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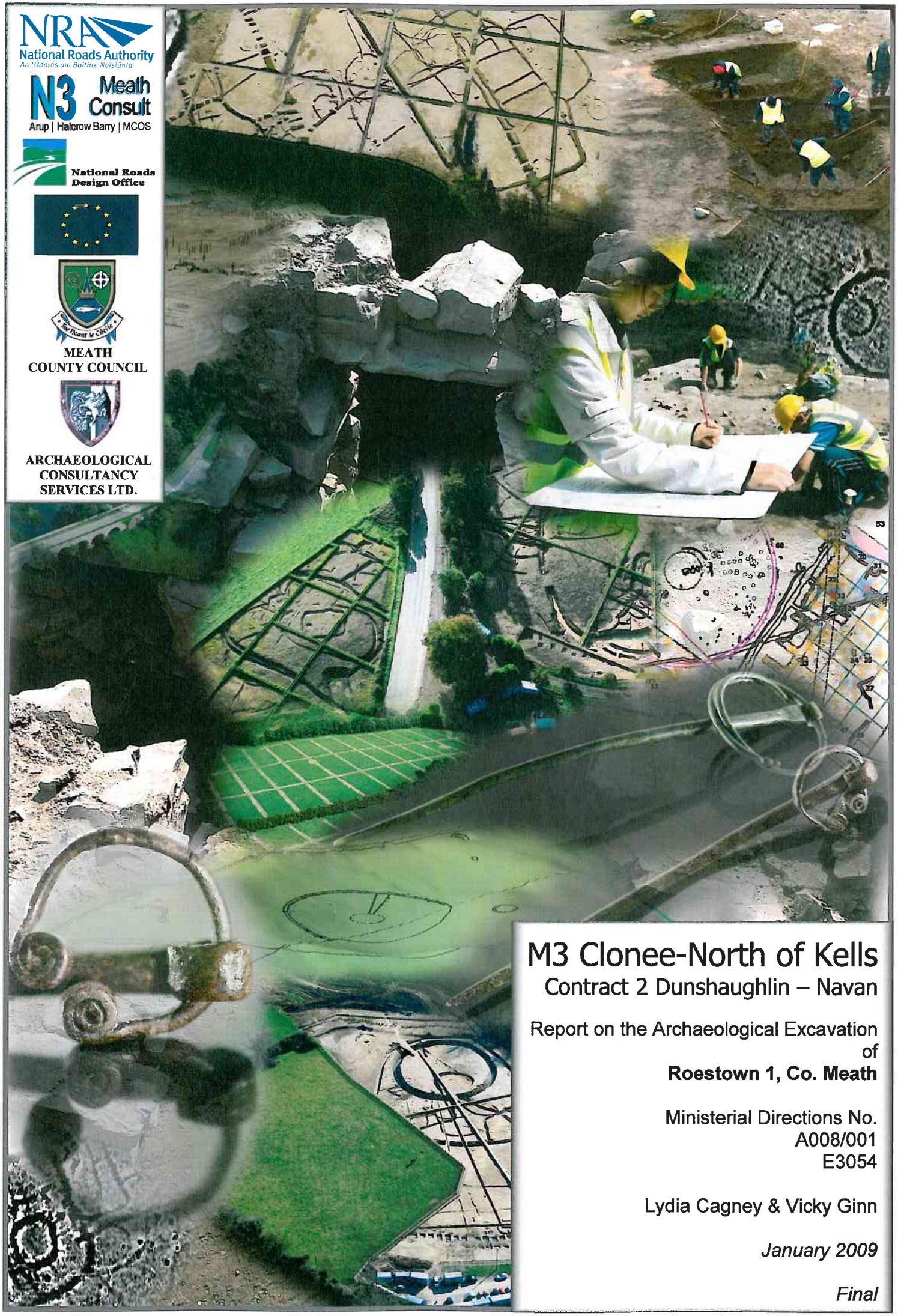

M3 Clonee-North of Kells

Contract 2 Dunshaughlin – Navan

Report on the Archaeological Excavation of

Roestown 1, Co. Meath

Ministerial Directions No.
A008/001
E3054

Lydia Cagney & Vicky Ginn

January 2009

Final

PROJECT DETAILS

Project	M3 Clonee–Kells Motorway
Site Name	Roestown 1
Ministerial Direction Number	A008/001
Registration Number	E3054
Senior Archaeological Consultant	Donald Murphy
Site Director	Lydia Cagney
Excavated	17 October – 18 November 2005
Client	Meath County Council, National Roads Design Office, Navan Enterprise Centre, Navan, County Meath
Townland	Roestown
Parish	Dunshaughlin
County	Meath
National Grid Reference	295903, 254143
Chainage	21350–21100
Height	105.03m OD
Report Type	Final
Report Status	Submitted
Date of Report	January 2009
Report by	Lydia Cagney & Vicky Ginn

ACKNOWLEDGEMENTS

This report has been prepared by Archaeological Consultancy Services Ltd on behalf of Meath County Council National Roads Design Office (NRDO) and the National Roads Authority (NRA). The excavation was carried out under Ministerial Direction Number issued by the Department of the Environment, Heritage and Local Government (DoEHLG) in consultation with the National Museum of Ireland (NMI).

Consulting Engineers - N3 Meath Consult

Engineer – Peter Thorne and Thomas Meagher

Resident Engineer – Conor Wilkinson

Meath County Council, National Roads Design Office

Senior Engineer – John McGrath

Project Archaeologist – Mary Deevy

Project Liaison Officer – Ambrose Clarke

National Monuments, Department of the Environment, Heritage and Local Government

Archaeologist – Martin Reid

Irish Antiquities Division, National Museum of Ireland

Keeper – Nessa O'Connor

NON-TECHNICAL SUMMARY

The site at Roestown 1 was excavated by Archaeological Consultancy Services Ltd (ACS) as part of the M3 Clonee–North of Kells Motorway Scheme on behalf of Meath County Council, NRDO and the NRA. A spread of burnt mound material (7m by 6.2m) was exposed and excavated. Two troughs and one large circular pit were exposed beneath the spread; two Early Bronze Age dates for the troughs were returned: 2340–2060 BC and 2460–2140 BC. A number of stakeholes were also present to the north of these features although they did not form any coherent plan. Numerous northeast–southwest plough marks were visible across the northern part of the site. These were cut into the burnt mound material and are therefore considered to post-date the main activity on site. A linear ditch that ran for 28m within the cutting was also exposed and produced a radiocarbon date of AD 1530–1950. A total of 35 lithic artefacts including a flint concave-based arrowhead, a flint convex scraper, a possible knapping stone, and a bone bead were recovered from the site.

CONTENTS

FIGURE LIST

PLATE LIST

1 INTRODUCTION

The site at Roestown 1 (Figures 1–6, Plate 1) was identified during advance testing carried out by Jonathan Dempsey during March 2004 under licence number 04E0415 (Dempsey 2004). Testing revealed the presence of a sub-rectangular trough (1.72m x 1.55m x 0.40m) filled with black, charcoal-rich peat and frequent heat-fractured and fire-reddened stones. Two pits were also filled with this burnt mound material. A field ditch was also noted. A Topsoil Assessment (Metal Detection and Field Walking) was conducted on the site in 2005 and produced no finds (Appendix 4). Full resolution of the site occurred in 2005 and revealed a spread of burnt mound material, two possible troughs (perhaps related to the features identified during testing) and a number of stakeholes which did not form any discernible pattern or alignments.

1.1 Development

Meath County Council and the National Roads Authority are constructing 49km of two-lane, dual-carriageway motorway between Clonee and Kells and 10km of single carriageway from Kells to Carnross, 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 and Kells to North of Kells (Contract 5). This section of the scheme (Contract 2) commences at Dunshaughlin (NGR 295633, 253070) and continues to Navan (NGR 287968 263697).

The archaeological components of the Environmental Impact Statement published in 2002 where 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 MGL 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). 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).

2 EXCAVATION

Excavation occurred between 17 October and 18 November 2005 under Ministerial Direction Number A008/001 issued to Meath County Council NRDO. The work was carried out by Lydia Cagney on behalf of ACS. The topsoil (F69: 0.33m depth) consisted of a moderately compact, dark-brown, peaty loam and was removed by machine equipped with a grading bucket under strict archaeological supervision. A loose, light-orange-yellow-brown, sandy clay with patches of grey, gravelly clay formed the subsoil (F70).

All archaeological features exposed were recorded and excavated by hand using the single context method. With the exception of F22, a collection of plough marks, each feature was assigned a context number. Where appropriate, samples were retrieved in an attempt to obtain evidence for the date and function of these features (Appendix 3). Unless otherwise stated, the features have been measured length-width-depth. All measurements are in metres. All finds were numbered according to the requirements of the National Museum of Ireland from 1 onwards consistent with licence and feature number. The artefacts from the site underwent an initial archaeological assessment and where deemed appropriate further specialist analysis was carried out on each artefact type. All radiocarbon dates are quoted in calibrated form, to two sigma.

2.1 Results

A total of 69 contexts of archaeological interest were identified within the excavation area. Only the principal archaeological features of Roestown 1 will be discussed within this report; full details of all these, and further, contexts are located in Appendix 1.

Burnt mound and associated features

A spread (F71: 7m x 6.2m) of loose, dark-brown-black material with small stones, frequent charcoal flecks (ash, alder, oak, Salicaceae and unidentified burnt bone fragments (Appendix 8) was associated with a second spread, F61 (1.80m width x 0.80m depth), which consisted of a firm, mid-blackish-grey, silty clay with moderate, possibly burnt stones; they are likely to represent the remains of a burnt mound (Figures 7–9).

Two possible troughs were revealed during the excavations. F14 (1.32m x 1.13m x 0.13m) was filled with black, silty clay with burnt stones and moderate charcoal flecks and inclusions (F13) (Figures 8 and 10; Plate 2). A radiocarbon date of 2340–22060 BC was returned for alder from F13 (Beta 241302, Appendix 5). Other charcoal species identified within F13 included ash, hazel, blackthorn and oak (Appendix 8).

The second trough was sub-circular in shape (F5: 1.59m x 1.30m x 0.22m) and contained two fills (F17 and F6) of mid-black, silty clay / clayey silt with occasional charcoal flecks (Figures 8 and 10; Plates 2 and 3). A flint flake and a core were discovered in the primary fill (A008/001:17:1–2); the flake was made from bi-polar percussion technique, typical of the Bronze Age (Nolan, Appendix 7). A radiocarbon date of 2460–2140 BC (Beta 241303, Appendix 5) was obtained from alder derived from this primary fill. Other charcoal species included ash, hazel and oak (Appendix 8). The dates from these troughs indicate that this area was bring used in the Early Bronze Age.

Located to the east of these two possible troughs was a possible well, F12 (1.74m diameter x 0.54m depth), which contained two fills (Figures 8 and 10; Plates 2 and 4). F18, the primary fill, consisted of a grey clay while F11, the secondary fill, was a mid-black, silty clay with stones and charcoal flecks.

