: Sample 2_1 showing rounded quartz inclusion in the ceramic body, fractured by high temperature

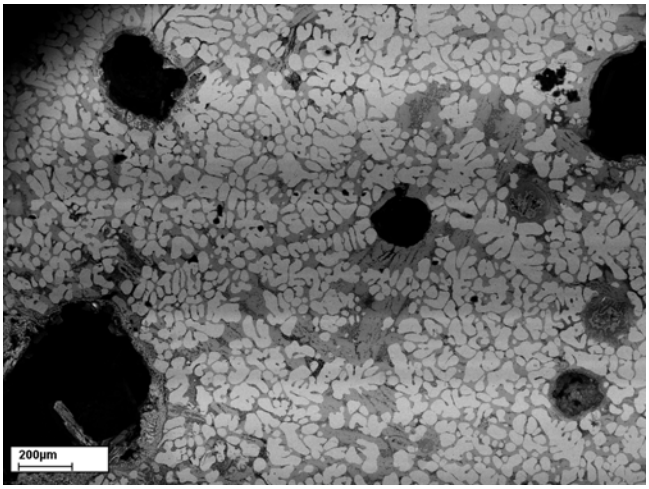


Figure 2: Sample 3_2 showing the association wustite (light grey) fayalite (grey under the wustite), in an area of considerably high loss in iron

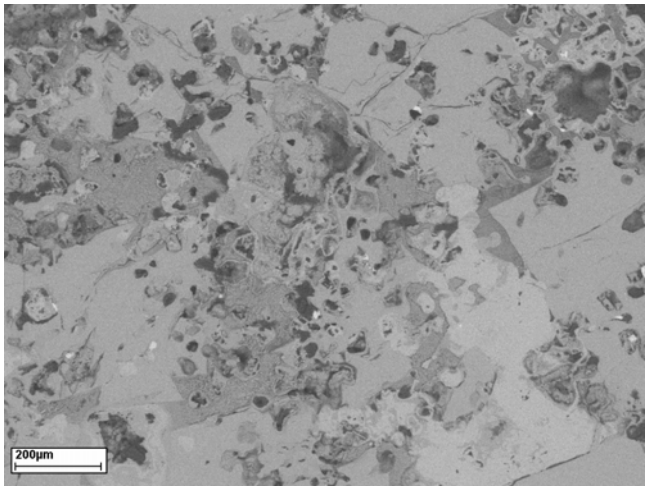


Figure 3: Sample 3_4 showing the association fayalite (polyhedral medium grey) and magnetite (interstitial, light grey, concentrated in the bottom right corner of the image)

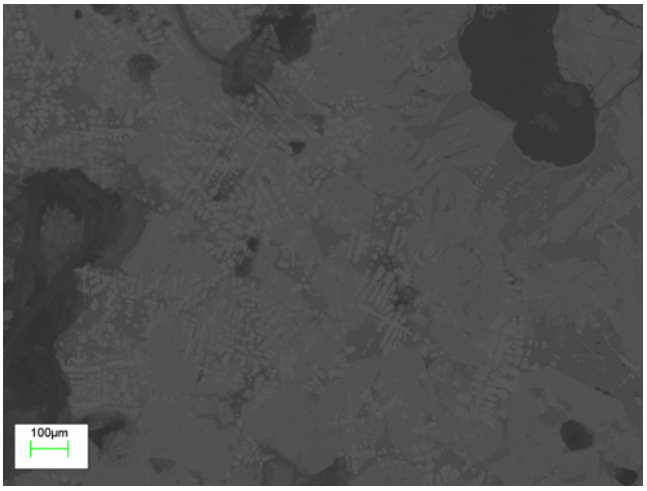


Figure 4: Sample 4_1 showing the association of polyhedral fayalite (medium grey) with dendritic wustite (light grey)

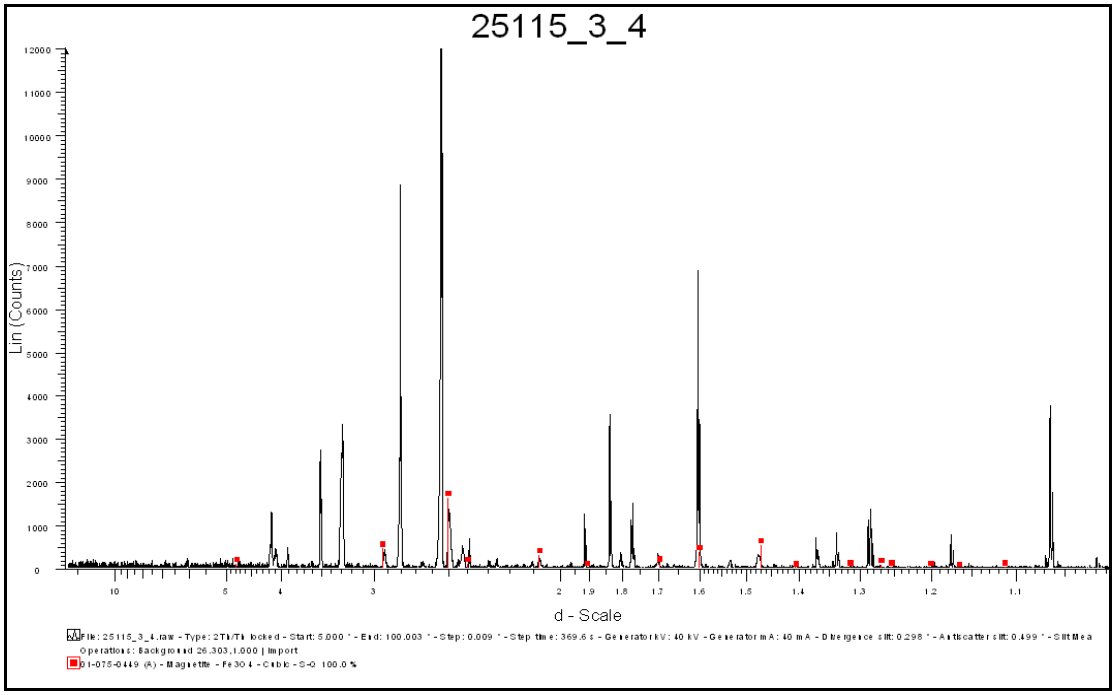


Figure 5: X-ray diffraction spectrum of sample 3_4 showing the peaks characteristics of magnetite

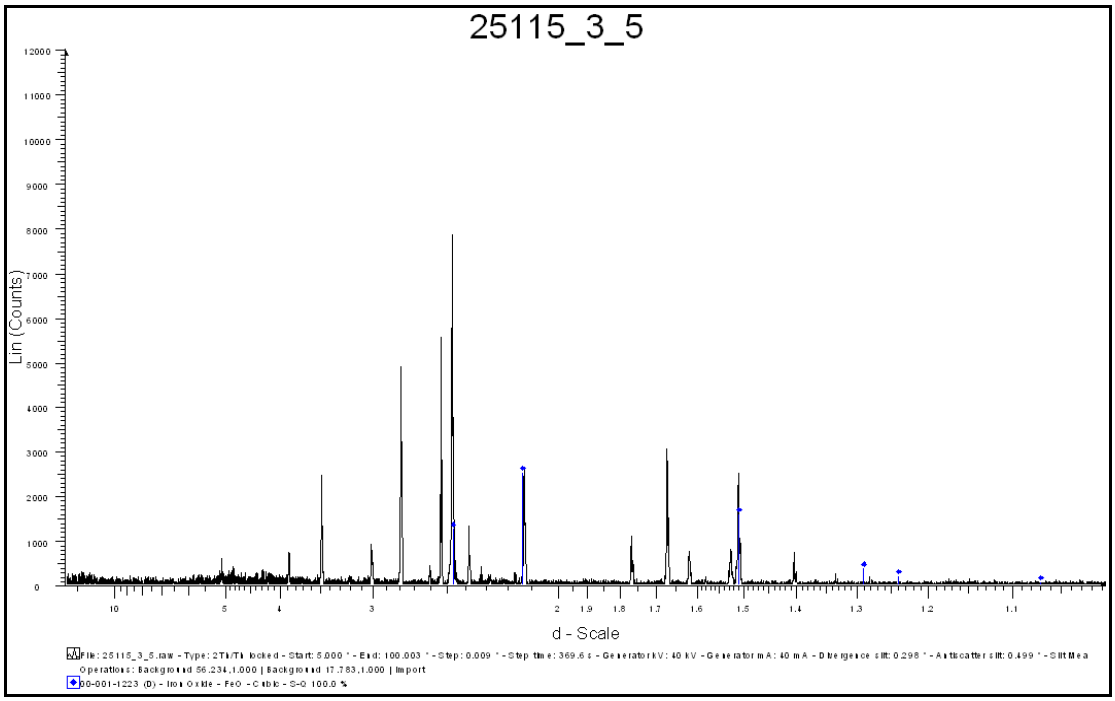


Figure 6: X-ray diffraction spectrum of sample 3_5 showing the peaks characteristics of wustite

	25115_2_1	25115_2_2	25115_3_1	25115_3_2	25115_3_3	25115_3_4	25115_3_5	25115_4_1	25115_4_2	25115_5_1
Na2O	2.64	2.21	n.d.	n.d.	2.00	n.d.	n.d.	2.24	2.43	2.61
MgO	1.54	2.97	n.d.	n.d.	1.48	1.04	n.d.	n.d.	4.43	2.48
Al2O3	11.86	14.12	4.23	2.43	11.75		7.99	7.33	16.04	12.51
SiO2	72.56	66.24	27.22	2.25	73.72	19.21	14.09	23.97	67.13	74.17
P2O5	n.d.	n.d.	2.60	n.d.	n.d.	n.d.	9.50	1.30	n.d.	n.d.
K2O	2.29	2.27	1.53	10.07	2.43	n.d.	0.54	1.06	2.46	2.24
CaO	1.16	3.15	3.39	55.34	1.98	0.97	7.67	2.34	n.d.	0.81
TiO2	n.d.	1.23	n.d.	n.d.	1.13	n.d.	0.94	n.d.	1.24	0.98
MnO	n.d.	n.d.	8.02	2.60	n.d.	6.95	5.80	5.17	n.d.	n.d.
FeO	9.80	8.31	53.01	2.03	8.29	73.06	54.28	62.48	6.53	5.82

Table 2: Bulk chemical composition

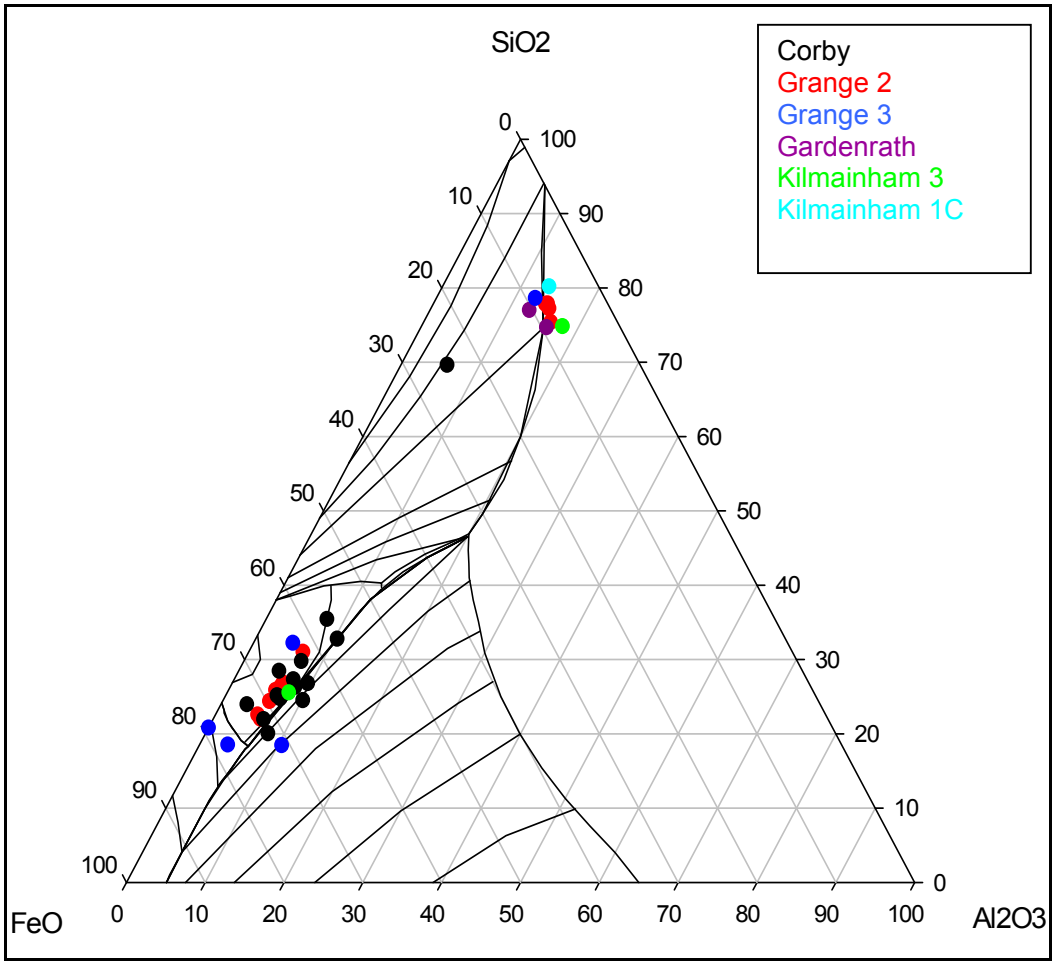


Figure 7: Chemical ratio of the main compounds forming the samples under study

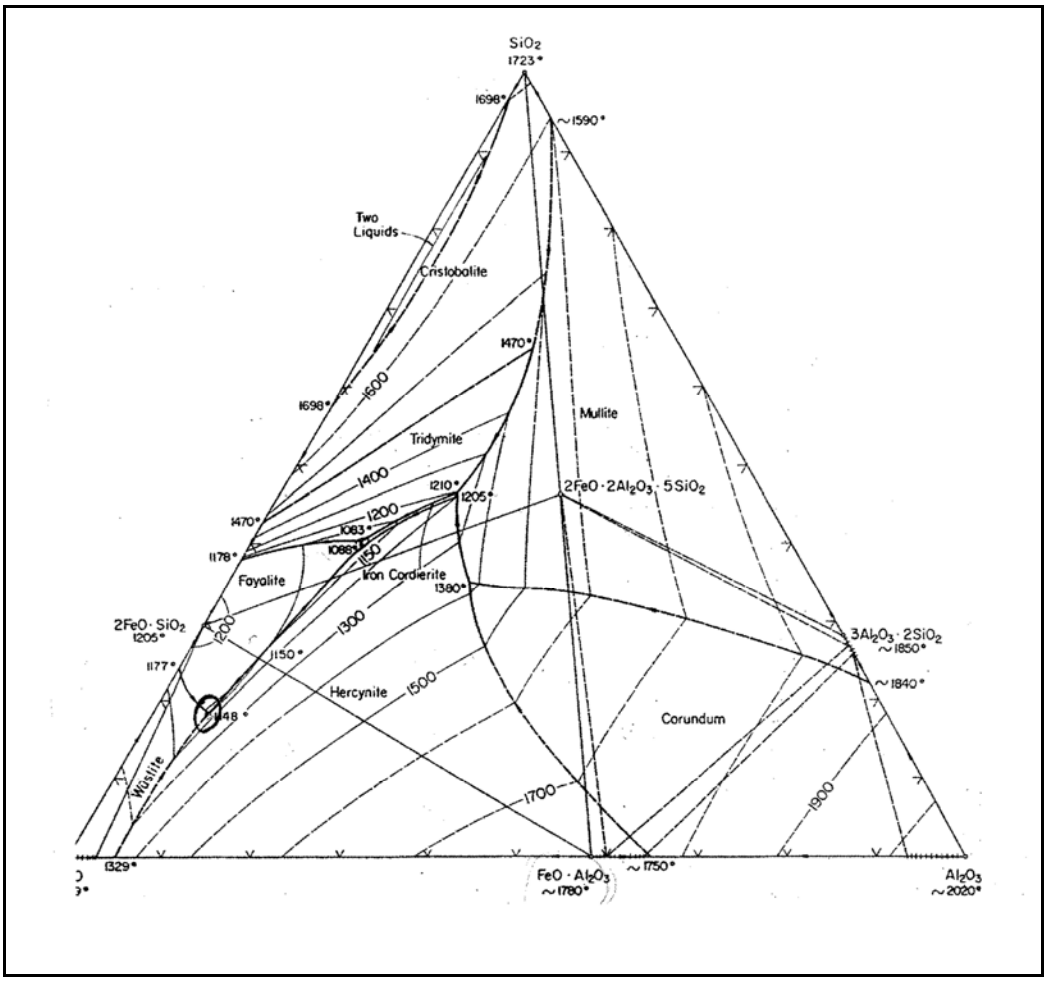


Figure 8:Ternary diagram of the main compounds forming the system under study showing the temperature stability fields of the different mineralogical phases

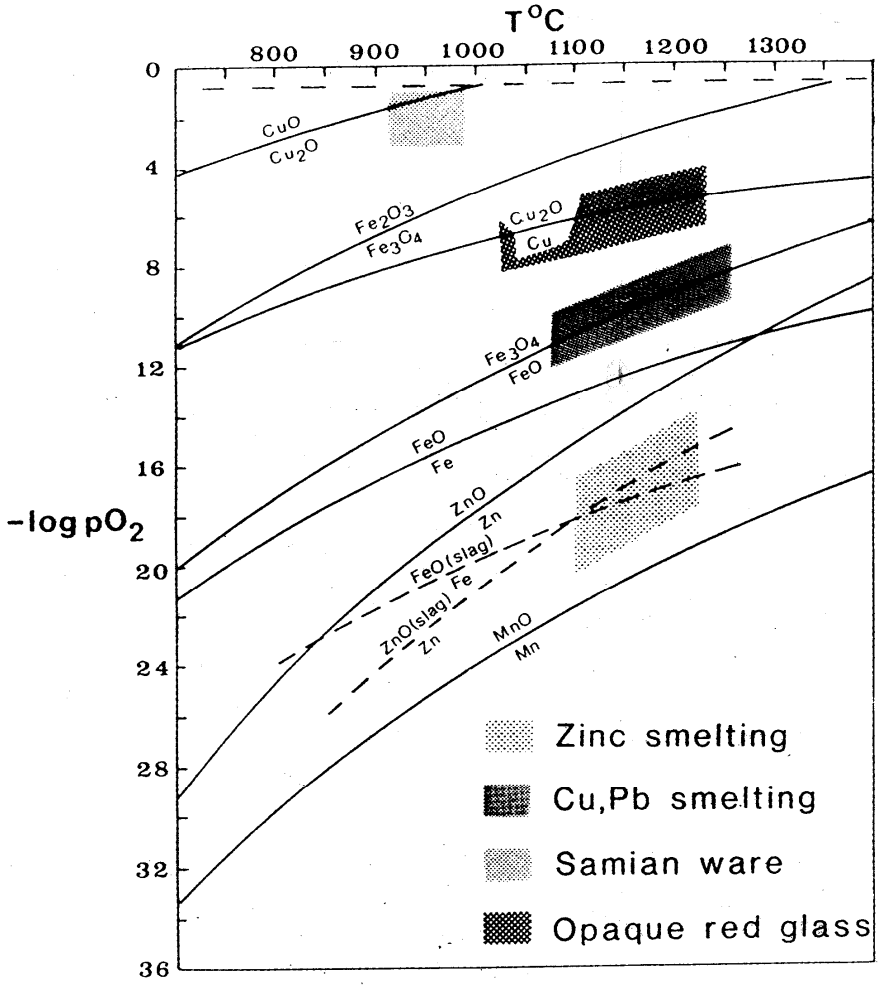


Figure 9: Diagram temperature/oxygen fugacity showing that wustite can coexist with iron metal while the more oxidised iron oxide phase magnetite is too oxidised for such coexistence.

3.0 Overall Discussion & Conclusions

The overall quantity of material from Grange 3 is quite small making it difficult to make any conclusive statements about metallurgical processes taking place on the site. There is a significant proportion of non-diagnostic material along with the likely smelting evidence from C600, and also some baked clay linings. It is likely a combination of small-scale smelting and smithing took place at this site.

Analysis of five samples from the site revealed three of the samples as having a typical composition of iron smelting slags. One of the samples had an unusually high level of calcium (see Table 2, sample 25115_3_2) which may indicate that lime or bone was being added to the furnace to aid with chemical reaction. Although none of the Grange 3 material submitted for analysis was identified as smithing slag, it seems likely from assemblage and archaeological evidence that some small scale smithing also took place at this site.

Some of the pits were likely to have been used as smithing hearths, it is often difficult to distinguish between smelting and smithing hearths in the archaeological record unless there are diagnostic slags associated. As five of the eight pits with charcoal

and scorching have no associated metallurgical material, their function cannot be definitively determined. They may have been used as simple hearths, or for ore roasting, smithing, smelting or any other high temperature activities.

The evidence from C600 is indicative of an above ground low-shaft furnace with a sunken pit at the base, which is quite a different morphology to the nearby sunken shaft furnace at Grange 2. The furnaces/hearths at Grange 3 are dated to Cal 346–60 BC (C633) and Cal 191–5 BC (C600) which are significantly earlier than that at nearby Grange 2 which is dated to Cal AD 257–409. The presence of the two sites in close proximity can be used as a good example of how technology may have changed over this period, when Roman influence may have impacted on iron smelting technology here.

Catalogue of Material

Sample #	Context #	Feature type i.e. Structure A, hearth C45	Sample weight (g)	Description of Residues
38	115	Fill of circular pit furnace C114	744.6	4 small-medium amorphous fragments ranging from 50–90mm across. These fragments have typical appearance of SSL's.
124	267	Fill of circular pit furnace C251	444.6	1 large light piece of slag, semi-circular in shape. L140mm, W55m, Th. 50–60mm, appears to be a mixed grey slag with flow structure evident, and also clay and ashy material.
461	600	Fill of circular pit furnace C601 (dated to Cal 191–5 BC)	369	Very small 10–30mm across, grey black drippy slags.
462	600	Fill of circular pit furnace C601 (dated to Cal 191–5 BC)	999.6	Grey-black drippy slags ranging from 15–70mm across.
329	504	Upper disturbed fill of C503 cut of ring-ditch	984.6	One large oval piece slag, L150mm, W120mm, Th. 30mm. Concavo-convex profile, dark grey colour in broken section, upper surface light brown with rust patches. Possible SHC or Furnace bottom.
330	504	Upper disturbed fill of C503 cut of ring-ditch	108.1	Medium lightweight porous blocky shaped piece of slag L60mm, W35–40mm, Th.20–40mm. Possible FAS
004	504	Upper disturbed fill of C503 cut of ring-ditch	46.7	Flattish piece orange oxidised baked clay with thin layer blackish vitrification (2mm) on inner surface. Overall thickness 7–10mm, L50mm, W40mm. Poss pieve hearth/furnace lining or poss fragment from a mould.
341	504	Upper disturbed fill of C503 cut of ring-ditch	12.5	Small rusty nodule slag 20mm across.
338	504	Upper disturbed fill of C503 cut of ring-ditch	474.1	2 medium dense pieces blocky slag (60–80mm), 2 small nodules (20–35mm).
268	448	Upper fill C473 circular pit furnace	48.9	Small amorphous nodule W35mm, Th. 30mm, rusty surface colour. Poss high Fe content.
334	531	Fill C532 a narrow linear gully	96.6	3 very light porous nodules of slag 35–60mm across, possible FAS.
389	539	Fill of C540 wide linear ditch	114.7	Several small fragments of baked clay lining 20–60mm across and light brownish in colour.

Description of Features with Associated Metallurgical Material (from excavation report)

C114 circular pit furnace cutting Structure 2, depth 0.24, Length, 1.39m, width 1.16m pit contained three fills C36,C115 and C92. Sample 38 consisting of 744.6g of slag was recovered from fill C115 Mid brown sandy silt with frequent charcoal forming upper fill of ironworking furnace cutting Structure 2.C92 Charcoal-rich black/dark brown sand forming a lower fill of ironworking furnace, cutting Structure 2.

C36 Mid brown, charcoal-rich, sandy upper fill of circular pit furnace cutting Structure 2. Circular ironworking pit furnace, cutting Structure 2. This pit furnace can be

associated with numerous other circular pit furnaces identified throughout the site; all of which constitute metalworking features. They possibly represent a distinct stage of the metalworking process which also involved the large furnace in Grange 2.

C251 cut of circular furnace pit, depth 0.15m, length 0.84m, width 0.78m. Three fills C236, C252, C267, only one fill C267 contained 444.6g of slag (Sample 124). C267 Dark brown black charcoal-rich sandy silt forming the middle fill of circular pit furnace.

C601 cut of circular furnace pit, 0.09m in depth, 0.5m in length and 0.39m in width. Possibly a pit furnace but smaller than the numerous pit furnaces found throughout the site and this is also the only incident when black slag (as opposed to brown) was found in such a pit. Filled with C600 and C606. C600 (Dated to Cal 191–5BC 2 sigma) Charcoal-rich fill of small pit containing a high quantity of black slag. C606 Red burnt clay fill of small pit containing a high quantity of black slag.

Eight circular pit furnaces were identified on the site (cuts C291, C473, C114, C497, C632, C555 and C60. The size, shape and fill-sequence of all seven features were closely comparable. These seven pit furnaces/hearths generally consisted of a shallow, convex, bowl-shaped cut which was fired red, a middle layer of charcoal and an upper layer of mid-brown charcoal-rich clay.

Dates for Metallurgical Features

Context	Sample	Feature	C14 Dates
C633	485	Fill of furnace pit	Cal 201–114 BC (1 Sigma), Cal 346–60 BC (2 Sigma)
C600	461	Pit containing slag	Cal 158–52 BC (1 Sigma), Cal 191–5 BC (2 Sigma)
C92	21	Fill of furnace pit	Cal 380–200 BC (1 Sigma), Cal 390–200 BC (2 Sigma)
C495	283	Fill of furnace pit	Cal 160 BC–AD 0 (1 Sigma), Cal 190 BC–AD 30 (2 Sigma)

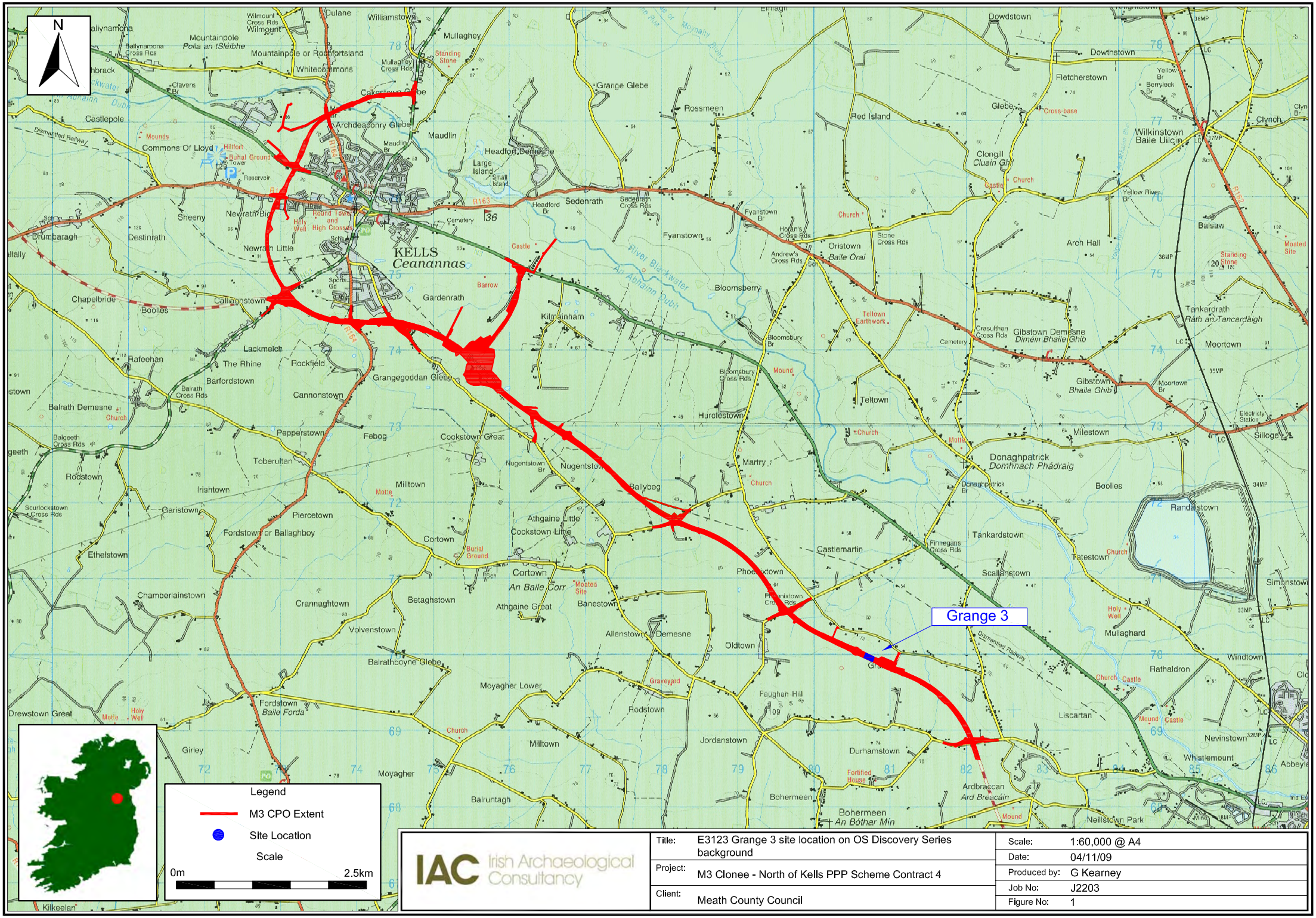
APPENDIX 3 LIST OF RMP SITES IN AREA

RMP No	Description
ME024:003	Enclosure Site
ME024:007	Church Site Possible
ME024:008	Rectilinear Enclosure

See Figure 2 for locations.