Part of a shallow, curvilinear, north–south gully (F16: 1.75m x 0.55m x 0.10m; Figure 10), most likely used for drainage, was observed and contained F9, a mid-black, charcoal deposit with burnt stones, wood inclusions and flint debitage (A008/001:9:1) (Plate 2).

Stakeholes

Fifteen stakeholes, each containing only one fill, were located within the excavation area (F24–F29, F31–F40 and F43–F56; Figures 7–8). With the exceptions of F34 (0.16m x 0.11m x 0.07m) and F50 (0.17m x 0.08m x 0.13m), the stakeholes were all circular and ranged from 0.06–0.13m in diameter and 0.07–0.28m in depth. They each had a single fill; all fills consisted of a clayey silt or silty clay of various shades of grey and containing occasional stones. The fill of double stakehole F50 was charcoal-rich (F49). No overall pattern or alignments could be observed.

Other features

An end scraper with an unusual double bulb of percussion (A008/001:15:1), flint debitage and a flake (A008/001:19:1–3), a polished chalk bead from a flattish perforated disc (A008/001:19:4) (Nolan, Appendix 7), and 18 fragments of cattle (*Bos taurus*) teeth (Sloane, Appendix 6) came from F15, a deposit of silty clay with occasional grit (F19 is same as F15).

A group of northeast–southwest plough marks (F22: A: 3.00m x 0.12m x 0.05m; B: 1.40m x 0.12m x 0.05m; C: 5.50m x 0.08m x 0.05m; D: 5.50m x 0.06m x 0.05m; and E: 0.06m width x 0.05m depth; Figure 7) overlay many of the features on site. Unidentified burnt bone was discovered in these plough marks. A series of northwest–southeast plough marks crossed F22A–E; these were partially excavated.

A north–south ditch (F8) cut spread F61 (F8: 2.20m length x 0.70m depth; Figure 9) contained two stony fills (F30 and F60). Flint debitage (A008/001:30:2, A008/001:67:1 (from bi-polar percussion) and A008/001:66:1–2), a hollow scraper (A008/001:30:1) and a water-rolled rubbing / polishing stone (A008/001:66:3) (Nolan, Appendix 7) were discovered in both these fills: F30 (F67 is same as F30) and F60 (F66 is same as F60). A horse (*Equus caballus*) lateral metapodial (Sloane, Appendix 6) recovered from fill F30 was radiocarbon dated to AD 1530–1950 (Beta 214638, Appendix 5). F8 had a dark-brown humic fill (F7) from which four flint flakes with no retouch (A008/001:7:1; A008/001:7:4–5; A008/001:59:2), flint debitage (A008/001:59:3–5), two concave flint scrapers (A008/001:7:2; A008/001:59:1) (Nolan, Appendix 7), and a small wooden hook (possible fish hook or weaving hook) (A008/001:7:5) were recovered (F59 was the same as F7). These prehistoric artefacts were likely to have been disturbed from their original contexts and are considered residual finds within the ditch.

A northwest–southeast drain (F63: 0.37m length x 0.16m depth) contained two stony layers (F62 and F64) and three fragments of clay pipe (A008/001:57:1–3) (F57 is the same as F64).

2.2 Finds

In addition to the abovementioned finds, excavation of the topsoil revealed flint flakes (A008/001:69:1; A008/001:69:5–6; A008/001:69:8–9), flint debitage (A008/001:69:7), a flint scraper made from a bi-polar flake (A008/001:69:2), an unfinished flint scraper (A008/001:69:3), and a core (A008/001:69:4) (Nolan, Appendix 7). A hollow based flint arrowhead derived from pressure flaking (A008/001:4:1) and a sherd of flint debitage (A008/001:4:2) (ibid.) were located in re-deposited topsoil. A fragment of a bone bead (A008/001:19:4) was recovered from F19 (see Plates 5–9 for select flint and bone artefacts). A possible pounder was recovered from F66 (Appendix 9).

3 DISCUSSION

3.1 Form and function

Two spreads of disturbed burnt mound material (heat-shattered stone and charcoal flecks in a brown-black silty clay matrix) were removed to reveal one trough (F14) containing burnt

stone and charcoal inclusions. The spreads partially covered a second feature, sub-circular F5, which contained similar material and flint debitage but no stones; it is perhaps more likely to represent an associated pit filled with debris than a second trough. These features form the extant remains of a burnt mound site. The spreads and mounds of this heat-shattered stone and charcoal-rich material accumulated as the waste material from the troughs was deposited around the periphery of the area in use. The stone would have been heated in the trough in order to generate steam and produce hot water (and heat-shattered stones as a by-product). The stakeholes located in this area may have provided support for a wooden frame-type apparatus needed during the production process. The discussion regarding the application of this hot-stone technology varies and traditionally centred upon cooking (O'Kelly 1954) but has been challenged by other interpretations including, most recently, beer brewing (Quinn & Moore 2007) as well as bathing (Barfield & Hodder 1987), and cloth making (Lucas 1965; Jeffrey 1991).

Whatever the application of this hot-stone technology, a convenient water source would have been crucial. To the east of Roestown 1 was an area of reclaimed marsh known as Redbog; it is likely that prior to the reclamation of this locale it was often, perhaps seasonally, waterlogged. A possible shallow well, F12, with a clay, watertight base (F11) was located just beyond the extent of the spreads, close to F5 and approximately 5m from trough F14 and could have held the water required for heating.

Burnt mound sites are one of the most prolific monuments in Ireland (the last inventory in 1997 identified 7000 known examples (Power 1997)) and their distribution on the M3 Scheme was typical of this pattern with approximately 40 such sites being identified including Cooksland 2 (A008/005) less than 1km to the south and Berrilstown 2 (A008/010) less than 2km to the north. Cooksland 2 is slightly later in date than Roestown 1 but the site at Berrilstown 2 has a similar Early Bronze Age date and was possibly used by the same group.

The evidence for core reduction and the knapping by-products (debitage, unretouched flakes, etc.) indicates that flint artefacts were being manufactured on site (Nolan, Appendix 7). This activity is atypical of burnt mound sites (ibid.) and could suggest either the expedient use of time spent waiting for various burnt mound related activities to take place / complete or that there was a direct associated between the burnt mound features and the lithic production. The relationship between some of the lithics and the burnt mound features is conclusive and 'reflects a wider range of domestic activities than the sporadic boiling sessions that would have been expected to occur on this site' (ibid.). The closest contemporary assemblage was that found at Roestown 2 (A008/002; O'Hara 2008a) less than 300m south-west, which must

be considered in relation to the finds from this site. At Roestown 2 an assemblage included Early Mesolithic, Late Mesolithic, Neolithic and Bronze Age diagnostic elements. Artefacts dated to the Late Neolithic/Early Bronze Age included hollow-based arrowheads, a plano-convex knife, hollow and concave scrapers, micro disc scrapers, retouched bipolar blades and flakes and the scalar and bipolar cores (Sternke 2008).

3.2 Date and sequence

The burnt mound at Roestown 1 can be dated to the Late Neolithic–Early Bronze Age transition period. Burnt mounds have been used from the Neolithic (e.g. Clowanstown 1, A008/011; Mossop 2008) to the medieval period (Walsh 1990) with the majority featuring in the Bronze Age (Brindley & Lanting 1990, 55–6). The lithic assemblage indicates that the majority of activity at Roestown 1 was prehistoric. Some of the flakes were produced from point and facetted platforms, and the arrowhead (A008/001:4:1) derived from pressure flaking, along with the scrapers (most notably the hollow based scraper A008/001:30:1), attest to a Neolithic presence in the area (Nolan, Appendix 7). However, the use of bi-polar percussion, a typically Bronze Age form of knapping, was also noted on some of the flakes and on scraper A008/001:69:02. Although some of these lithics are from disturbed contexts (e.g. the topsoil and ditch F8) Nolan is confident that the assemblage represents either two phases of use or one phase of use dating to the late Neolithic / Early Bronze Age. Such an early date for the use of a burnt mound site is not improbable– the securely dated Neolithic burnt mound activity at abovementioned Clowanstown 1 (A008/011) is located only 3km directly north of Roestown 1 (Mossop 2008). Indeed, the return of two further radiocarbon dates indicates that this site was used in the Early Bronze Age and indeed, possibly as early as the late Neolithic (2340–2060 BC, Beta 241302; 2460–2140 BC, Beta 241303).

Context	Material	Species id/ weight	Beta Analytic Code	Oxcal Calibrated Date	Conventional Date (BP)
F13 fill of trough	Charcoal	Alder (180mg)	241302	2402–2045 BC	3790±40
F17 fill of trough	Charcoal	Alder (195mg)	241303	2460–2147 BC	3830±40
F65 field drain	Bone collagen	Horse lateral metapodial (16g)	214638	AD 1520–1955	240±40

Table 1: Radiocarbon dates from Roestown 1 (see Appendix 5)

The plough marks are later in sequence and relate to post-medieval agricultural activity, possibly to ditch F8 (radiocarbon dated to AD 1530–1950; see Table 1 below and Appendix 5).