APPENDIX 4 LIST OF M3 CONTRACT 4 SITE NAMES

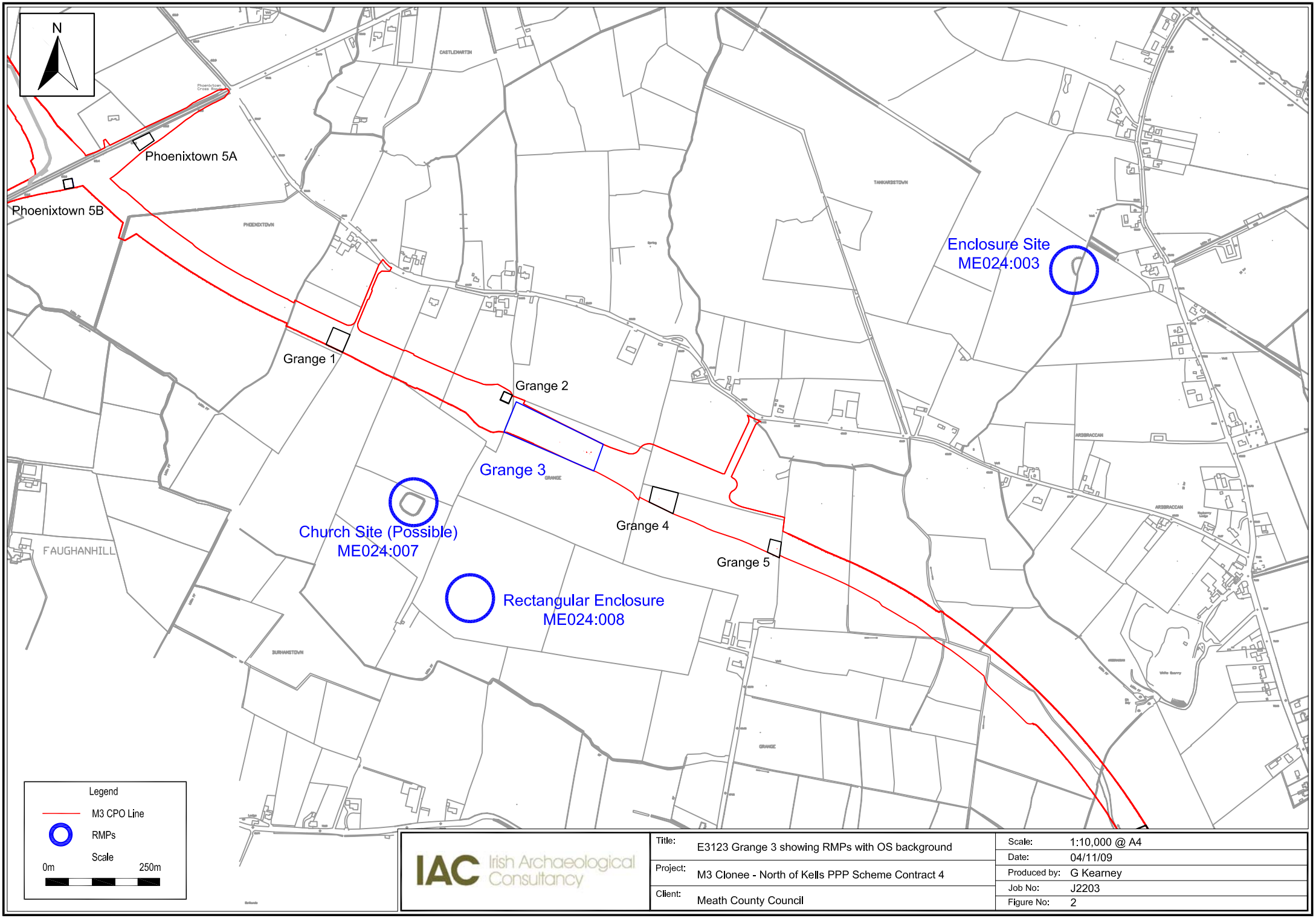
Site Name	Director	Contract site reference no.	Excavation Registration No.
Ardbraccan 5	Carmel Duffy	A029-001	E3119
Ardbraccan 6	Ciara MacManus	A029-002	E3120
Grange 5	Amanda Kelly	A029-003	E3121
Grange 4	Carmel Duffy	A029-004	E3122
Grange 3	Amanda Kelly	A029-005	E3123
Grange 2	Amanda Kelly	A029-006	E3124
Grange 1	Patricia Lynch	A029-007	E3125
Phoenixtown 5	Tim Coughlan	A029-008	E3126
Phoenixtown 6	Ed Lyne	A029-009	E3127
Phoenixtown 1	Ed Lyne	A029-010	E3128
Phoenixtown 2	Ed Lyne	A029-011	E3129
Phoenixtown 3	Ed Lyne	A029-012	E3130
Phoenixtown 4	Ed Lyne	A029-013	E3131
Ballybeg 1	Patricia Lynch	A029-014	E3132
Ballybeg 2	Patricia Lynch	A029-015	E3133
Nugentstown 3	Patricia Lynch	A029-016	E3134
Nugentstown 2	Patricia Lynch	A029-017	E3135
Nugentstown 1	Patricia Lynch	A029-018	E3136
Cookstown Great 1	Patricia Lynch	A029-019	E3137
Cookstown Great 2	Gill McLoughlin	A029-020	E3138
Cookstown Great 3	Gill McLoughlin	A029-021	E3139
Kilmainham 1A	Ed Lyne	A029-053	E3141
Kilmainham 1B	David Bayley	A029-054	E3142
Kilmainham 1C	Fintan Walsh	A029-022	E3140
Kilmainham 2	David Bayley	A029-023	E3143
Kilmainham 3	Yvonne Whitty	A029-024	E3144
Gardenrath 2	David Bayley	A029-025	E3145
Gardenrath 1	David Bayley	A029-026	E3146
Town Parks 1	Gill McLoughlin	A029-027	E3147
Town Parks 2	Catriona Gleeson	A029-028	E3148
Town Parks 3	Catriona Gleeson	A029-029	E3149
Town Parks 4	Yvonne Whitty	A029-030	E3150
Town Parks 5	Yvonne Whitty	A029-031	E3151
Town Parks 6	Yvonne Whitty	A029-032	E3152
Newrath Little 3	James Kyle	A029-033	E3153
Newrath Little 2	Yvonne Whitty	A029-034	E3154
Newrath Little 1	James Kyle	A029-035	E3155
Town Parks/ Commons of Lloyd 1	David Bayley	A029-036	E3156
Commons of Lloyd 1	Yvonne Whitty	A029-037	E3157
Cakestown Glebe 2	Patricia Lynch	A029-038	E3158
Cakestown Glebe 1	Patricia Lynch	A029-039	E3159
Ballybeg 3	Tim Coughlan	A029-040	E3160
Ballybeg 4	Patricia Lynch	A029-041	E3162



IAC Irish Archaeological Consultancy

Title:	E3123 Grange 3 site location on OS Discovery Series background
Project:	M3 Clonee - North of Kells PPP Scheme Contract 4
Client:	Meath County Council

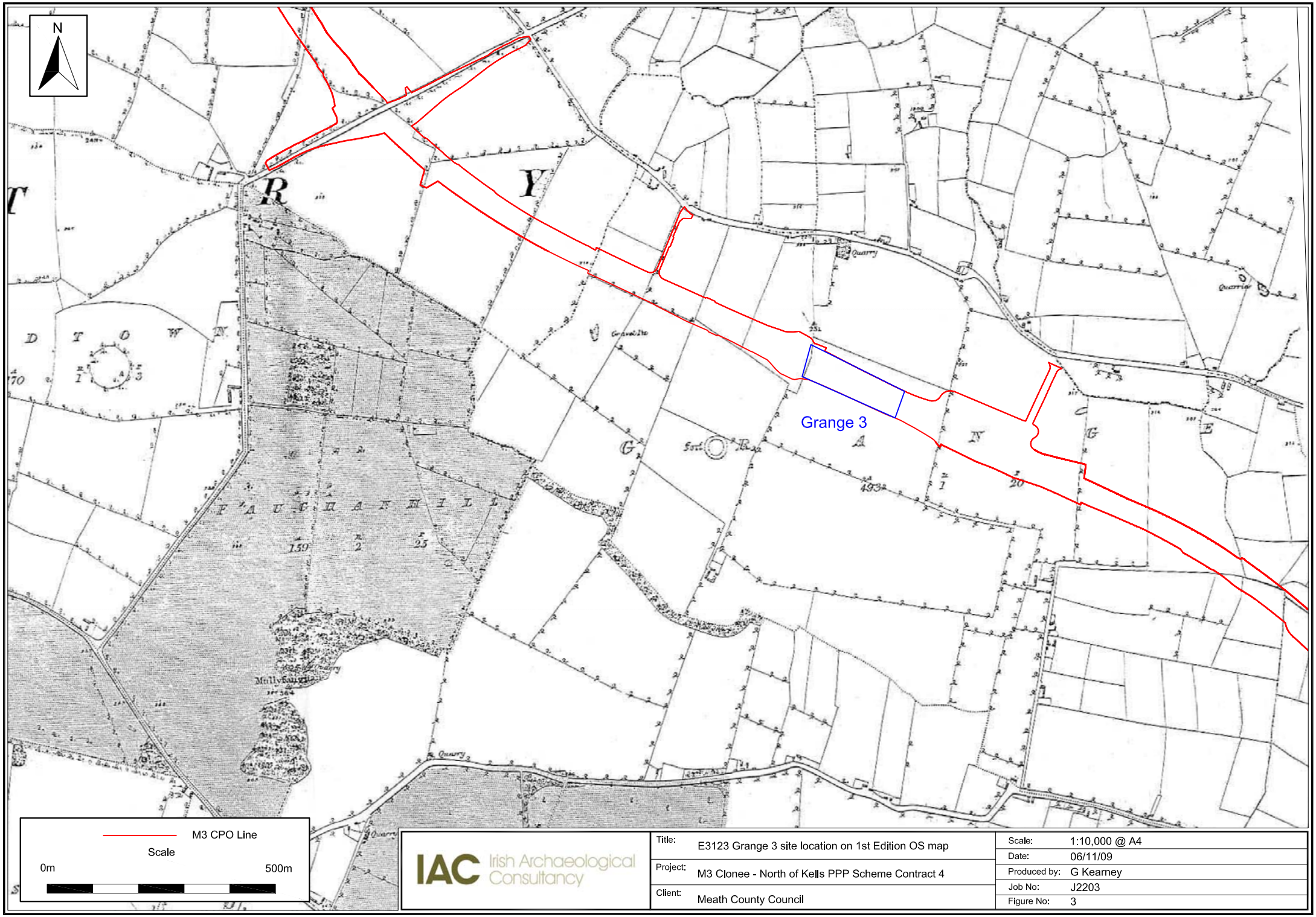
Scale:	1:60,000 @ A4
Date:	04/11/09
Produced by:	G Kearney
Job No:	J2203
Figure No:	1



IAC Irish Archaeological Consultancy

Title:	E3123 Grange 3 showing RMPs with OS background
Project:	M3 Clonee - North of Kells PPP Scheme Contract 4
Client:	Meath County Council

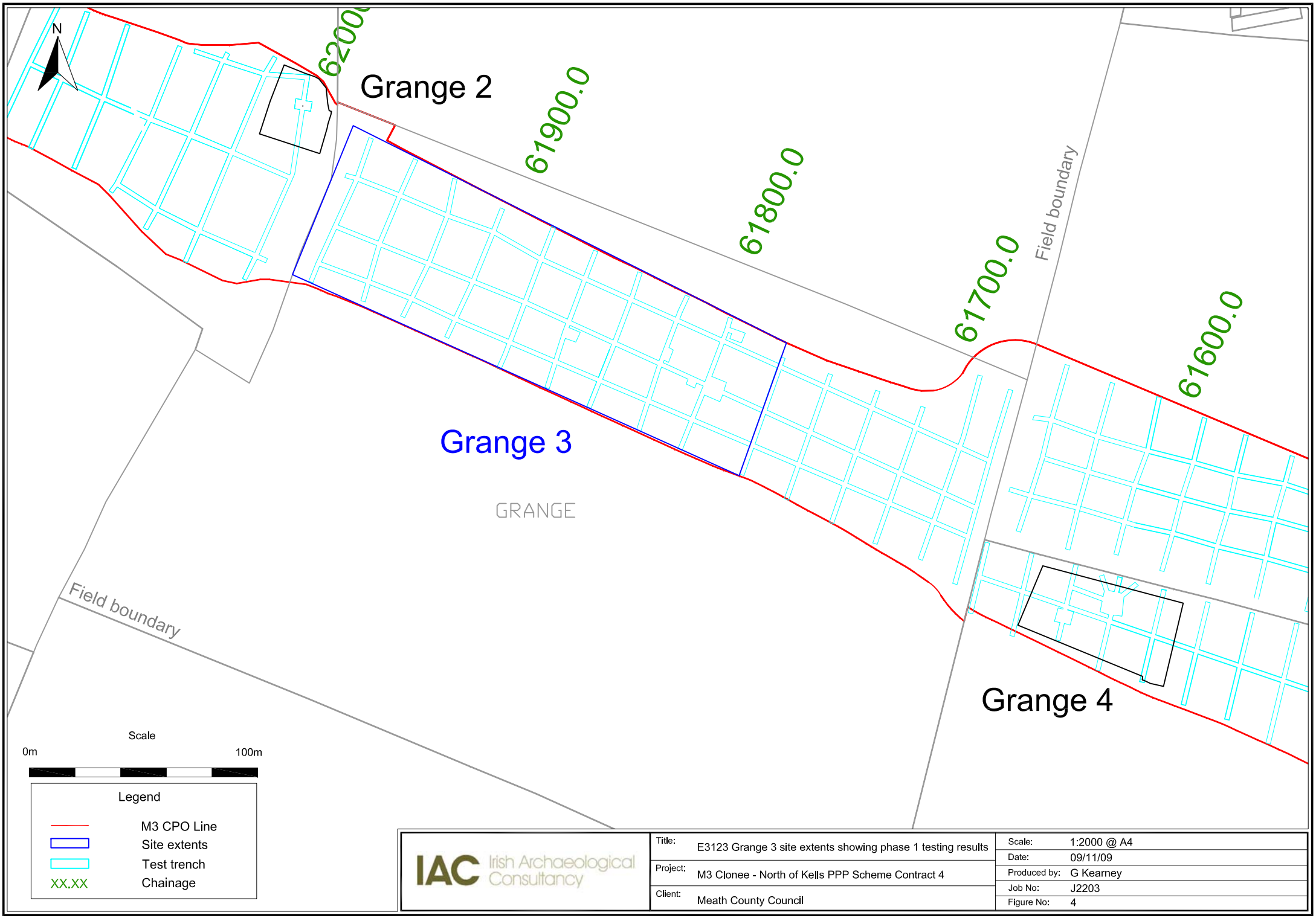
Scale:	1:10,000 @ A4
Date:	04/11/09
Produced by:	G Kearney
Job No:	J2203
Figure No:	2



IAC Irish Archaeological Consultancy

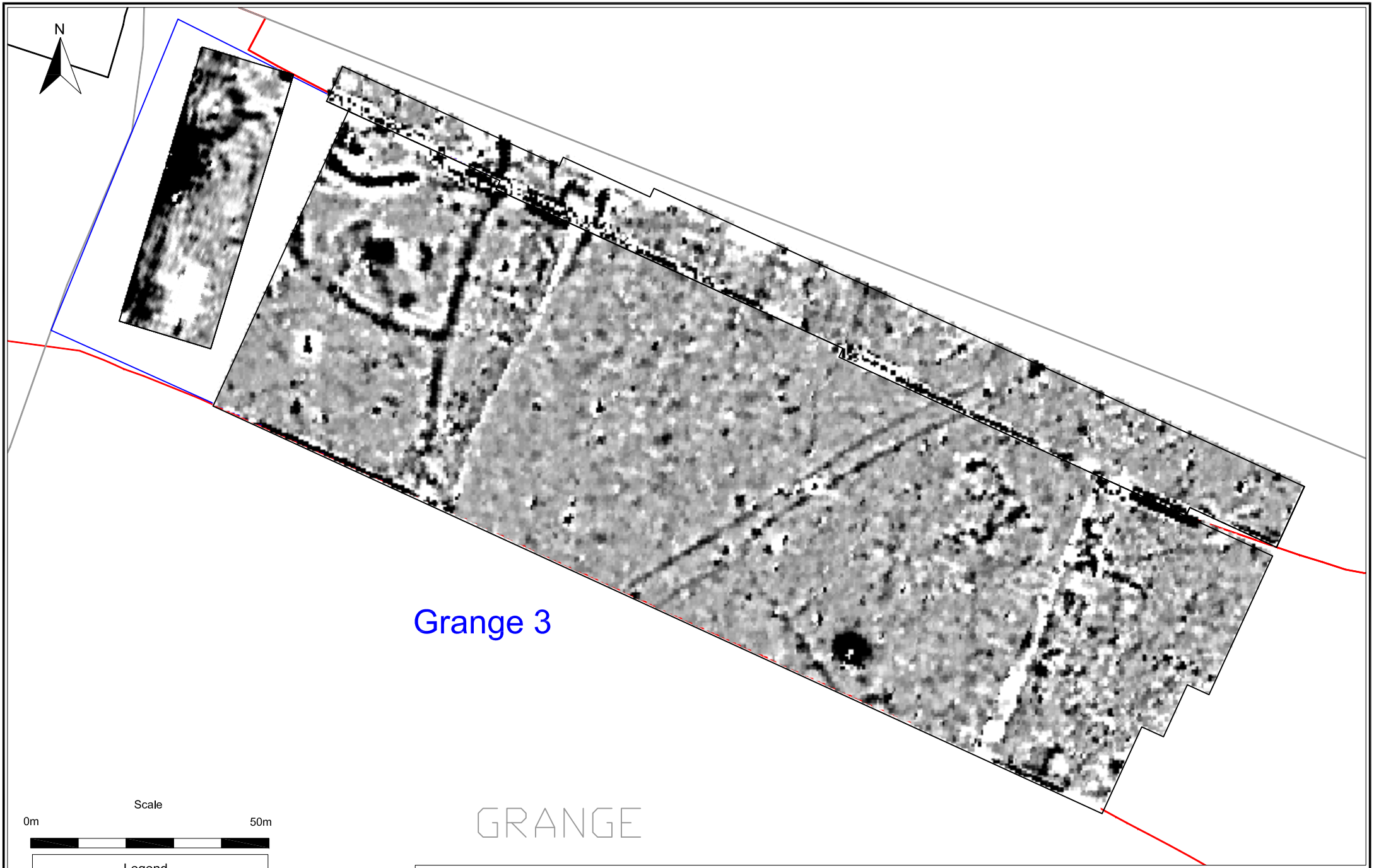
Title:	E3123 Grange 3 site location on 1st Edition OS map
Project:	M3 Clonee - North of Kells PPP Scheme Contract 4
Client:	Meath County Council

Scale:	1:10,000 @ A4
Date:	06/11/09
Produced by:	G Kearney
Job No:	J2203
Figure No:	3



IAC Irish Archaeological Consultancy

Title:	E3123 Grange 3 site extents showing phase 1 testing results	Scale:	1:2000 @ A4
Project:	M3 Clonee - North of Kells PPP Scheme Contract 4	Date:	09/11/09
Client:	Meath County Council	Produced by:	G Kearney
		Job No:	J2203
		Figure No:	4



IAC Irish Archaeological Consultancy

Title:	E3123 Grange 3 geophysical results
Project:	M3 Clonee - North of Kells PPP Scheme Contract 4
Client:	Meath County Council

Scale:	1:1000 @ A4
Date:	09/11/09
Produced by:	G Kearney
Job No:	J2203
Figure No:	5

N

Middle-Late Bronze Age ringditch

1372 - 1131 BC
974 - 828 BC

AD 617 - 666

AD 669 - 772

Early medieval enclosure

Drain

Limit of excavation

280673, 269992

280723, 269992

191 - 5 BC

346 - 60 BC

Bronze Age ditch
1090 - 840 BC

Bronze Age ditch

Bronze Age Structure 1
1520 - 1310 BC
1499 - 1415 BC

Bronze Age Structure 2
1540 - 1390 BC
1408 - 1269 BC

Metalled surfaces

390 - 200 BC

AD 427 - 570

280723, 269942

Cremation pit
971 - 807 BC

190 BC - AD 30

2460 - 2210 BC

Cremation pit
1420 - 1294 BC

Scale
0m 25m

Legend

- Break of slope
- CPO boundary
- Cxx Cut numbers
- Postholes
- Kilns
- Metalworking furnaces
- XXXXXXE XXXXXXN National Grid Reference
- Stone

Title:	E3123 Grange 3 phased plan of site
Project:	M3 Clonee - North of Kells PPP Scheme Contract 4
Client:	Meath County Council
Scale: 1:500 @A3	Job No: J2203
Date: 15/04/10	Figure No: 6
Produced by: G Kearney	IAC Irish Archaeological Consultancy

N

70.124

Pit C338

Pit C289

2A

2B

Cremation pit C290

70.002

69.869

Ditch C400

1090 - 840 BC

Ditch C327

Modern ditch C268

69.589

69.471

70.032

69.580

Structure 1

Pit C427

AD 427 - 570

21A

20B

20A

Kiln C130

21B

70.342

Pit C337

70.132

25B

C313

Furnace pit C291

25A

70.362

Furnace pit C251

Kiln C273

30A

30B

69.952

Postholes C389

C384

C366

70.282

Pit C287

Iron age pit C31

Structure 2

Stone deposit C215

Linear C292

Pit C173

69.809

Pit C211

Spread C212

C254

Pit C206

68.899

70.397

Pit C548

Ditch C327

70.282

280738, 269946

280758, 269946

Furnace pit C497

26A

26B

70.762

1B

C293

69.911

1A

Cremation pit C275

971 - 807 BC

Pit C270

Pit C272

C391

70.527

C268

70.218

19A

19B

Pit C266

Ditch C397

C494

Spread C81

Spread C82

Pit C305

C277

C157

C159

Pit C139

Pit C138

C161

69.647

Pit C549

280758, 269926

Pit C143

Cremation pit C203

3A

3B

1420 - 1294 BC

69.982

69.620

Spread C493

29B

2460 - 2210 BC

Kiln C491

29A

Pit C564

C172

Pit C132

69.171

C131

Limit of excavation

Location of inset C330

0m Scale 250m

Pit C330

4B

C330

4A

0m Scale 5m

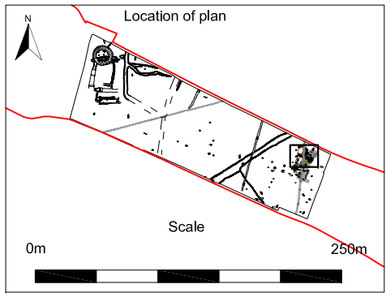
Scale 0m 10m

Legend

- Break of slope
- Sections
- CPO boundary
- Cxx Cut numbers
- Deposits
- Stakeholes
- Stone
- xx.xx Levels - metres OD

Title:	E3123 Grange 3 plan of Bronze Age and early medieval features		
Project:	M3 Clonee - North of Kells PPP Scheme Contract 4		
Client:	Meath County Council		
Scale:	1:250 @A3	Job No: J2203	
Date:	15/04/10	Figure No: 7	
Produced by:	G Kearney		

IAC Irish Archaeological Consultancy



Structure 1

Limit of excavation

N

0m Scale 2.5m

Legend

- Break of slope
- Sections
- CPO boundary
- Cxx Cut numbers
- Cxx Fill numbers
- Postholes
- Stakeholes
- Stone
- xx.xx Levels - metres OD

Title:	E3123 Grange 3 plan of Structure 1
Project:	M3 Clonee - North of Kells PPP Scheme Contract 4
Client:	Meath County Council
Scale: 1:50 @A3	Job No: J2203
Date: 22/03/10	Figure No: 8
Produced by: G Kearney	

IAC Irish Archaeological Consultancy

N

Metalworking furnace C114

14B

C112

C111

14A

69.218

16B

C90

1408 - 1269 BC

16A

C441

C121

C484

28A

69.43

28B

C204

C183

Structure 2

12A

C106

C84

12B

C415

13B

C116

13A

C396

69.40

Pit C216

69.152

69.293

C460 C458

C195

C194

C149

C197

C339

C283

C262

C307

C258

C296

C280

C163

C261

C297

C295

C256

C85

15A

15B

1540 - 1390 BC

C107

17A

17B

C431

C433

C122

C443

Pit C170

C323

C405

C317

C422

C281

C282

C414

C413

C428

C426

Spread C480

C478

C472

69.188

280780, 269955

Metalled surface C394

69.194

C464

Clay spread C217

C457

C455

Clay spread C218

69.087

Metalled/Working surface C142/ C54

Pit C372

Pit C381

C142

Pit C254

69.50

280770, 269945

Pit C153

18A

18B

69.10

280780, 269945

69.117

Ditch C172

69.107

C420

69.107

Location of plan

Scale

0m

250m

GRANGE

Scale

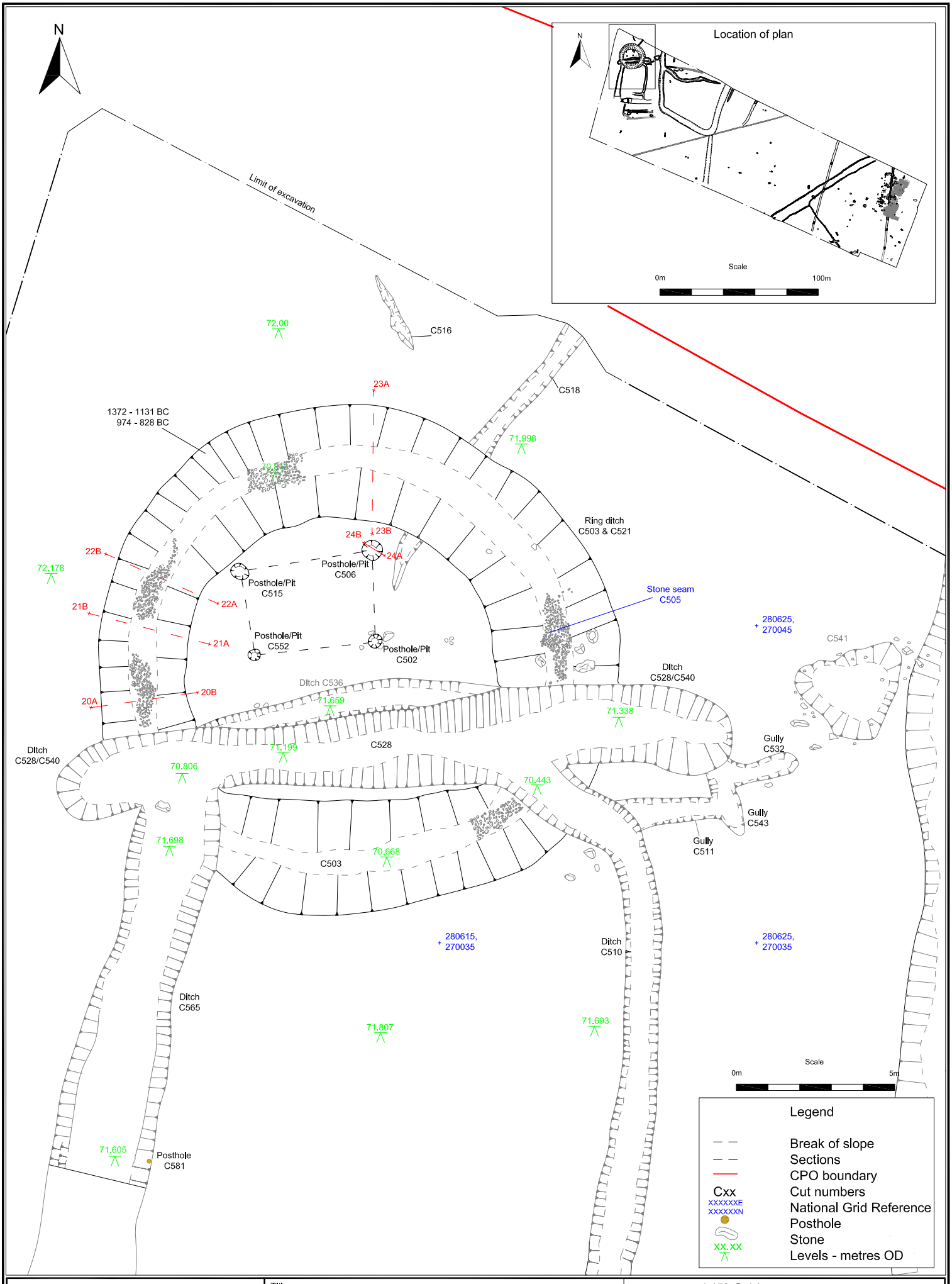
0m

2.5m

Legend

- Break of slope
- Sections
- CPO boundary
- Cxx Cut numbers
- Cxx Fill numbers
- Postholes
- Stakeholes
- Stone
- xx.xx Levels - metres OD

Title:	E3123 Grange 3 plan of Structure 2	
Project:	M3 Clonee - North of Kells PPP Scheme Contract 4	
Client:	Meath County Council	
Scale: 1:50 @A3	Job No: J2203	IAC Irish Archaeological Consultancy
Date: 15/04/10	Figure No: 9	
Produced by: G Kearney		



IAC Irish Archaeological Consultancy

Title:	E3123 Grange 3 plan of Bronze Age ringditch	Scale:	1:150 @ A4
Project:	M3 Clonee - North of Kells PPP Scheme Contract 4	Date:	15/04/10
Client:	Meath County Council	Produced by:	G Kearney
		Job No:	J2203
		Figure No:	10

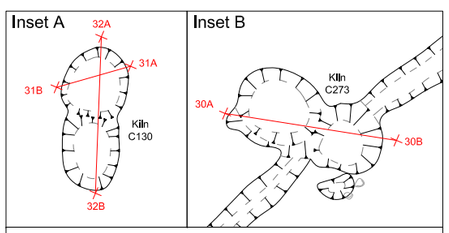
N

C541
C540
C528
C532
C511
C543
C656
C565
C581
C510
C587
C620
C572
C593
C574
C589
C629
C595
C578
C569
C576
C580
C561
Spread C602
Modern pit C626
33B
Kiln C596
33A
Modern ditch C591
36A
36B
Pit C643
Pit C648
Burnt pit C604
37B
37A
35A
35B
Pit C621
Early medieval enclosure
AD 617 - 666
Ditch C584
34B
34A
Ditch C656
Ditch C637
Ditch containing human cremated bone
Ditch C487
C336
C335
Drain C434
Limit of excavation
Furnace pit C555
Furnace pit C631
Furnace pit C610
191 - 5 BC
Furnace pit C601
Furnace pit C632
346 - 60 BC
4B
4A
Cremation pit C330
C334
2A
2B
C289
Cremation pit C290
C338
C321
C465
C427
C337
C548
Furnace pit C497
26B
26A
190 BC - AD 30
C397
C494
C305
C549
C564
29B
Kiln C491
29A
Spread C500 & C570
Spread C499
C268
C400
C327
Inset A
Inset B
25B
Furnace pit C291
25A
27B
Furnace pit C251
27A
C287
C31
Furnace pit C114
Furnace pit C473
12A
12B
C266
Ditch C172

71,221 71,133 71,328 71,297 71,286 71,160 71,066 71,000 70,877 71,025 70,915 70,373 70,342 70,362 70,527 70,218 70,124 70,054 70,002 69,982 69,952 69,812 69,762 69,620 69,471 69,869 70,266 70,446 71,208 70,86 70,32 70,122 70,626 71,626 71,440 71,058 70,534 70,762