Site	Directions Number	Beta Analytic Code	Uncalibrated Conventional Date (BP)	Oxcal Calibrated Date	Chronological period
Blundelstown 1	A008/022	247038	4030 +/-40	2836-2467 BC	L NEO
Blundelstown 2	A008/023	247045	4010 +/-40	2832-2462 BC	L NEO
Boyerstown 8	A023/018	241322	4050 +/- 40	2851-2472 BC	L NEO
Boyerstown 8	A023/018	241323	4010 +/- 40	2832-2462 BC	L NEO
Castletown Tara 1	A008/025	247051	4220 +/-40	2909-2674 BC	L NEO
Castletown Tara 2	A008/026	247052	4220 +/-40	2909-2674 BC	L NEO
Chapelbride 5	A030/006	247140	3860 +/-40	2465-2206 BC	L NEO/ EBA
Clowanstown 2	A008/012	241288	3960 +/- 40	2576-2341 BC	L NEO/ EBA
Clowanstown 2	A008/012	241289	3770+/- 60	2457-2026 BC	L NEO/ EBA
Clowanstown 2	A008/012	241290	3760 +/- 60	2457-2026 BC	L NEO/ EBA
Drumbaragh 1	A030/013	247170	4060 +/-40	2852-2476 BC	L NEO
Drumbaragh 1	A030/013	247171	4120 +/- 40	2872-2577 BC	L NEO
Drumbaragh 1	A030/013	247173	4140 +/-40	2876-2585 BC	L NEO
Drumbaragh 1	A030/013	247174	4150 +/-40	2880-2620 BC	L NEO
Drumbaragh 1	A030/013	247175	4070 +/-40	2859-2486 BC	L NEO
Drumbaragh 1	A030/013	247176	4060 +/-40	2852-2476 BC	L NEO
Drumbaragh 1	A030/013	247177	4100 +/-40	2871-2498 BC	L NEO
Dunboyne 3	A017/013	241273	3960 +/- 40	2576-2341 BC	L NEO/ EBA
Dunboyne 4	A017/002	231934	3860 +/- 40	2465-2206 BC	L NEO/ EBA
Gainstown 1	A023/009	247096	4020 +/-40	2833-2466 BC	L NEO
Gainstown 2	A023/010	247098	3930 +/-40	2566-2294 BC	L NEO/ EBA
Gainstown 2	A023/010	247099	3920+/-40	2562-2290 BC	L NEO/ EBA
Kennastown 1	A023/001	247080	3870 +/-40	2468-2208 BC	L NEO/ EBA
Kennastown 1	A023/001	247082	3790 +/-40	2402-2045 BC	L NEO/ EBA
Kennastown 1	A023/001	247083	4060 +/-40	2852-2476 BC	L NEO
Kennastown 3	A023/003	247085	3890 +/-40	2474-2210 BC	L NEO/ EBA
Pace 1	A017/009	231942	3840 +/- 40	2461-2155 BC	L NEO/ EBA
Roestown 1	**A008/001**	**241302**	**3790 +/- 40**	**2402-2045 BC**	**L NEO/ EBA**
Roestown 1	**A008/001**	**241303**	**3830 +/- 40**	**2460-2147 BC**	**L NEO/ EBA**
Skreen 2	A008/019	247032	4180 +/-40	2891-2631 BC	L NEO
Townparks 2	A023/022	237331	3800 +/- 40	2456-2059 BC	L NEO/ EBA
Townparks 2	A023/022	237332	3790 +/- 40	2402-2045 BC	L NEO/ EBA
Williamstown/Bawn 1	A023/005	247086	3860 +/-40	2465-2206 BC	L NEO/ EBA
Williamstown/Bawn 2	A023/006	247089	3790+/-40	2402-2045 BC	L NEO/ EBA

Table 2: Late Neolithic/ Early Bronze Age transition activity along M3 (Contracts 1–3, 5)

The burnt mound sites here and in the locale, Cooksland 2 (A008/005) and Berrilstown 2 (A008/010), are likely to have been associated with nearby prehistoric settlement such as was attested at an adjacent site Roestown 2 (A008/002), where a large lithic assemblage complemented the finds from this site. A similar hollow-based arrowhead to that from Roestown 1 was uncovered at Roestown 2 (O'Hara 2008a), and a second at Collierstown 1

(A008/015; O'Hara 2008b). These are identical to an example from Co. Antrim, in Kanestown bog, where part of the wooden shaft was preserved; the shaft had been attached by sticky adhesive and animal sinew (Waddell 1998).

Table 2 highlights the high density of activity in the period that covered the transition from the Late Neolithic to the Early Bronze Age. Of course the adoption of metalworking from approximately 2400 BC did not result in the instantaneous abandonment of flint knapping and chipped stone technology and was unlikely to affect the daily lives of the communities at Roestown and elsewhere. The closest, stratigraphically dated, contemporary activity to Roestown 1 can be found a few kilometres to the north at Blundelstown, Clowanstown and Castletown Tara townlands. Each of these sites was close to a water source or in marshy areas, and had evidence for burnt mound activity. The emerging pattern from the M3 excavations through this part of county Meath indicates significant exploitation of the available wetland resources in this period.

Surrounding Environment

If the wood was collected locally, the results of the charcoal analysis (Appendix 8) suggest that alder was abundant in the local landscape. This would have grown in wetland areas, either forming alder carr or as individual stands growing along riverbanks and other areas of damp ground. Ash was also abundant, and while this species also grows well on moist soils, it is generally associated with drier habitats than alder (Orme & Coles 1985). It is a light-demanding species, and together with oak, is likely to have formed the canopy layer of mixed deciduous woodland. Hazel and blackthorn would have grown as shrubs/small trees in the understorey, or at the woodland margins. A single fragment of elm in context (17), indicates that this species was an additional minor woodland component. Willow and poplar charcoal cannot be differentiated with certainty, and therefore the 2 fragments of Salicaceae charcoal in context (71), may derive from willows growing with the alder in wetland areas near the site, or poplar trees which would have thrived on rich, alluvial soils.

The charcoal, particularly from the trough fills, is likely to represent fuel used for activities associated with the burnt mound. The predominance of alder and ash, with frequent occurrences of oak and hazel, is in line with the results of a recent study of charcoal from Bronze Age sites in central and western Ireland, which has provided evidence that alder, ash, hazel and oak were the main trees selected for fuel on burnt mound sites (Grogan *et al* 2007). It has been suggested that this choice of fuel reflects the marginal situation of most burnt mounds, between wet and dryland areas (*ibid*.). Other burnt mound sites along the M3

corridor have revealed similar charcoal assemblages to that of Roestown 1, for example, ash and alder were also the main charcoal taxa identified at Raynestown 2.

4 CONCLUSIONS

Roestown 1 (A008/001) was excavated (17 October 2005 – 18 November 2005) by Lydia Cagney (ACS) as part of the M3 Clonee–North of Kells Motorway Scheme on behalf of Meath County Council, NRDO, and the NRA. The site represented the remains of an Early Bronze Age burnt mound with associated pits and troughs. An enigmatic lithic assemblage demonstrating atypical onsite artefact manufacture was associated; both Neolithic and Bronze Age knapping techniques were represented. Analysis of the assemblage indicates that two phases of prehistoric activity were represented by Roestown 1 and the two prehistoric dates for the site emphasise this possibility. This places this activity at Roestown 1 towards the early part of the spectrum of known Irish burnt mounds. A post-medieval to modern date from a north–south ditch was also obtained.

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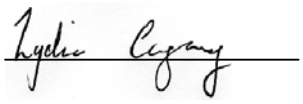


Lydia Cagney

January 2009

APPENDIX 1 *Context Details*

Roestown 1: A008/001											
No	**Type**	**Fill of/ Filled with**	**Strat above**	**Strat below**	**Description**	**Interpretation**	**Group**	**Artefacts**	**Animal bone**	**Cremated bone**	**Samples**
1-3					Used previously during Topsoil Assessment						
4	Deposit	N/A	06	N/A	Loose, mid-dark-brown, silty clay-loam with occasional small stones. 6.4m east-west	Re-deposited topsoil		Flint			
5	Cut	6, 17	70	17	Sub-circular, north-south cut (1.59m x 1.30m x 0.22m) with a sharp break of slope at the top, vertical sides and a sharp break of slope leading to a flat base. Disturbed by agricultural activity	Possible trough					
6	Fill	5	17	22	Loose, mid-brownish-black, clayey silt with occasional charcoal flecks and small stones. 1.59m x 1.30m x 0.07m	Fill of possible trough 5					
7	Fill	8	60	58	Soft, slightly-spongy, dark-brown, humic material. 1.90m width x 0.25m depth. Same as 59	Fill of ditch 8		Flint, wood			
8	Cut	30, 60	61	30	Linear, north-south cut (2.20m width x 0.70m depth) with a gradual break of slope at the top, moderately sloping sides and a sharp break of slope leading to a flat and wide base	Ditch					
9	Fill	16	16	22	Loosely compact, mid-black, charcoal deposit with burnt stones and wood inclusions. 1.75m x 0.55m x 0.10m	Fill of possible gully 16		Flint			#13 charcoal
10	Deposit	N/A	N/A	N/A	Loose, clayey silt with frequent small stones	Topsoil located on the east of 71					
11	Fill	12	18	69	Loose, mid-black, silty clay with small stones and charcoal flecks. 1.23m x 1.16m x 0.46m	Fill of possible well 12					#6, #7 soil
12	Cut	11, 18	70	18	Circular cut (1.74m diameter x 0.54m depth) with a sharp break of slope (gradual in north), vertical sides (concave in north) and a gradual break of slope leading to a concave base	Possible well/ water feature					

13	Fill	14	14	4, 22	Loosely compact, black, silty clay with burnt stones and moderate charcoal flecks and chunks. 1.32m x 1.13m x 0.13m	Fill of possible trough 14					
14	Cut	13	70	13	Sub-circular, east-west cut (1.32m x 1.13m x 0.13m) with a sharp break of slope, steep sides and a gradual break of slope leading to a flat base	Possible trough					
15	Deposit	N/A	N/A	5	Compact, grey, silty clay with occasional grit and stones	Re-deposited material		Flint			
16	Cut	9	70	9	Curvilinear, north-south cut (1.75m x 0.55m x 0.10m) with rounded corners, a gradual break of slope at the top, concave sides and an imperceptible break of slope leading to uneven base. Cut by plough	Shallow gully, used for drainage					
17	Fill	5	5	6	Loosely compact, mid-black, silty clay with stones and occasional charcoal flecks. 1.59m x 1.30m x 0.15m	Fill of possible trough 5		Flint			
18	Fill	12	12	11	Grey clay	Primary fill of cut 12					#12 soil
19	Same as 15							Flint, bone bead	Yes		
20	Same as 42										
21	Discarded										
22	Cut	N/A	13, 6, 9, 71	69	Linear, northeast-southwest and northwest-southeast cuts (A: 3.00m x 0.12m x 0.05m; B: 1.40m x 0.12m x 0.05m; C: 5.50m x 0.08m x 0.05m; D: 5.50m x 0.06m x 0.05m; E: 0.06m width x 0.05m depth) all with an imperceptible break of slope at the top, gently sloping sides and an imperceptible break of slope leading to a concave base	Series of plough marks				Yes	#1 crem bone
23	NON- ARCHAEOLOGICAL					Stone socket					
24	Cut	27	70	27	Circular cut (0.11m diameter x 0.18m depth) with rounded corners, a sharp break of slope at the top, vertical sides and a sharp break of slope leading to a concave base	Stakehole	S1				