280673, 269992
280723, 269992
280723, 269942

Inset A



Inset B

Scale
0m 5m

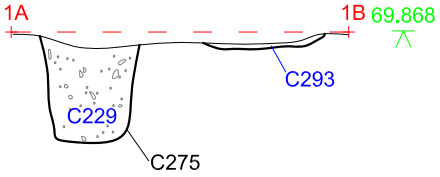
Scale
0m 25m

Legend

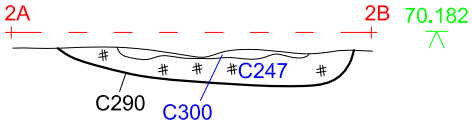
- Break of slope
- Sections
- CPO boundary
- Cxx — Cut numbers
- XXXXXXE XXXXXXN — National Grid Reference
- Stone
- XX.XX — Levels - metres OD

Title:	E3123 Grange 3 plan of Iron Age and early medieval features	
Project:	M3 Clonee - North of Kells PPP Scheme Contract 4	
Client:	Meath County Council	
Scale: 1:500 @A3	Job No: J2203	IAC Irish Archaeological Consultancy
Date: 15/04/10	Figure No: 11	
Produced by: G Kearney		

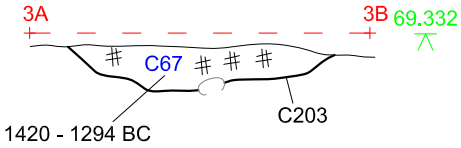
Southeast facing section of C275



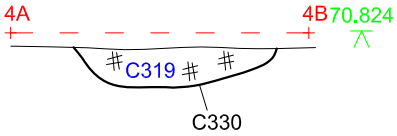
South facing section of C290



South facing section of C203



Northeast facing section of C330



Scale

0m 1m

Legend

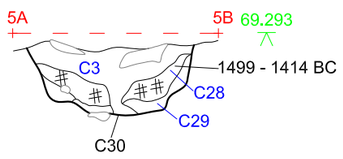
Cxx	Cut numbers
Cxx	Fill numbers
	Stone
#	Charcoal
xx.xx	Levels - metres OD

IAC Irish Archaeological Consultancy

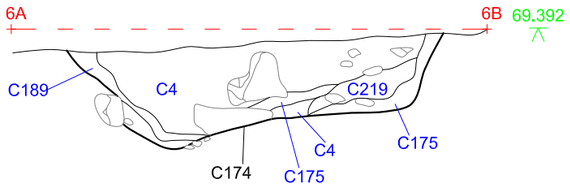
Title:	E3123 Grange 3 sections of Bronze Age cremations (sections 1-4)
Project:	M3 Clonee - North of Kells PPP Scheme Contract 4
Client:	Meath County Council

Scale:	1:20 @ A4
Date:	15/04/10
Produced by:	G Kearney
Job No:	J2203
Figure No:	12

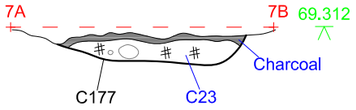
Southwest facing section of C30



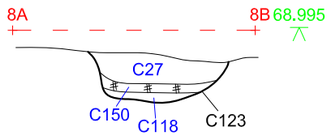
Northeast facing section of C174



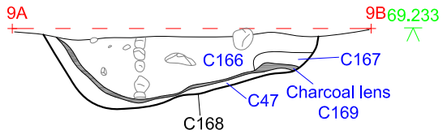
Southeast facing section of C177



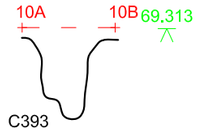
Southwest facing section of C123



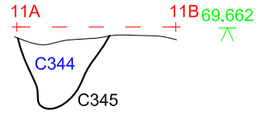
East facing section of C168



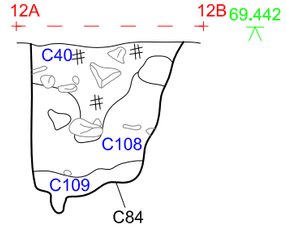
East-West profile of C393



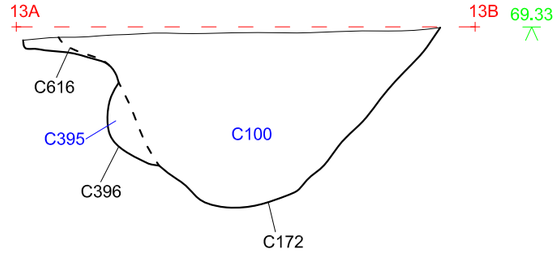
SSE facing section of C345



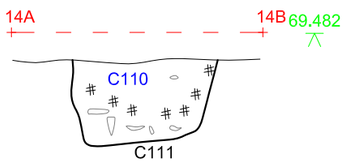
South facing section of C84



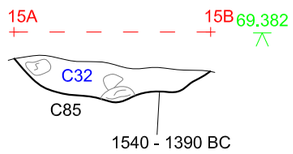
North facing section of C172, C396 & C616



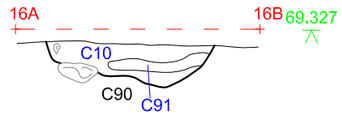
Northeast facing section of C111



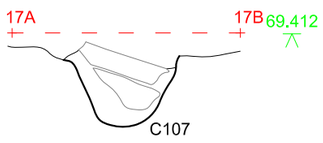
Northwest facing section of C85



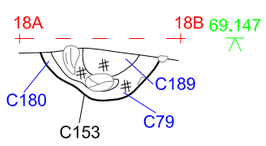
ESE facing section of C90



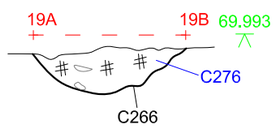
Northwest facing section of C107



Southwest facing section of C153



South facing section of C266



Scale

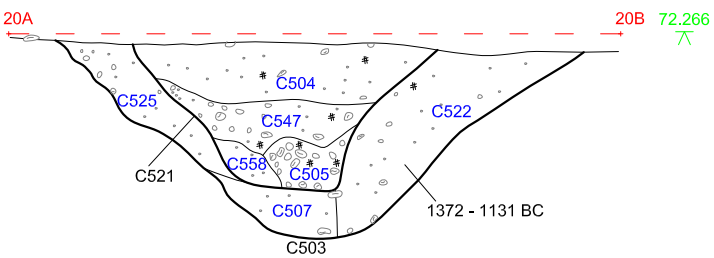
0m 1m

Legend

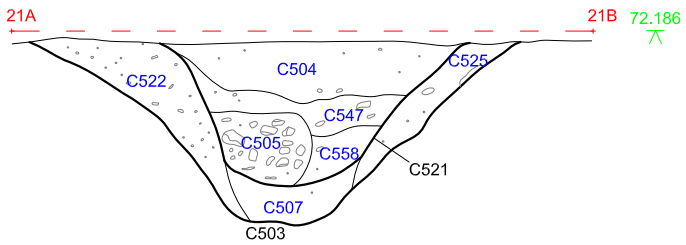
Cxx	Cut numbers
Cxx	Fill numbers
	Stone
#	Charcoal
xx.xx	Levels - metres OD

Title:	E3123 Grange 3 sections of wall footings and postholes of Bronze Age structures 1 and 2 (sections 5-19)	
Project:	M3 Clonee - North of Kells PPP Scheme Contract 4	
Client:	Meath County Council	
Scale: 1:20 @ A3	Job No: J2203	IAC Irish Archaeological Consultancy
Date: 15/04/10	Figure No: 13	
Produced by: G Kearney		

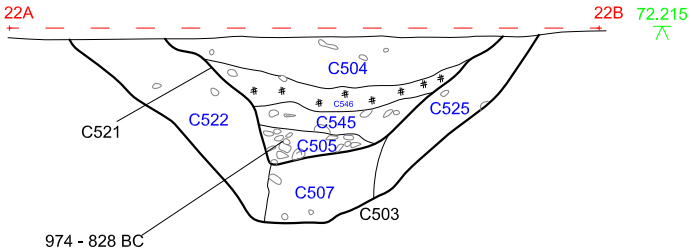
South facing section of C503 & C521



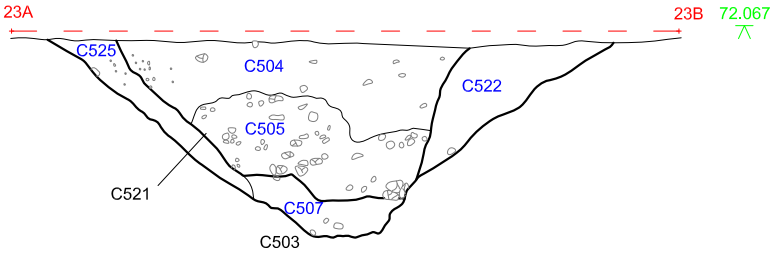
NNE facing section of C503 & C521



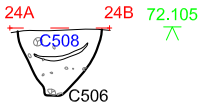
Northeast facing section of C521 & C503



West facing section of C503 & C521



Northeast facing section of C506



Scale

0m 2.5m

Legend

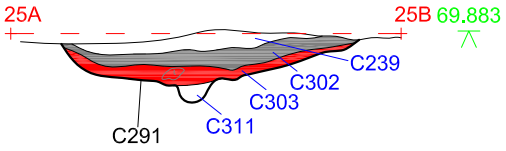
Cxx	Cut numbers
Cxx	Fill numbers
	Stone
#	Charcoal
xx.xx	Levels - metres OD

IAC Irish Archaeological Consultancy

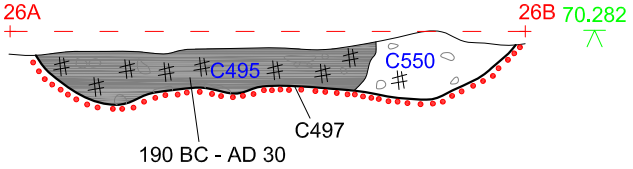
Title:	E3123 Grange 3 sections of Bronze Age ringditch (sections 20-24)
Project:	M3 Clonee - North of Kells PPP Scheme Contract 4
Client:	Meath County Council

Scale:	1:50 @ A4
Date:	15/04/10
Produced by:	G Kearney
Job No:	J2203
Figure No:	14

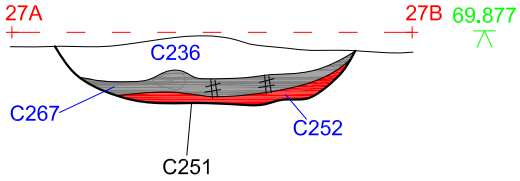
East facing section of C291



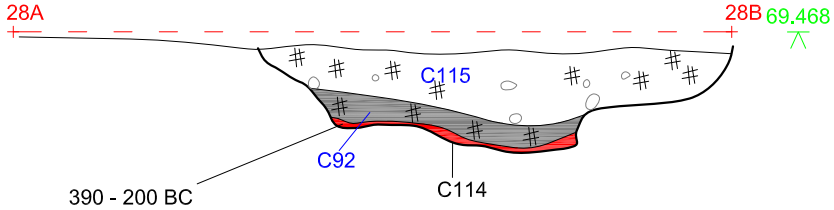
Northwest facing section of C497



East facing section of C251



South facing section of C114



Scale

0m 1m

Legend

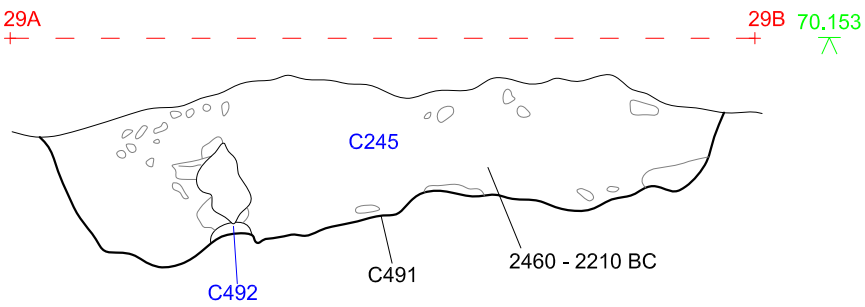
Cxx	Cut numbers
Cxx	Fill numbers
	Charcoal
	Baked/Burnt clay
	Stone
#	Charcoal
xx.xx	Levels - metres OD

IAC Irish Archaeological Consultancy

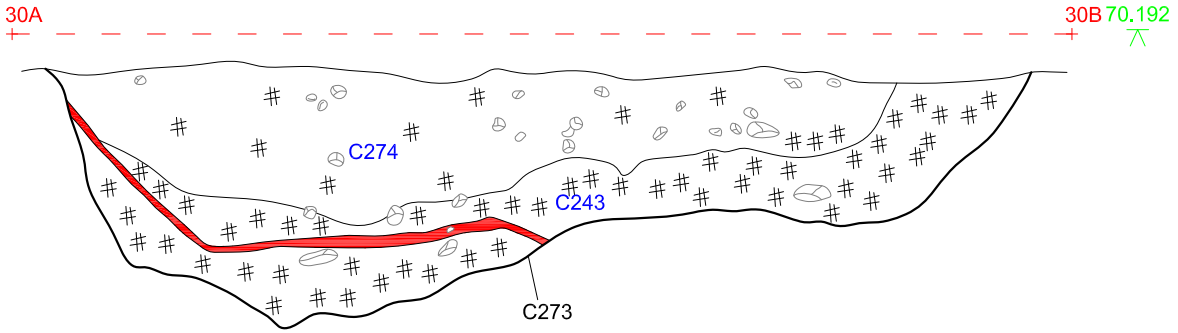
Title:	E3123 Grange 3 sections of Iron Age metalworking furnaces (sections 25-28)
Project:	M3 Clonee - North of Kells PPP Scheme Contract 4
Client:	Meath County Council

Scale:	1:20 @ A4
Date:	15/04/10
Produced by:	G Kearney
Job No:	J2203
Figure No:	15

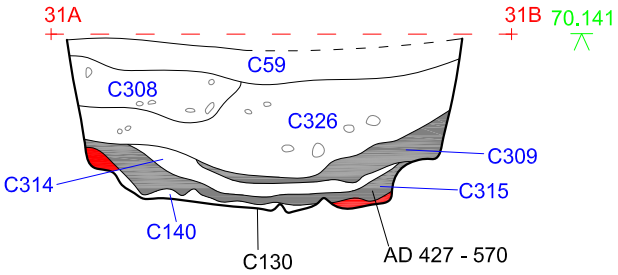
East facing section of C491



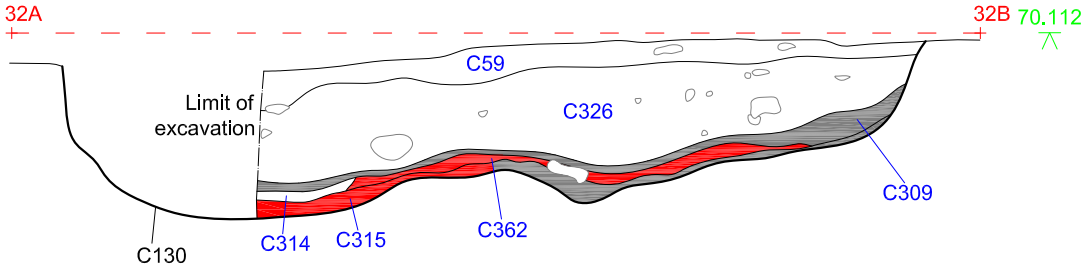
South facing section of C273



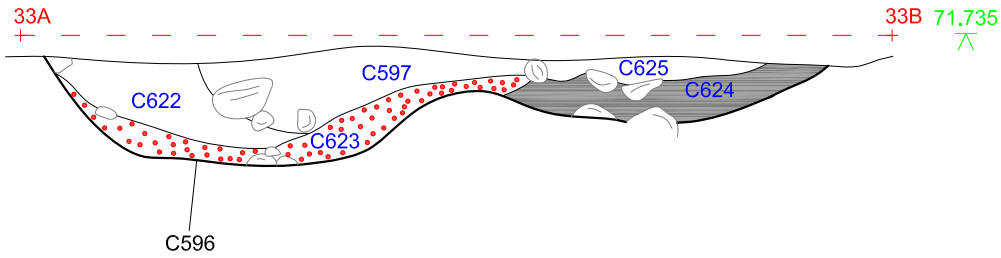
NNE facing section of C130



West facing section of C130



East facing section of C596



Scale

0m 1m

Legend

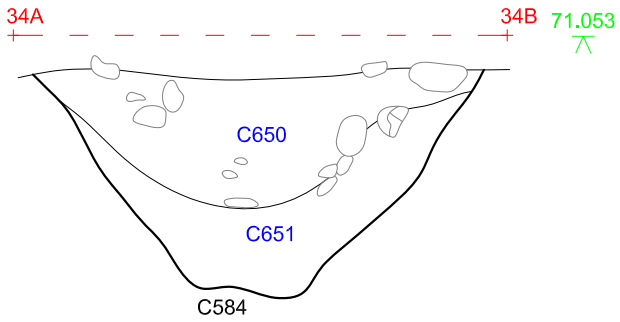
Cxx	Cut numbers
Cxx	Fill numbers
	Charcoal
	Baked/Burnt clay
	Stone
#	Charcoal
xx.xx	Levels - metres OD