25	Cut	26	70	26	Circular cut (0.09m diameter x 0.15m depth) with rounded corners, a sharp break of slope at the top, vertical sides and a sharp break of slope leading to a west-inclined base	Stakehole	S1				
26	Fill	25	25	71, 69	Loosely compact, greyish-brown, clayey silt with occasional small stones. 0.09m x 0.15m	Fill of stakehole 25	S1				
27	Fill	24	24	71, 69	Loosely compact, mid-grey, clayey silt with occasional small stones. 0.11m x 0.18m	Fill of stakehole 24	S1				
28	Cut	29	70	29	Circular cut (0.13m diameter x 0.16m depth) with a sharp break of slope at the top, vertical sides and an imperceptible break of slope leading to a tapered, pointed base. Cut by plough	Stakehole	S1				
29	Fill	28	28	71, 69	Firm, greyish-brown, clayey silt with occasional small stones. 0.13m x 0.16m	Fill of stakehole 28	S1				
30	Fill	8	8	60	Soft, mid-brownish-grey, silty clay with occasional large, sub-rounded and sub-angular stones. 1.80m width x 0.25m depth. Same as 65, 67	Primary fill of ditch 8		Flint			
31	Fill	32	32	71, 69	Loosely compact, mid-greyish, clayey silt with occasional small stones. 0.09m x 0.14m	Fill of stakehole 32	S1				
32	Cut	31	70	31	Circular cut (0.09m diameter x 0.14m depth) with a sharp break of slope at the top, vertical sides and a sharp break of slope leading to tapered, pointed base	Stakehole	S1				
33	Fill	34	34	69	Hard, greyish-brown, silty clay with occasional charcoal flecks. 0.16m x 0.11m x 0.07m	Fill of stakehole 34					
34	Cut	33	70	33	Oval cut (0.16m x 0.11m x 0.07m) with a sharp break of slope at the top, steep sides and a gradual break of slope leading to a concave base. Cut by plough	Possible stakehole					
35	Fill	36	36	69	Firm, brownish-grey, silty clay with occasional small stones. 0.13m x 0.28m	Fill of stakehole 36	S1				#17 soil
36	Cut	35	70	35	Circular cut (0.13m diameter x 0.28m depth) with a sharp break of slope at the top, steep sides and a sharp break of slope leading to a concave base	Stakehole	S1				

37	Fill	38	38	71, 69	Loosely compact, dark-greyish-brown, silty clay with occasional small stones. 0.09m diameter x 0.12m depth	Fill of stakehole 38	S1				
38	Cut	37	70	37	Circular cut (0.09m diameter x 0.12m depth) with a sharp break of slope at the top, vertical sides and a sharp break of slope leading to a concave base	Possible stakehole	S1				
39	Fill	40	40	69	Fairly compact, mid-grey, silty clay with occasional small stones. 0.09m x 0.10m	Fill of stakehole 40	S1				#19 soil
40	Cut	39	70	39	Circular cut (0.09m diameter x 0.10m depth) with a sharp break of slope at the top, irregular sides and an imperceptible break of slope leading to a concave base	Stakehole	S1				
41	Cut	42	70	42	Sub-oval cut (0.46m east-west x 0.44m north-south x 0.14m depth) with rounded corners, a sharp break of slope at the top, vertical sides (gently sloping in west) and a sharp break of slope leading to an uneven base	Possible stone socket					
42	Fill	41	41	71, 69	Loosely compact, mid-black, charcoal clay with small stones and occasional burnt stones. 0.46m east-west x 0.44m north-south × 0.14m	Fill of cut 41					#22 soil
43	Fill	44	44	71, 69	Loosely compact, dark-greyish-brown, silty clay with occasional small stones. 0.06m x 0.06m	Fill of stakehole 44	S1				
44	Cut	43	70	43	Circular cut (0.06m diameter x 0.06m depth) with a sharp break of slope at the top, gently sloping sides and a sharp break of slope leading to a pointed base	Possible stakehole	S1				
45	Fill	46	46	71, 69	Fairly compact, mid-grey, silty clay with occasional small stones. 0.11m x 0.07m	Fill of stakehole 46	S1				
46	Cut	45	70	45	Oval cut (0.11m x 0.07m) with a gradual break of slope at the top and steep sides leading to a concave base	Possible stakehole	S1				
47	Fill	48	48	71, 69	Firm, mid-grey, silty clay with moderate small stones. 0.10m x 0.07m	Fill of stakehole 48	S1				#21 soil

48	Cut	47	70	47	Circular cut (0.10m diameter x 0.07m) with an imperceptible break of slope at the top, steep sides and an imperceptible break of slope leading to a southwest-inclined, concave base	Possible stakehole	S1				
49	Fill	50	50	71, 69	Soft, black, clayey silt with occasional charcoal flecks and burnt stones. 0.17m x 0.08m x 0.13m	Fill of double stakehole 50	S1				
50	Cut	49	70	49	Irregular cut (0.17m x 0.08m x 0.13m) with a sharp break of slope at the top, vertical sides0 and a gradual break of slope leading to a concave base. Cut by plough	Double stakehole	S1				
51	Fill	52	52	71, 69	Firm, mid-grey, silty clay with occasional small stones. 0.07m x 0.07m	Fill of stakehole 52	S1				
52	Cut	51	70	01	Circular cut (0.07m diameter x 0.07m depth) with a sharp break of slope at the top, steep sides and a sharp break of slope leading to a concave base	Possible stakehole	S1				
53	Fill	54	54	71, 69	Fairly compact, mid-grey, clayey silt with occasional small stones. 0.07m x 0.09m	Fill of stakehole 54	S1				
54	Cut	53	70	53	Circular cut (0.07m diameter x 0.09m depth) with a sharp break of slope at the top, steep sides and a gradual break of slope leading to a concave base	Possible stakehole	S1				
55	Fill	56	56	69	Firm, dark-grey, clayey silt with occasional small stones. 0.09m diameter x 0.15m depth	Fill of stakehole 56	S1				
56	Cut	55	70	55	Circular cut (0.09m diameter x 0.15m depth) with a sharp break of slope at the top, vertical sides and a gradual break of slope leading to a concave base	Possible stakehole	S1				
57	Same as 64							Clay pipe			
58	Deposit	N/A	7	69	Firm, mid-yellowish-brown, clayey silt with frequent wood inclusions. 1.30m width x 0.10m depth	Redeposited material associated with agricultural clearance					
59	Same as 7							Flint			

60	Fill	8	30	7	Hard, mid-yellowish-brown, sandy silt with frequent small stones and occasional medium sized stones. 1.60m width x 0.20m depth. Same as fill 66, 68	Second fill of ditch 8					
61	Deposit	N/A	N/A	8	Firm, mid-blackish-grey, silty clay with moderate stones (possibly burnt). 1.80m width x 0.80m depth	Possibly associated with burnt mound to the east					#25 soil
62	Fill	63	63	64	Soft, brownish-grey, silty peat with stones. 0.37m length x 0.16m depth. Cut by 8	Fill of drain 63					
63	Cut	62, 64	70	62	Lunar shaped (0.37m length x 0.16m depth) with a sharp break of slope at the top, vertical sides and a sharp break of slope leading to a flat base	Possible drain					
64	Fill	63	62	69	Soft, dark-brown, clayey silt with occasional stones. 5.88m length x 0.20m depth	Deposit sealed drain 63					
65	Same as 30								Yes		
66	Same as 60							Flint, stone			
67	Same as 30							Flint			
68	Same as 60										
69	Topsoil	N/A	70	N/A	Moderately compact, dark-brown peaty loam. 0.33m depth	Topsoil		Flint			
70	Subsoil	N/A	N/A	69	Compact at east and west parts of site. Loose, light-orange-yellow-brown, sandy clay with patches of grey gravelly clay	Subsoil					
71	Deposit	N/A	26, 27, 29, 31, 37, 42, 43, 45, 48, 49, 51, 53, 70	22, 69	Loose, dark-brown-black material with small stones and frequent charcoal flecks	Sub-oval spread of disturbed burnt mound				Yes	#1, #4 soil

APPENDIX 2 *Finds List*

Find number	Description
A008/001:4:1	Hollow based flint arrowhead (210.17E, 210.19N)
A008/001:4:2	Flint debitage, no retouch
A008/001:7:1	Flint flake, no retouch
A008/001:7:2	Concave flint scraper
A008/001:7:3	Flint flake, no retouch
A008/001:7:4	Flint flake, no retouch
A008/001:7:5	Small wooden hook, poss. fish hook/weaving hook – post-medieval to modern
A008/001:9:1	Flint debitage, no retouch
A008/001:15:1	End & side concave flint scraper
A008/001:17:1	Flint debitage, no retouch
A008/001:17:2	Flint core, no retouch
A008/001:19:1	Flint flake, no retouch (212.69E, 218.36N)
A008/001:19:2	Flint debitage/blade, no retouch (215.00E, 218.90N)
A008/001:19:3	Flint flake, no retouch (213.80E, 218.37N)
A008/001:19:4	Small fragment of Circular, concave bone bead (Plate 7). May be from a necklace. Bead has a diameter of 9mm. Central perforation has a diameter of 3mm. Bead may have been burnt as it has quite an oxidised appearance.
A008/001:30:1	Hollow & side flint scraper (201.80E, 221.70N)
A008/001:30:2	Flint debitage, no retouch (201.84E, 222.52N)
A008/001:57:1-3	3 Clay pipe bowl fragments
A008/001:59:1	Double concave flint scraper
A008/001:59:2	Flint flake, no retouch (199.55E, 212.12N)
A008/001:59:3	Flint debitage, no retouch (198.70E, 209.58N)
A008/001:59:4	Flint debitage, no retouch (199.09E, 208.66N)
A008/001:59:5	Flint debitage, no retouch (197.70E, 208.38N)
A008/001:66:1	Flint flake, no retouch (197.89E, 204.00N)
A008/001:66:2	Flint debitage, no retouch (197.06E, 204.40N)
A008/001:66:3	Possible pounder. Rounded water rolled pebble, with possible attrition marks (L 10.5mm, Wth 10mm) on one edge, which could also be of natural origin. Dimensions: L 60mm, Wth 50mm, Th 40.3mm (See Appendix 9)
A008/001:67:1	Flint flake, no retouch (197.10E, 202.90N)
A008/001:69:1	Flint flake, no retouch
A008/001:69:2	Convex flint scraper
A008/001:69:3	Unfinished concave scraper
A008/001:69:4	Possible flint core
A008/001:69:5	Flint flake with retouch
A008/001:69:6	Flint flake, no retouch (213.49E, 217.85N)
A008/001:69:7	Flint debitage, no retouch
A008/001:69:8	Flint flake, no retouch
A008/001:69:9	Flint flake, no retouch (208E, 205N)

APPENDIX 3 *Sample List*

Sample no	Context no	Results
1	22	2g cremated bone
1	71	10g cremated bone
2	71	<1g seeds
4	71	Nothing
6	11	Nothing
7	11	7g charcoal
12	18	Nothing
13	9	4g charcoal
17	35	Nothing
19	39	Nothing
21	47	Nothing
22	42	Nothing
25	61	Burnt stones

APPENDIX 4 *Topsoil Assessment: Maria Lear & Stuart Rathbone*

PROJECT DETAILS

Project	Metal Detection: M3 Clonee to North of Kells, Contract 2
Archaeologists	Maria Lear & Stuart Rathbone
Project Start	13 June 2005
Report Date	June 2005

List of Figures

1 INTRODUCTION

The proposals for archaeological resolution included an assessment of the potential for finds retrieval from topsoil at archaeological sites. This assessment was achieved by a program of metal detecting at ploughed and pasture fields. As per the *Method Statement for Topsoil Assessment Including Metal Detection*, metal detection of the topsoil began within Contract 2 on June 13, 2005. This report details the results of the two phases of metal detection, the field walking survey and the test pits of Roestown 1.

2 ARCHAEOLOGICAL ASSESSMENT

2.1 Metal Detection Methodology

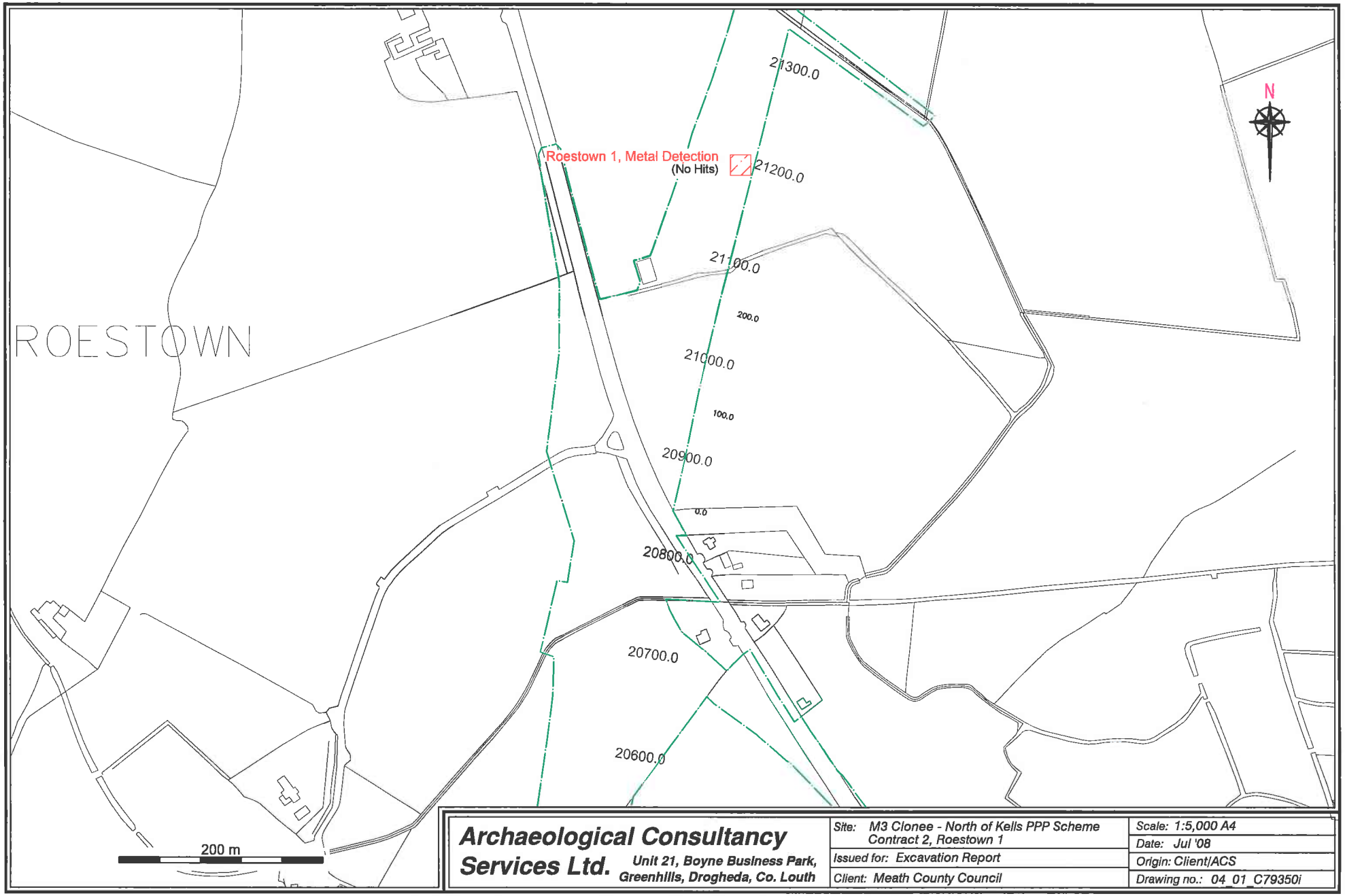
1. A grid was established as follows – a baseline was marked on one side of each site along the long axis. Perpendicular offset lines were marked at 10m intervals along the baseline to form stints and these were subdivided along the offset line to form parallel transects 2m wide.
2. The metal detection commenced at one end of the baseline and provided for a 2m ‘sweep’ along each transect, thus providing for 100% coverage of topsoil deposits at each site.
3. The location of all metal ‘hits’ was marked on the ground with tags.
4. All metal ‘hits’ in the sod or topsoil were tested by careful hand excavation of the sod/topsoil. Stratified artifacts were left *in situ*.
5. All artifacts were bagged and numbered citing DOE record number, context and individual number. Their location was also recorded.

2.2 Field Walking Survey – Methodology

1. A grid was established as follows – a baseline was marked on one side of each site along the long axis. Perpendicular offset lines were marked at 10m intervals along the baseline to form stints and these were subdivided along the offset line to form parallel transects 4m wide.
2. Each transect was assigned a letter and each stint a number so that each stint would have a unique reference.
3. The field walking took place along each transect and provided for 2m coverage (i.e.: 1m either side of the walker's path), thus providing 50% coverage of the site.
4. The location of all artefacts was marked on the ground with tags.
5. All artifacts were bagged and numbered citing DOE record number, context and individual number. Their location was also recorded.

2.3 Results

The first phase of metal detection dealt with the sod layer only and finds recovered were labelled as being from context 1. No finds were recovered in either the initial metal detection, the second phase of metal detection or the fieldwalking.



Appendix 4, Topsoil Assessment, Figure 1: Metal Detection (Phase 1) Distribution Map

APPENDIX 5 *Radiocarbon dates*

Context	Sample No	Material	Species id/ weight	Beta Analytic Code	Date Type	Lab Calibrated Date (2-sigma)	Oxcal Calibrated Date	Conventional Date (BP)	13C/12C Ratio ‰
F13 fill of trough	9	Charcoal	Alder (180mg)	241302	AMS Std	2340–2130 and 2080–2060 BC two sigma	2402-2045 BC	3790±40	-23.3
F17 fill of trough	11	Charcoal	Alder (195mg)	241303	AMS Std	2460–2190 and 2180–2140 BC two sigma	2460-2147 BC	3830±40	-28
F65 field drain	1	Bone collagen	Horse lateral metapodial (16g)	214638	AMS Std	AD 1530–1560 and 1630–1680 and 1470–1800 and 1930–1950 two sigma	AD 1520-1955	240±40	-23

APPENDIX 6 *Animal Bone Report: Rachel Sloane*

1. Introduction

This report details the results of analysis of mammalian bone remains recovered during archaeological excavations at Roestown 1, Co. Meath. Excavations were carried out at this site in October-November 2005 in advance of the proposed M3 Clonee to North of Kells Road Scheme. Resolution revealed a spread of burnt mound material, two possible troughs and a number of stakeholes although they did not form any discernible pattern or alignments (*Ibid*, 4).

2. Methodology

The methodology adopted for analysis of this collection is based on that used for Knowth by McCormick and Murray (2007). A detailed description of the applied methodology has been outlined by the current author in the analysis report for Roestown 2 mammalian bone remains also recovered from archaeological excavation carried out as part of the M3 Clonee-North of Kells Road Scheme.

3. Results of Analysis

The mammal bone remains retrieved at Roestown 1 were extremely meagre. They consisted of a single horse (*Equus caballus*) lateral metapodial from the primary fill (F65) of ditch F08 and eighteen fragmented pieces of animal teeth from re-deposited material (F19) all of which were identified as cattle (*Bos taurus*). Seventeen of the fragments derived from molars while one was a premolar fragment. The horse metapodial was submitted for radiocarbon dating and returned a Post-Medieval date (Beta 214638). None of the assemblage allowed further zooarchaeological interpretation.

4. Recommendations

The collection of animal teeth retrieved from excavations at this site was of a fragmented nature and therefore recording of ageing data was not possible. However, as it was possible to identify this material to species level and element, it is recommended that it be stored in a National Museum approved low-acid box (as used by ACS Ltd.) and be left ready for transfer to NMI along with the other significant mammalian bone remains retrieved from archaeological excavation along the route of the M3 Clonee to North of Kells Road Scheme.

APPENDIX 7 *Lithics Analysis: Joanna Nolan*

Type	Numbers
Blade	1
Core	2
Debitage	10
Flake	13
Hollow based arrowhead	1
Scraper	5
Total	32

Table 1. Composition of assemblage

This site was excavated on the route of the M3 in Co. Meath. It is described as a spread of burnt mound material with two associated troughs, a large circular pit and a number of stake holes. It produced 32 struck flint artefacts and knapping by-products. Most of these have come from contexts within the site. The assemblage contains a broad range of lithic types including fine finished artefacts, flakes, one blade, cortical flakes, struck debitage and two cores. There were two other items from this site; a bead of white polished chalk and a rubbing/polishing stone of grey siltstone

It seems to reflect varied domestic or settlement activities, such a complex assemblage is not normally associated with burnt mound type sites.

It appears that core reduction and artefact manufacture took place on site. There is evidence for some raw material constraints on this industry; two of the scrapers have been made on cortical flakes and the assemblage is characterised by some quite small pieces, this is probably a function of the size of the available raw material.

All of the items have suffered varying degrees of post-depositional dulling and abrasion and a large proportion have developed varying levels of patination. The variation in the amount of weathering does not relate to the contextual distribution of the items.

Raw Material

The only raw material used was flint, which is available on the East coast of Ireland as transported nodules or pebbles deposited by the ice sheets of the Irish Sea glaciation. There are 12 items that retain cortex, all of it is very worn and smoothed or water-rolled and ground away. This is consistent with the rolling and damage caused by fluvio-glacial activity. Three of these pieces were struck from small drift derived pebble nodules.

The exclusive use of flint probably indicates selection and sourcing for this raw material. The flakes produced are quite small, over a third of the non-debitage pieces are less than 30mm in length. The two cores are also small, 21.9mm and 32.6mm. This is probably a reflection of the size of the raw material, there are a few good indications that small pebble flint nodules were used, this would limit the size of the flakes that could be produced. One of the scrapers was made on a primary flake that was no more than a split flint pebble, the entire half of the nodule had to be used in order to create a decent sized scraper.

The flints range in colour from cream/white to grey/white and brown to orange and toffee-coloured This suggests some degree of homogeneity of flint sources/find spots.

Primary technology

The unretouched component of the assemblage consisted of one blade, two cores, ten pieces of debitage, most of it struck, and twelve flakes. The cores, one of which is only a possible, were both multi-platform and fairly amorphous. Flaking had been carried out on an alternating basis using previous flake scars as striking platforms. Flake scarring on both indicates the production of blade-like flakes.

The debitage consists of core reduction waste and a lesser proportion of flake removals produced from retouch/retooling. It reflects the presence of both primary knapping and artefact manufacture on site.