IAC Irish Archaeological Consultancy

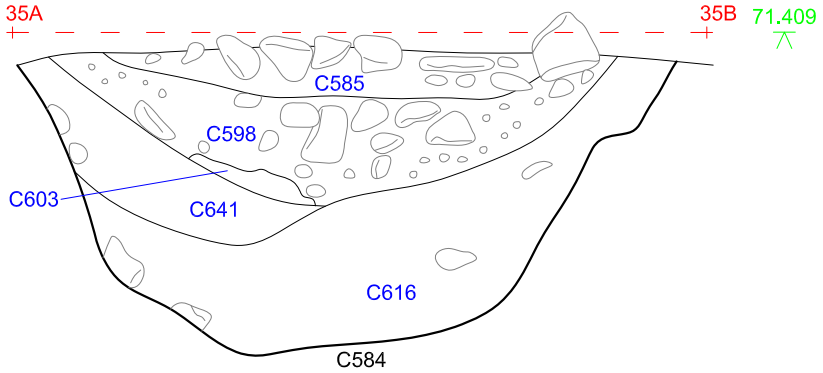
Title:	E3123 Grange 3 sections of cereal drying kilns (sections 29-33)
Project:	M3 Clonee - North of Kells PPP Scheme Contract 4
Client:	Meath County Council

Scale:	1:20 @ A4
Date:	15/04/10
Produced by:	G Kearney
Job No:	J2203
Figure No:	16

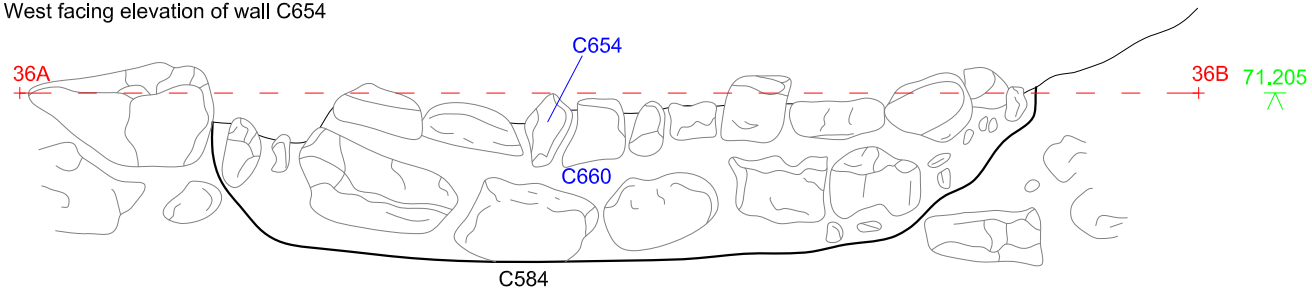
East facing section of C584



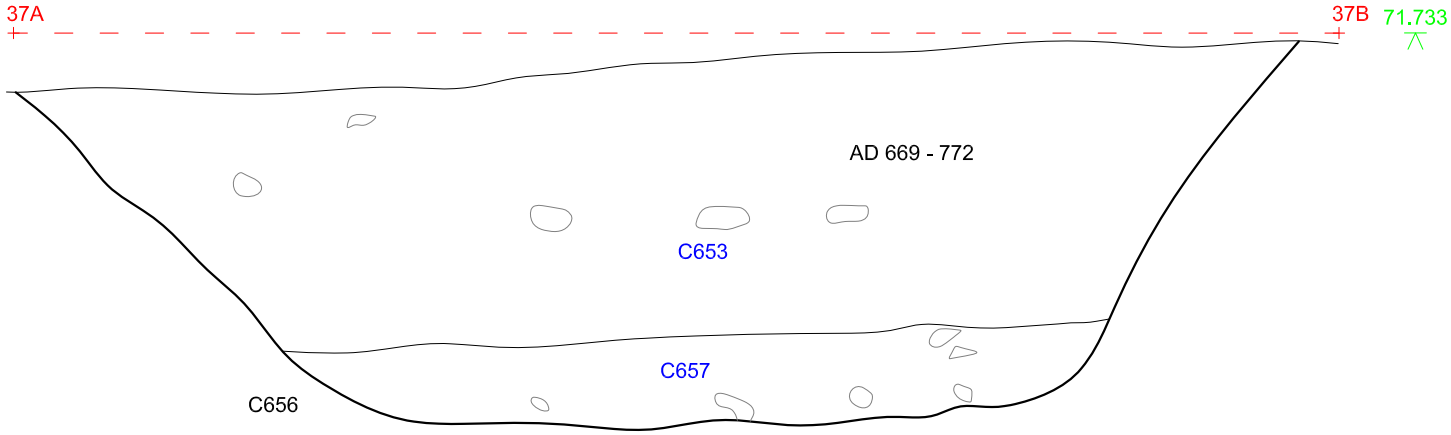
Northwest facing section of C584



West facing elevation of wall C654



North facing section of C656



Scale

0m 1m

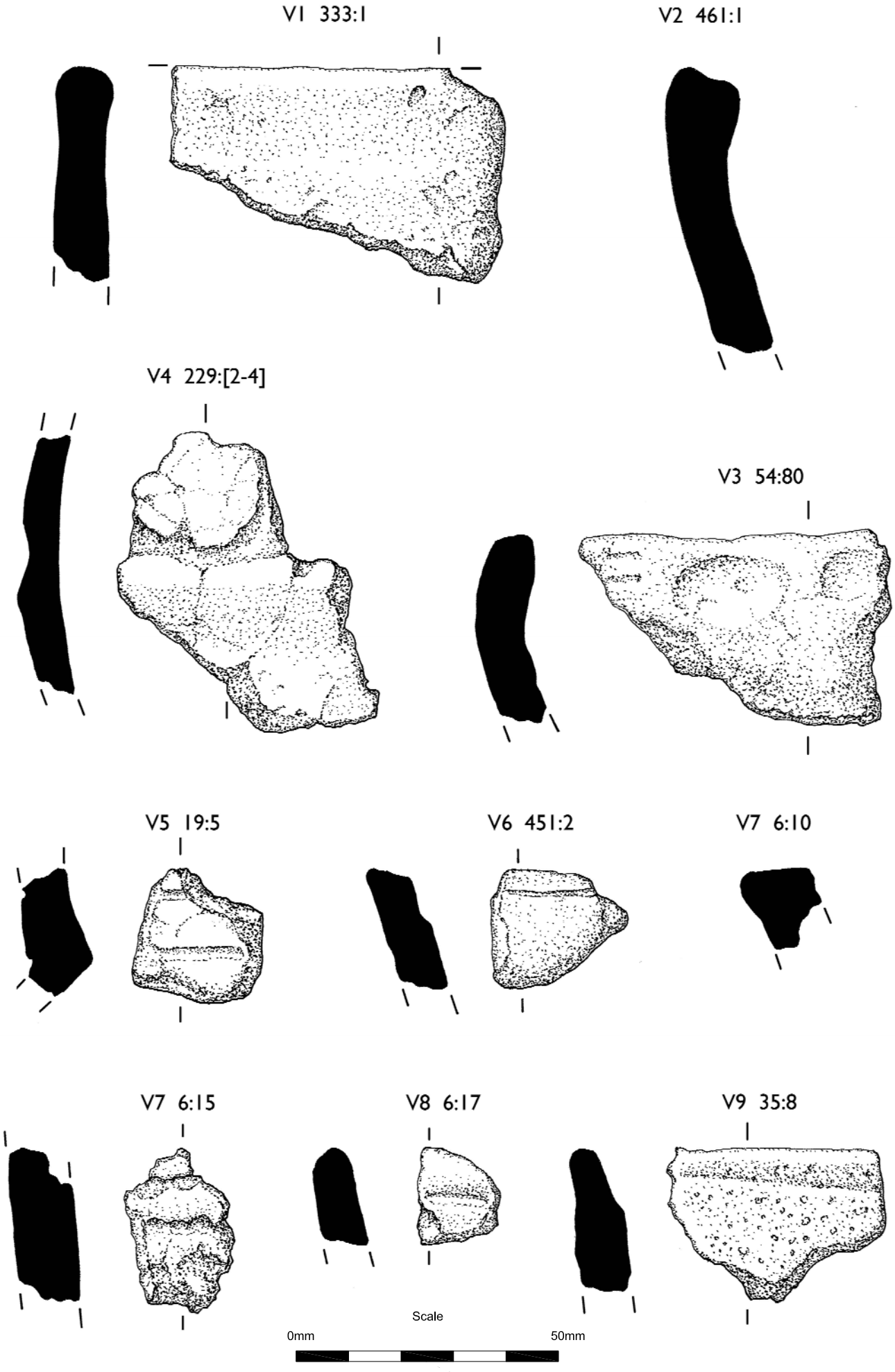
Legend

Cxx	Cut numbers
Cxx	Fill numbers
	Stone
#	Charcoal
xx.xx	Levels - metres OD

IAC Irish Archaeological Consultancy

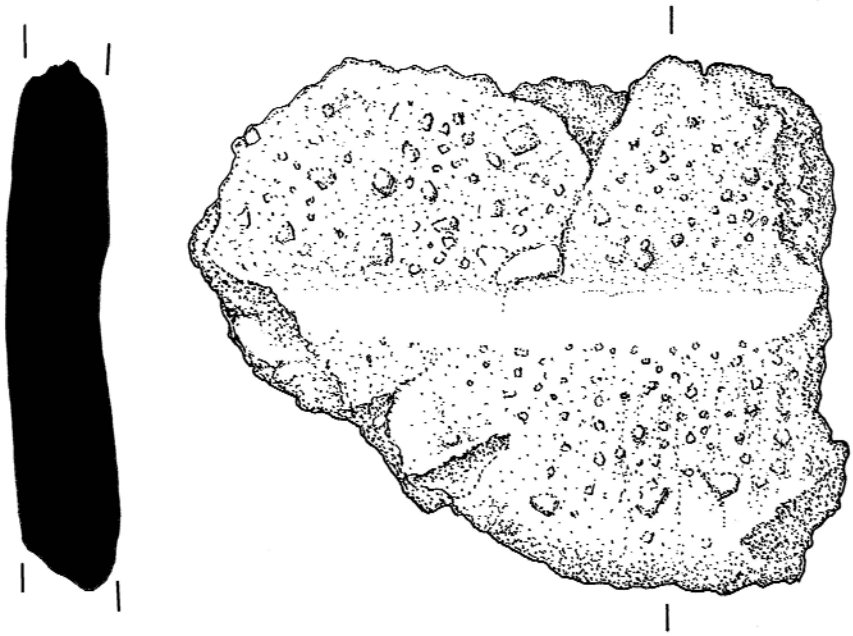
Title:	E3123 Grange 3 sections of early medieval ditches (sections 34-37)
Project:	M3 Clonee - North of Kells PPP Scheme Contract 4
Client:	Meath County Council

Scale:	1:20 @ A4
Date:	15/04/10
Produced by:	G Kearney
Job No:	J2203
Figure No:	17



IAC Irish Archaeological Consultancy	Title:	E3123 Grange 3 illustration of a selection of sherds of middle and middle to late Bronze Age domestic pottery (Vessels 1-9)(Alva MacGowan)	Scale: 1:1 @ A4
			Date: 21/09/10
	Project:	M3 Clonee - North of Kells PPP Scheme Contract 4	Produced by: G Kearney
	Client:	Meath County Council	Job No: J2203
			Figure No: 18

Group II 66:4+1



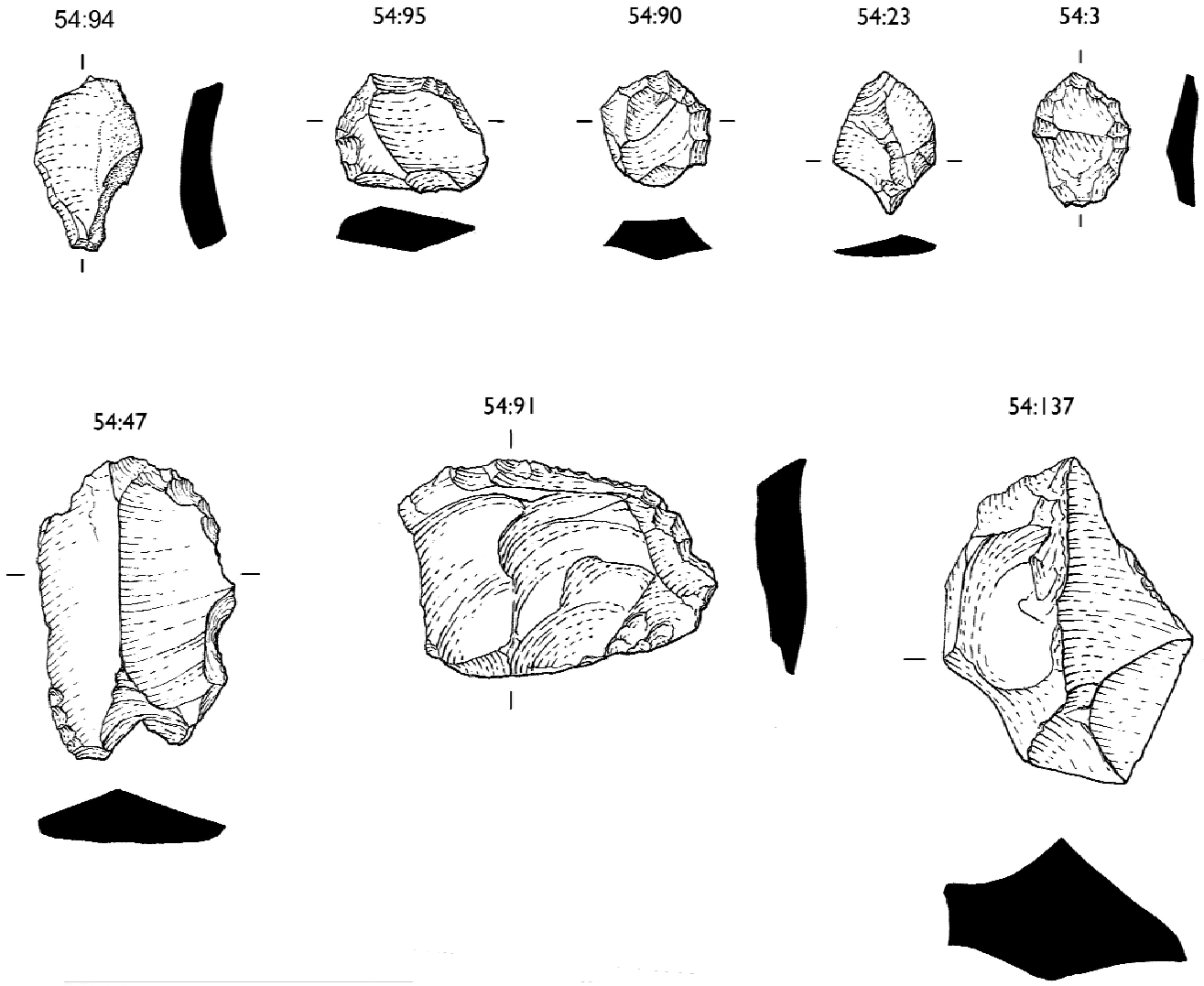
Group V
54:66

Group XII
19:10

Scale

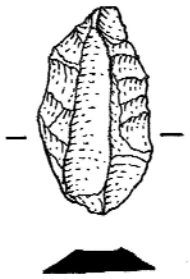
0mm 50mm

IAC Irish Archaeological Consultancy	Title:	E3123 Grange 3 illustration of a selection of sherds of middle and middle to late Bronze Age domestic pottery (Groups II, v and x11)(Alva MacGowan)	Scale: 1:1 @ A4
			Date: 21/09/10
	Project:	M3 Clonee - North of Kells PPP Scheme Contract 4	Produced by: G Kearney
	Client:	Meath County Council	Job No: J2203
			Figure No: 19

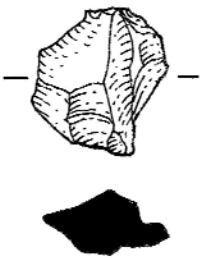


IAC Irish Archaeological Consultancy	Title: E3123 Grange 3 illustration of a selection of Bronze Age flints (Alva MacGowan)	Scale:	1:1 @ A4
		Date:	21/09/10
	Project: M3 Clonee - North of Kells PPP Scheme Contract 4	Produced by:	G Kearney
		Job No:	J2203
	Client: Meath County Council	Figure No:	20

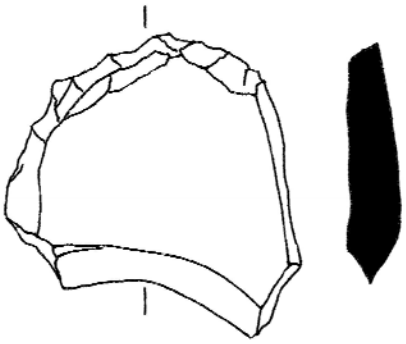
E3123:1:3



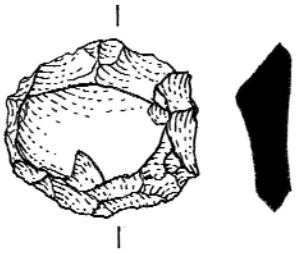
E3123:29:1



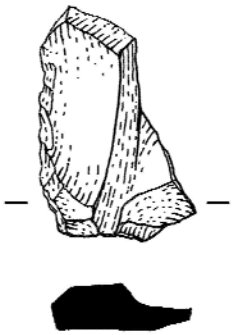
E3123:54:104(1)



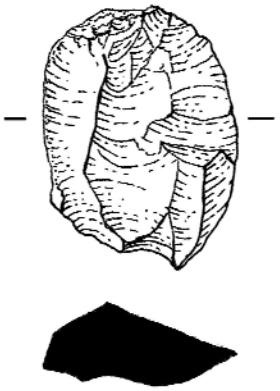
E3123:504:1



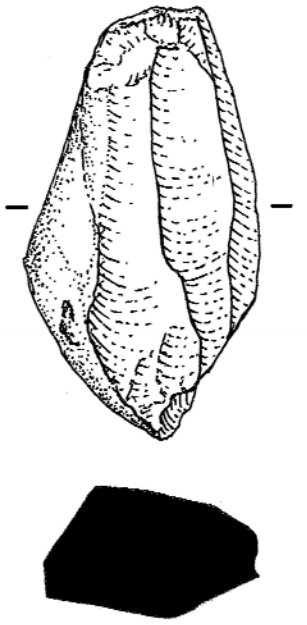
E3123:54:104(2)



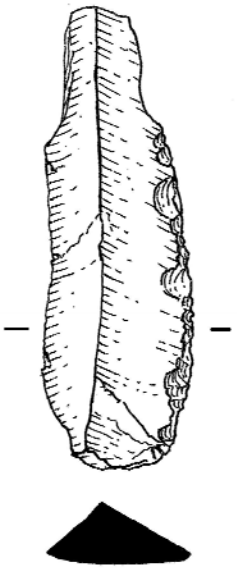
E3123:395:1



E3123:505:3



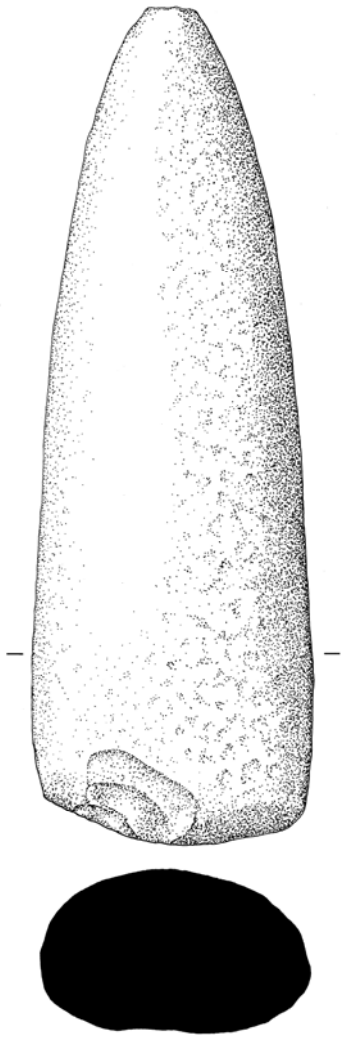
E3123:504:3



Scale

0mm 50mm

IAC Irish Archaeological Consultancy	Title:	E3123 Grange 3 illustration of a selection of Bronze Age flints (Alva MacGowan)	Scale: 1:1 @ A4
			Date: 21/09/10
	Project:	M3 Clonee - North of Kells PPP Scheme Contract 4	Produced by: G Kearney
			Job No: J2203
	Client:	Meath County Council	Figure No: 21



Scale

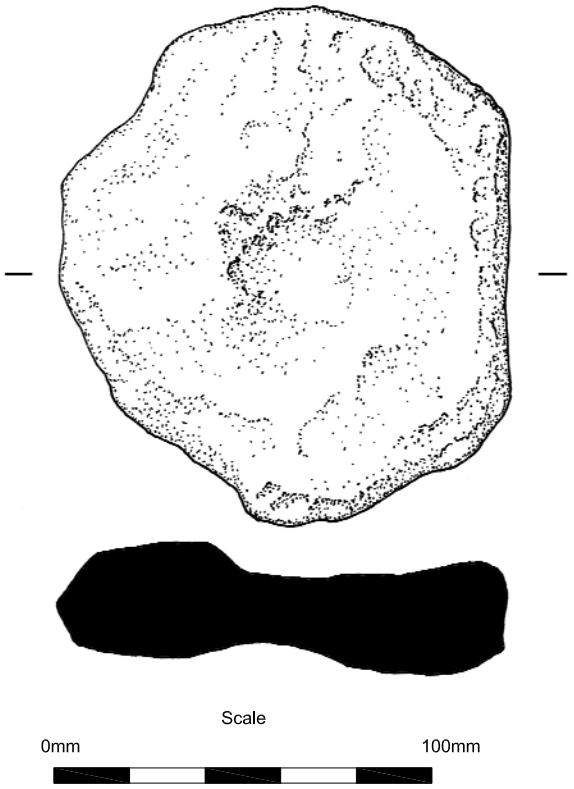
0mm 100mm

IAC Irish Archaeological Consultancy

Title:	E3123 Grange 3 illustration of a stone axehead E3123:4:1 (Alva MacGowan)
Project:	M3 Clonee - North of Kells PPP Scheme Contract 4
Client:	Meath County Council

Scale:	1:2 @ A4
Date:	21/09/10
Produced by:	G Kearney
Job No:	J2203
Figure No:	22

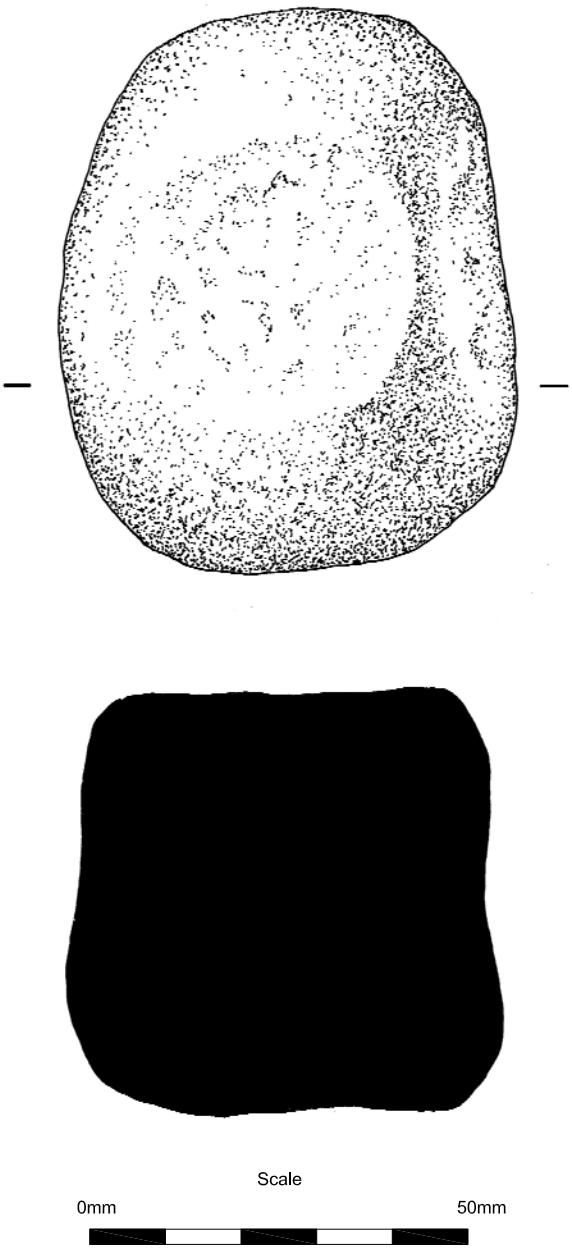
E3123:3:1



Scale

0mm 100mm

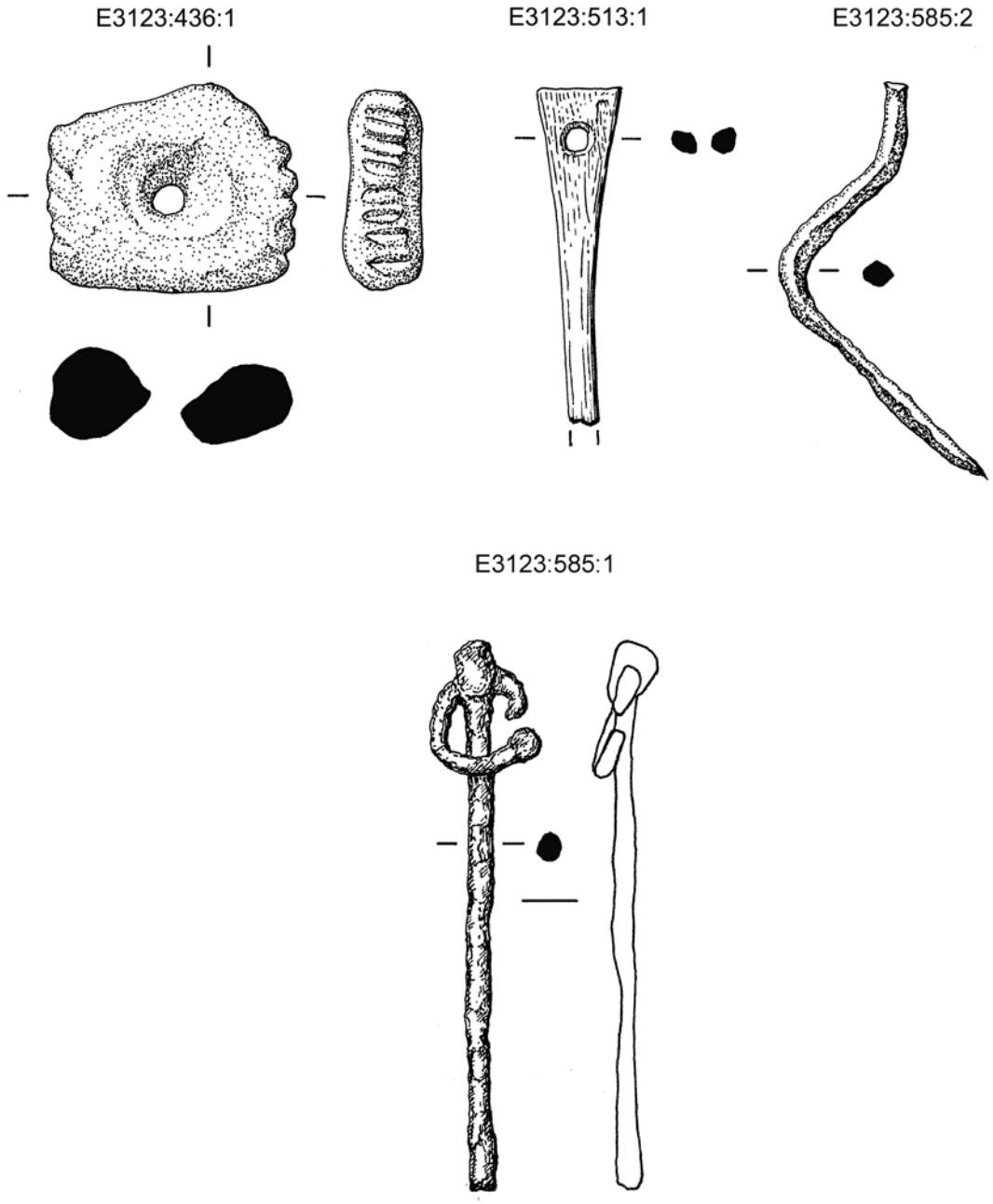
E3123:229:1



Scale

0mm 50mm

IAC Irish Archaeological Consultancy	Title:	E3123 Grange 3 illustration of a grinding stone E3123:3:1 and a hammerstone E3123:229:1 (Alva MacGowan)	Scale: 1:1 @ A4
			Date: 21/09/10
	Project:	M3 Clonee - North of Kells PPP Scheme Contract 4	Produced by: G Kearney
			Job No: J2203
	Client:	Meath County Council	Figure No: 23



IAC Irish Archaeological Consultancy	Title:	E3123 Grange 3 illustration of an early medieval iron ring-pin E3123:585:1, pin shank E3123:585:2, Bone needle fragment E3123:513:1 and possible spindle whorl E3123:229:1(Alva MacGowan)	Scale: 1:1 @ A4
			Date: 21/09/10
	Project:	M3 Clonee - North of Kells PPP Scheme Contract 4	Produced by: G Kearney
	Client:	Meath County Council	Job No: J2203
			Figure No: 24

Plate 1: E3123 Grange 3 Charcoal C492 in cut of a small figure-of-eight-shaped kiln C491, facing south.

Plate 2: E3123 Grange 3 Thick layer of burnt red clay C493, associated with small figure-of-eight-shaped kiln C491, facing south.