The single blade is slightly irregular; it does not represent formal blade production in this industry.

The unbroken flakes range in length from 24.6mm to 41.7mm, about half of these are quite short and wide. There is also a tendency for the flakes to be hinged or thick and heavy. These characteristics are probably a result of the type of raw material being worked. Small pebble flint nodules seem to have been one of the flint sources, these would have produced such short wide flakes. Knapping of this type of material often involves just splitting the pebbles on an anvil, this type of percussion (bi-polar) and the resultant flakes are present in this assemblage.

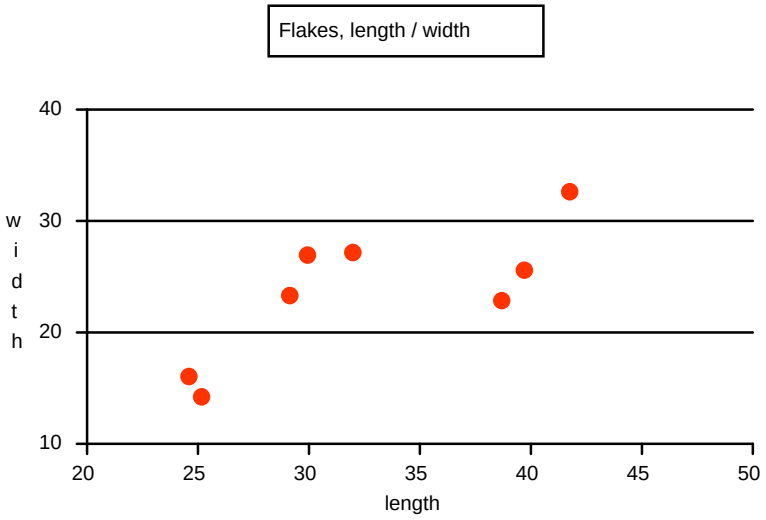


Table 2

These items were struck using both direct and indirect percussion techniques, there is evidence for some platform preparation, two of the striking platforms are facetted. Direct percussion was carried out using both hard and soft percussors. A008/001:15:01, a scraper, is noteworthy; it has a double bulb of percussion, a rare trait that is associated with direct hard hammer percussion. Use of the anvil technique to knap the flint is present on three items, a flake, A008/001:17:01, and a piece of debitage, A008/001:67:01 are both bi-polar flakes. The scraper, A008/001:69:02, is made on a primary bi-polar flake which is basically a flint pebble which has been split on an anvil stone.

Secondary technology

The finished artefacts consisted of a hollow-based arrowhead and five scrapers; the scrapers were one convex end form, three concave scrapers, one of which is double concave, and a hollow scraper. These are all finely made pieces. There is also a retouched flake which has rough semi-abrupt flaking on a notch in its' LL, it is an unfinished concave scraper.

The arrowhead is well made and symmetrical with a wide deep round hollow at it's base, it has been formed by pressure flaking over all of both faces. The convex end scraper (a "thumb" scraper type) was made on an extremely plano-convex split flint pebble, this gives a good high angle to the scraping edge that was pressure flaked onto the distal end. The three concave scrapers were made with semi-abrupt retouching of the edges of flakes; two have two concave scraping edges retouched onto them. These were both made on wide hinged flakes; this may reflect deliberate usage of such forms to accommodate the two scraping edges. The hollow scraper is the classic form of this artefact type, a shallow hollow has been retouched onto the distal by rough semi-abrupt flaking, and this retouch is partially obscured by use-wear. It is made on a trapezoidal flake that splays towards a

wide distal. The retention of cortex on both lateral edges reflects the deliberate production of the widest possible flake from the core.

The polished chalk bead is a small flattish perforated disc, convex on one face slightly concave on the other. Its shape seems to have been created by rubbing/polishing. It has a relatively wide central perforation that splays outwards towards the concave face. The perforation appears to have been drilled through from the concave face. There were no obvious traces of wear that might indicate that it hung on a string.

The rubbing/polishing stone is a small water rolled oval-shaped stone; its rounded surface is marked by three flat facets which appear to have been created by use of this stone for polishing. These facets have "soft" poorly defined edges which suggests use on a soft material. The stone is also marked by linear striations that may have been created by scratching during use for polishing. It is possible this stone was used for burnishing a soft material like pottery clay containing large grit/stone temper.

Discussion

This assemblage contains features that are not all consistent with a strictly Bronze age date. Point and facetted platforms and pressure flaking would indicate a slightly earlier date for this material. The presence of bi-polar percussion is more in keeping with the Bronze Age date for this site type. This inconsistency is also reflected in the artefacts, the hollow scraper is regarded as a type fossil of the Irish Neolithic and the other scrapers would fit comfortably with this period. This assemblage might reflect a late Neolithic/early Bronze age date for this site or it might represent two phases of use here. Neolithic settlement debris may have been incorporated into the *fulacht fiadh*. This assemblage is far more complex than those normally associated with cooking sites and reflects a wider range of domestic activities than the sporadic boiling sessions that would have been expected to occur on this site.

A fairly broad range of lithic types is present, the cores, debitage and finished artefacts here indicate that both lithic reduction and tool making took place on site. The exclusive use of flint might suggest planned sourcing of raw material. It would seem that tool manufacture was a significant element of the activities on this site.

The items seem to have been the product of manufacture for domestic purposes, scrapers would have been used for hide or wood cleaning, and some of the flakes could have functioned as cutting tools without modification. The arrowhead was probably used for hunting.

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APPENDIX 8 *Plant macrofossil, charcoal and cremated bone analysis: Durham University*

Roestown 1, M3 Motorway Project, Co Meath, Ireland

plant macrofossil, charcoal and cremated bone analysis

on behalf of
Archaeological Consultancy Services Ltd

Report 1931
August 2008

Archaeological Services

Durham University
South Road
Durham DH1 3LE
Tel: 0191 334 1121
Fax: 0191 334 1126

archaeological.services@durham.ac.uk
www.durham.ac.uk/archaeological.services

1. Summary

The project

1.1 An excavation of a burnt mound was undertaken by Archaeological Consultancy Services Ltd at Roestown 1, Co Meath, Ireland. This report presents the results of plant macrofossil, charcoal and cremated bone analysis of trough fills (contexts 13 and 17), a series of ploughmarks (context 22) and a sample of topsoil (context 71).

Results

1.2 The charcoal assemblages of contexts (13), (17) and (71) were dominated by ash and alder, with lesser frequencies of oak. Hazel, blackthorn, elm and willow/poplar were also recorded, but charred seeds were absent from all of the flots.

1.3 A small amount of cremated bone was recovered from topsoil and plough marks cut into the burnt mound material. Fragmentation of the bone tended to be fairly severe, and it was not possible to determine whether the bone was human or animal. Most of the bone had been burnt at high temperatures and achieved full oxidation.

2. Project background

Location and background

2.1 An excavation of a burnt mound was undertaken by Archaeological Consultancy Services Ltd at Roestown 1, Co Meath, Ireland (NGR 295903 254143). Two troughs and one large circular pit were exposed beneath a spread of burnt mound material. Numerous northeast–southwest plough marks were visible across the northern part of the site. These were cut into the burnt mound material, and are therefore considered to post-date the main activity on the site. Lithic artefacts, including a flint concave-based arrowhead, a flint convex scraper, a possible knapping stone, and a stone bead, were recovered. This report presents the results of plant macrofossil, charcoal and cremated bone analysis of trough fills (contexts 13 and 17), a series of ploughmarks (context 22) and a sample of topsoil (context 71).

Objective

2.2 The objective was to analyse the plant macrofossils, charcoal, and cremated bone from the site, in order to provide information about the diet, land use and local environment.

Dates

2.3 Samples were received by Archaeological Services Durham University in November 2007. Analysis and report preparation was conducted between November 2007 – August 2008.

Personnel

2.4 Sample processing was undertaken by Archaeological Consultancy Services Ltd. Plant macrofossil and charcoal identifications were carried out by Dr Charlotte O'Brien and Mr Lorne Elliott. Cremated bone analysis was by Dr Anwen Caffell. Residues were sorted by Mr Lorne Elliott.

Archive

2.5 The licence number is A008/001 (E0415). The charcoal, flots and bone samples are currently held at the Environmental Laboratory at Archaeological Services Durham University awaiting collection or return.

3. Plant macrofossil and charcoal analysis

Methods

3.1 The residues were examined for plant remains, shells, bones, pottery sherds and metalworking debris. The dry flots were scanned at up to x60 magnification using a Leica MZ6 stereomicroscope for charred and waterlogged plant remains. Identification of these was undertaken by comparison with modern reference material held in the Environmental Laboratory at Archaeological Services Durham University. Plant taxonomic nomenclature follows Stace (1997).

3.2 Charcoal was collected from the residues and flots and added to pre-sorted material. Following Boardman (1995), identifications were made on all fragments >4mm. The transverse, radial and tangential sections were examined at up to x600 magnification using a Leica DMLM microscope. Identifications were assisted by the descriptions of Hather (2000), and modern reference material held in the Environmental Laboratory at Archaeological Services Durham University. The different species were weighed separately. A single entity of alder charcoal was provided for radiocarbon dating from each of contexts (13), (17) and (71), weighing 180mg, 195mg and 106mg, respectively.

Results

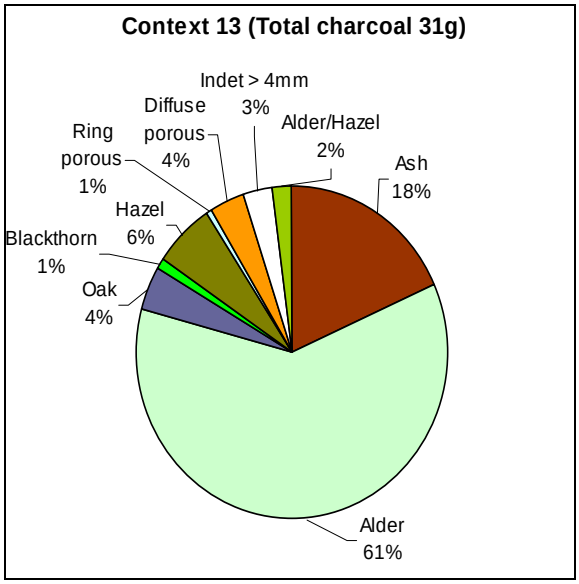
3.3 Charcoal was present in all of the samples, and possible fire-cracked stones were recorded in the residues of the trough fills (contexts 13 and 17). Insect fragments, roots and uncharred seeds occurred, particularly in the sample of topsoil (context 71). In view of the non-waterlogged nature of the site, and the shallow nature of the topsoil, these are likely to represent later intrusive material. Charred seeds were absent from all of the flots.