Plate 3: E3123 Grange 3 Overview of Structure 1, facing south.

Plate 4: E3123 Grange 3 Overview of Structure 1, facing south.

Plate 5: E3123 Grange 3 Large stones (including lithic artefacts) in perimeter pit C174, Structure 1, facing north.

Plate 6: E3123 Grange 3 Large stones (including lithic artefacts) in perimeter pit C174, Structure 1, facing north.

Plate 7: E3123 Grange 3 Pre-excavation of stone spread C250, associated with Structure 1, facing north.

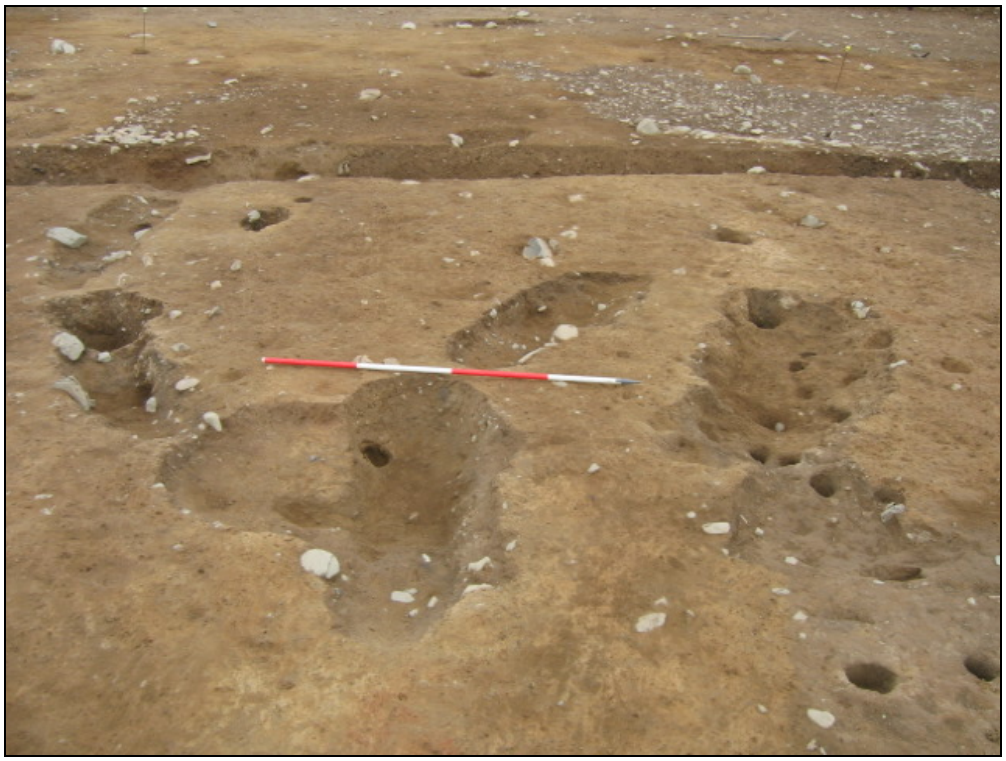


Plate 8: E3123 Grange 3 Structure 2, facing east.

Plate 9: E3123 Grange 3 Pit C256, along the south-western perimeter of Structure 2, facing east.

Plate 10: E3123 Grange 3 Stone spread C142 associated with Structure 2, and linear ditch C172, facing east.

Plate 11: E3123 Grange 3 Section of clay deposit C54 (overlying stone spread C142) located immediately south-east of Structure 2, facing north.

Plate 12: E3123 Grange 3 Stone layer C420, associated with Structure 2, facing north.

Plate 13: E3123 Grange 3 Ringditch, facing south.

Plate 14: E3123 Grange 3 Ringditch, facing SSW.

Plate 15: E3123 Grange 3 Ringditch, facing west.

Plate 16: E3123 Grange 3 Substantial posthole (or small pit) C515, in interior of ringditch.

Plate 17: E3123 Grange 3 Substantial posthole (or small pit) C552, in interior of ringditch.

Plate 18: E3123 Grange 3 Seam of compacted stone C517 running throughout the middle level of the ringditch.

Plate 19: E3123 Grange 3 Seam of compacted stone C505 running throughout the middle level of the ringditch, facing east.

Plate 20: E3123 Grange 3 Seam of compacted stone C505 running throughout the middle level of the ringditch, facing south.

Plate 21: E3123 Grange 3 Antler in the lowest/primary fill of the ringditch C507, from above.

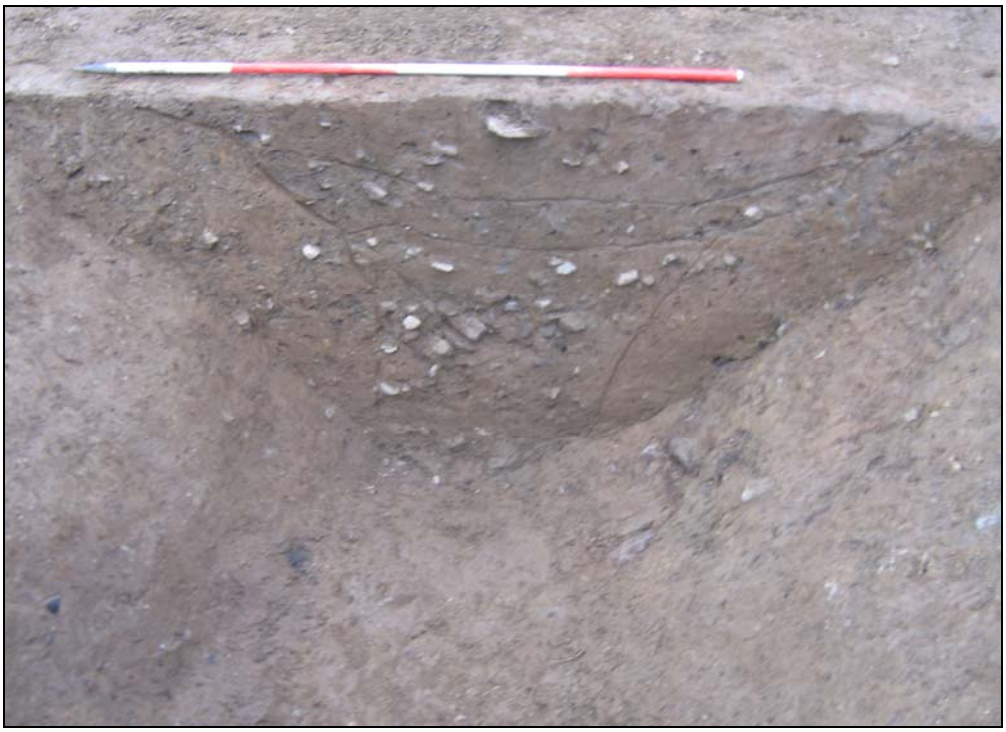


Plate 22: E3123 Grange 3 Section of ringditch, facing north-east.

Plate 23: E3123 Grange 3 Post-excavation of parallel ditches C400 and C327, facing NNE.

Plate 24: E3123 Grange 3 Post-excavation of parallel ditches C400 and C327, showing juncture of C397 and C327, facing SSW.

Plate 25: E3123 Grange 3 Pre-excavation of cremation pit C203, facing north.

Plate 26: E3123 Grange 3 Pre-excavation of cremation pit C290 and associated burnt pit C289, facing north.

Plate 27: E3123 Grange 3 Mid-excavation of cut C275 with hammerstone (E3123:229:1).

Plate 28: E3123 Grange 3 Pre-excavation circular pit furnace C291, facing west.

Plate 29: E3123 Grange 3 Mid-excavation circular pit furnace C291, facing west.

Plate 30: E3123 Grange 3 Mid-excavation oval pit furnace C114, cutting Structure 2, facing east.

Plate 31: E3123 Grange 3 Pre-excavation oblong pit furnace C497, facing east.

Plate 32: E3123 Grange 3 Mid-excavation oblong pit furnace C497, facing south.

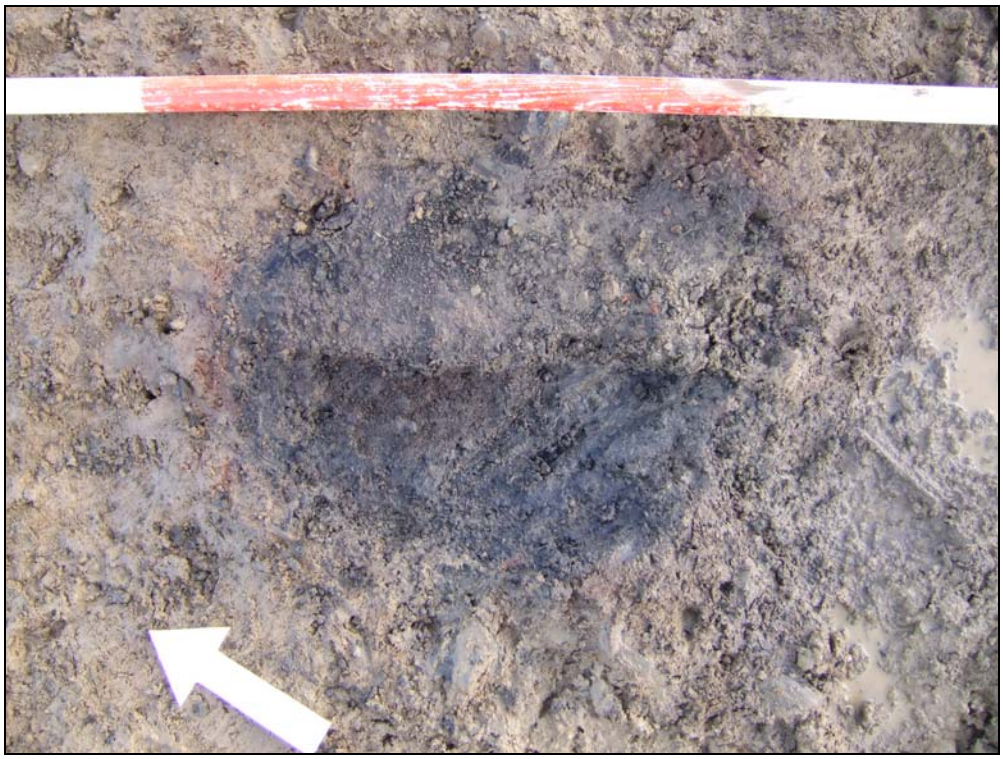


Plate 33: E3123 Grange 3 Pre-excavation of pit furnace C601, facing north-east.

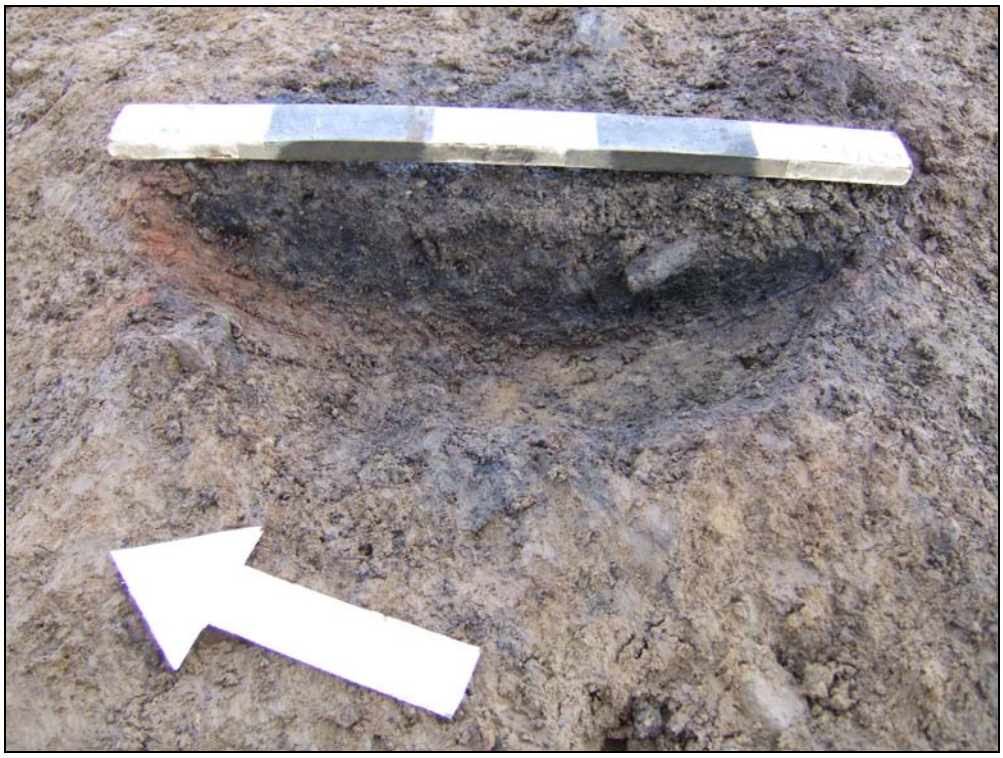


Plate 34: E3123 Grange 3 Mid-excavation of pit furnace C601, facing north-east.

Plate 35: E3123 Grange 3 Pit furnace C473 cutting through the stone spread C221, facing west.

Plate 36: E3123 Grange 3 Mid-excavation of figure-of-eight-shaped kiln C130, facing south.

Plate 37: E3123 Grange 3 Mid-excavation of figure-of-eight-shaped kiln C130, facing south.

Plate 38: E3123 Grange 3 Mid-excavation of figure-of-eight-shaped kiln C130, facing east.

Plate 39: E3123 Grange 3 Carbonised wood in lower fill of figure-of-eight-shaped kiln C130.

Plate 40: E3123 Grange 3 Carbonised wood in lower fill of figure-of-eight-shaped kiln C130.

Plate 41: E3123 Grange 3 Mid-excavation of figure-of-eight-shaped kiln C596, facing north-west.

Plate 42: E3123 Grange 3 Post-excavation of figure-of-eight-shaped kiln C273, facing west.

Plate 43: E3123 Grange 3 Post-excavation of figure-of-eight-shaped kiln C273 and parallel narrow linear ditch C327, facing north.

Plate 44: E3123 Grange 3 Linear ditch C528 / C540, cutting ringditch, visible in section, facing west.

Plate 45: E3123 Grange 3 Pre-excavation plan of stony fill C585 of linear ditch C584, facing west.

Plate 46: E3123 Grange 3 Aerial view of Structures 1 and 2, facing north-west (Hawkeye).

Plate 47: E3123 Grange 3 Aerial view of ringditch, mid excavation, facing east (Hawkeye).

Plate 48: E3123 Grange 3 Aerial view of ringditch mid-excavation, facing north-west (Hawkeye).

Plate 49: E3123 Grange 3 Aerial view of ringditch and early medieval ditches, post excavation, facing north-east (StudioLab).

Plate 50: E3123 Grange 3 Aerial view of kilns C130 and C273 post-excavation, facing north-east (Hawkeye).

Plate 51: E3123 Grange 3 Aerial view of site, post excavation, facing north (StudioLab).

Plate 52: E3123 Grange 3 Possible spindle whorl (E3123:436:1).

Plate 53: E3123 Grange 3 Possible spindle whorl (E3123:436:1).

Plate 54: E3123 Grange 3 Possible spindle whorl (E3123:436:1).

Plate 55: E3123 Grange 3 Early medieval ring pin with penannular scrolled ring. (E3123:585:1) and lower portion of pin shank (E3123:585:2).

Plate 56: E3123 Grange 3 Rimsherd of middle – late Bronze Age domestic vessel (E3123:461:1).

Plate 57: E3123 Grange 3 Rimsherd of middle – late Bronze Age domestic vessel (E3123:461:1).