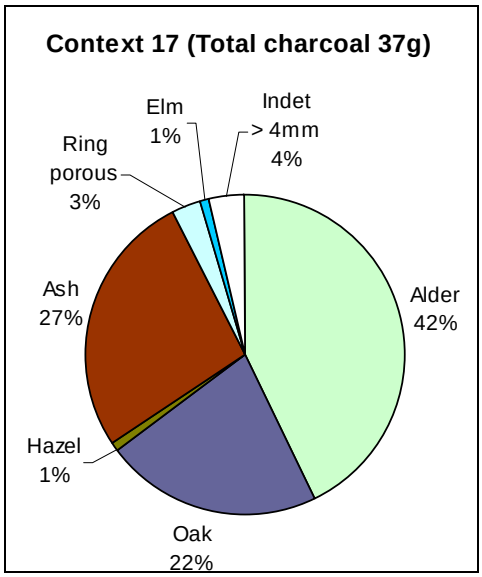
3.4 The charcoal assemblages of all three contexts were dominated by ash and alder, with lesser frequencies of oak. Hazel was present in context (13) and (17), and blackthorn was recorded in context (13), elm in context (17) and willow/poplar in context (71). The proportions of identified charcoal are presented in Figure 3.1. The results of the environmental analysis are listed in Table 3.1.

Discussion

3.5 If the wood was collected locally, the results of the charcoal analysis suggest that alder was abundant in the local landscape. This would have grown in wetland areas, either forming alder carr or as individual stands growing along riverbanks and other areas of damp ground. Ash was also abundant, and while this species also grows well on moist soils, it is generally associated with drier habitats than alder (Orme & Coles 1985). It is a light-demanding species, and together with oak, is likely to have formed the canopy layer of mixed deciduous woodland. Hazel and blackthorn would have grown as shrubs/small trees in the understorey, or at the woodland margins. A single fragment of elm in context (17), indicates that this species was an additional minor woodland component. Willow and poplar charcoal cannot be differentiated with certainty, and therefore the 2 fragments of Salicaceae charcoal in context (71), may derive from willows growing with the alder in wetland areas near the site, or poplar trees which would have thrived on rich, alluvial soils.

3.6 The charcoal, particularly from the trough fills, is likely to represent fuel used for activities associated with the burnt mound. The predominance of alder and ash, with frequent occurrences of oak and hazel, is in line with the results of a recent study of charcoal from Bronze Age sites in central and western Ireland, which has provided evidence that alder, ash, hazel and oak were the main trees selected for fuel on burnt mound sites (Grogan *et al* 2007). It has been suggested that this choice of fuel reflects the marginal situation of most burnt mounds, between wet and dryland areas (*ibid*.). Other burnt mound sites along the M3 corridor have revealed similar charcoal assemblages to that of Roestown 1, for example, ash and alder were also the main charcoal taxa identified at Raynestown 2 (Archaeological Services 2008).


Context 13 (Total charcoal 31g)
Indet > 4mm 3%
Diffuse porous 4%
Ring porous 1%
Alder/Hazel 2%
Ash 18%
Hazel 6%
Blackthorn 1%
Oak 4%
Alder 61%


Context 17 (Total charcoal 37g)
Elm 1%
Indet > 4mm 4%
Ring porous 3%
Ash 27%
Alder 42%
Hazel 1%
Oak 22%

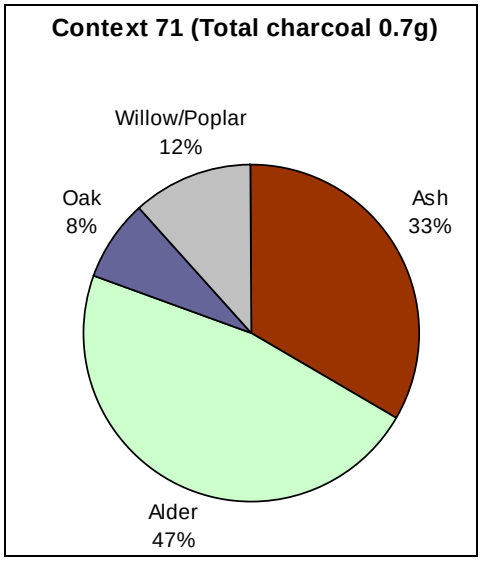

Context 71 (Total charcoal 0.7g)
Willow/Poplar 12%
Oak 8%
Ash 33%
Alder 47%

Figure 3.1: Proportions of identifiable charcoal in Roestown 1

Table 3.1: Plant macrofossils and charcoal from Roestown 1

Context		13	17	71
Sample		5, 8, 9	11, 14	2, 4
Feature		Trough	Trough	Topsoil
Material available for radiocarbon dating		✓	✓	✓
Volume of flot (ml)		1	3	27
Residue matrix (relative abundance)				
Charcoal		3	3	-
Cracked/angular stones		2	3	-
Flot matrix (relative abundance)				
Charcoal		1	1	1
Insect		-	-	1
Roots (modern)		1	1	2
Charcoal (mg/number of fragments)				
Percentage of sample analysed		100	100	100
Total charcoal analysed (mg)		11957	7311	580
Number of identifiable fragments >4mm		129	123	15
Fraxinus excelsior (Ash)		2186 (25F)	1988 (37F)	194 (5F)
Corylus avellana (Hazel)		764 (8F)	58 (1F)	-
Alnus glutinosa (Alder)		7265 (80F)	3131 (50F)	274 (7F)
Alnus/Corylus (Alder/Hazel)		243 (4F)	-	-
Prunus spinosa (Blackthorn)		118 (2F)	-	-
Quercus sp (Oak)		528 (4F)	1595 (28F)	44 (1F)
Salicaceae (Willow or poplar)		-	-	68 (2F)
Ulmus sp (Elm)		-	55 (1F)	-
Diffuse porous		437 (4F)	-	-
Ring porous		76 (1F)	224 (5F)	-
Unidentified >4mm fraction		340 (1F)	260 (1F)	-
Unidentified <4mm fraction		32848	30035	106
Uncharred remains (relative abundance)				
(t) *Crataegus monogyna* (Hawthorn)	fruitstone	-	-	2
(t) *Rubus fruticosus* agg. (Bramble)	fruitstone	-	-	1
(t) *Sambucus nigra* (Elder)	fruitstone	-	-	1
(w) *Carex* spp (Sedges)	trigonous nutlet	-	1	2
(x) Poaceae undifferentiated <2mm (Grass family)	caryopsis	-	-	1
(x) *Ranunculus* subgenus *Ranunculus* (Buttercup)	achene	-	1	2
(x) *Urtica dioica* (Common nettle)	achene	-	2	4

[t-trees/woodland; w-wetland; x-wide niche]. F = number of charcoal fragments
Relative abundance is based on a scale from 1 (lowest) to 5 (highest).

4. Cremated bone analysis

Methods

4.1 Cremated bone was recovered from topsoil (context 71) in the vicinity of a burnt mound, and from plough marks (context 22) that had cut into the burnt mound material. 5 samples of cremated bone from these 2 contexts were presented for analysis, with a total weight of 6.7g. Each sample of cremated remains was passed through a nest of sieves, with mesh sizes of 10mm, 5mm, and 2mm (McKinley 2004). Each fraction was weighed and the largest fragment of bone was measured.

Results and interpretation

4.2 Summary data for each context is presented in Table 4.1, the fraction weights and fragment size data for each individual sample are given in Appendix 1, with the combined weights per context given in Table 4.2.

4.3 The amount of cremated bone recovered in both contexts was small, at 1.2g and 5.5g, and most of the material was recovered from the topsoil (Table 4.1). The latter contained slightly larger bone fragments, with a maximum fragment size of 25.8mm and all bone in the largest and middle sieved fractions. None of the bone from the plough marks (context 22) fell into the largest fraction, and the maximum fragment size was 17.8mm (Table 4.2). It is very likely that the bone in these two contexts derived from disturbed deposits associated with the burnt mound.

Table 4.1: Summary of cremated remains

Context	Context Detail	Bone Colour	Species	Weight (g)
22	Series of plough marks	Pale grey/ white	Unknown	1.2
71	Topsoil	White	Unknown	5.5

4.4 In both contexts the bone was white or pale grey in colour, implying exposure to high temperatures in excess of *c.* 600ºC (McKinley 2004).

4.5 All fragments were examined with a view to identification, but the small fragments and lack of identifiable features meant that none could be identified. It was not possible to determine whether the bone was human or animal.

Table 4.2: Fraction weights and fragment size

Context	Total Weight	Fraction Weights						Max. Frag Size
		>10mm		5-10mm		2-5mm		
	g	g	%	g	%	g	%	mm
22	1.2	0.0	0.0	0.3	25.0	0.9	75.0	17.8
71	5.5	2.4	43.6	3.1	56.4	0.0	0.0	25.8

5. Sources

Archaeological Services 2008 *Raynestown 2, M3 Motorway Project, Co Meath, Ireland*; *plant macrofossil, charcoal and mollusc analysis* unpublished report **1942**, for Archaeological Consultancy Services Ltd, Archaeological Services Durham University

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APPENDIX 9 *Stone objects Report: Anne Carey*

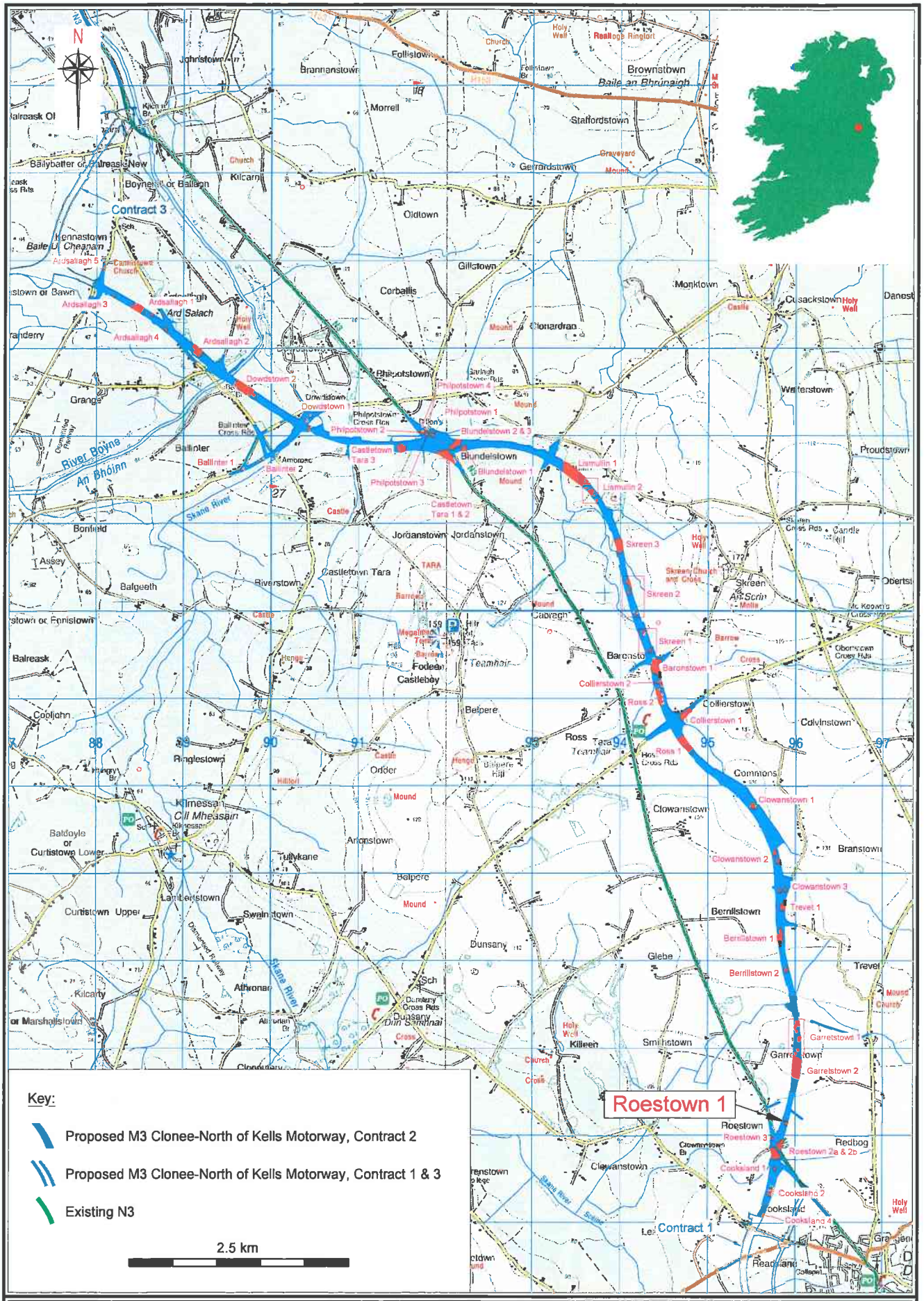
Stone tools, M3, Roestown 1

One stone from Roestown 1 was examined as part of stone tool specialist analysis. It comprised a possible pounder.

Pounders

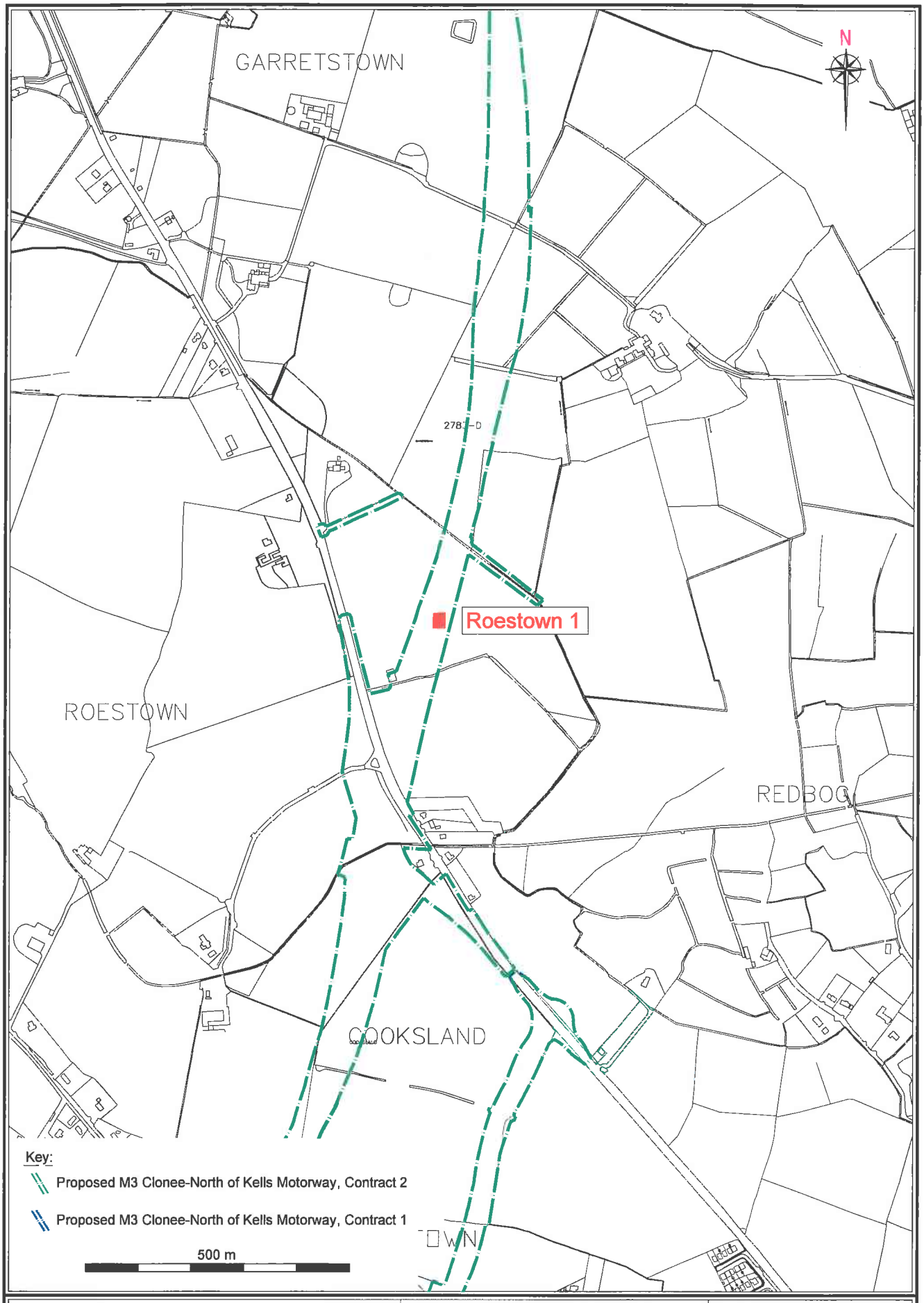
Pounders are characterized by the presence of a pitted work surface marked with small pockmarks at one or both ends of a roughly oval stone. Pounders were hand held and are often cobble-sized stones, weather worn or water rolled and not specifically shaped to facilitate use. They can function in domestic use or in the ore benefication process, where ore is extracted from the host rock prior to smelting. Most stone tools are poor chronological indicators and they have not been afforded widespread detailed study.

Table: Pounder, possible
Roestown 1 A008/001:66:3
Possible pounder. Rounded water rolled pebble, with possible attrition marks (L 10.5mm, Wth 10mm) on one edge, which could also be of natural origin.
Dimensions: L 60mm, Wth 50mm, Th 40.3mm.



Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 2, Roestown 1	Scale: 1:60,000 A4
	Issued for: Excavation Report	Date: Jul '08
	Client: Meath County Council	Origin: OSi Discovery Series
		Drawing no.: 04_01_C7741i

Figure 1: Location of Roestown 1



Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 2, Roestown 1	Scale: 1:10,000 A4
		Date: Jul '08
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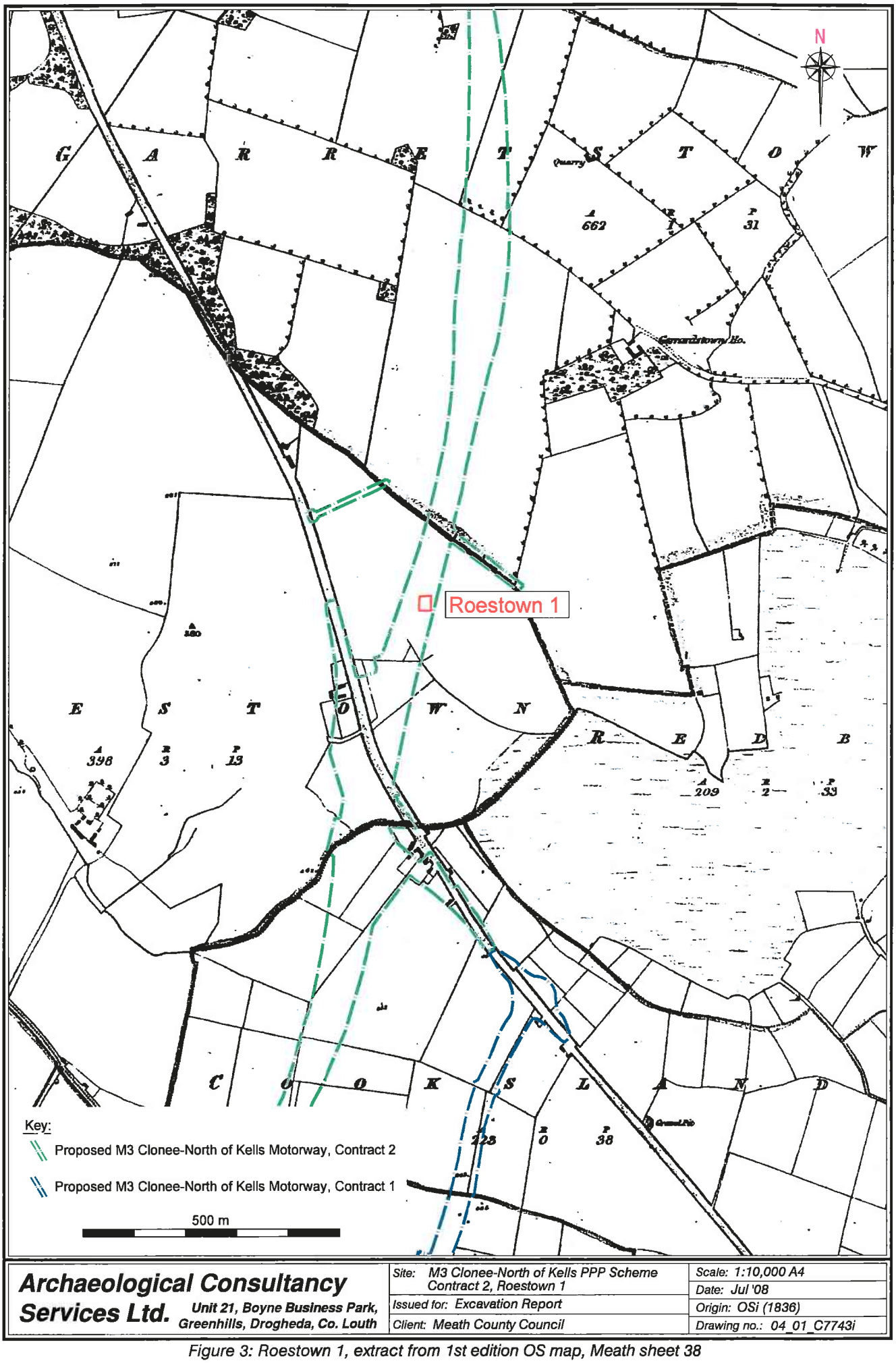
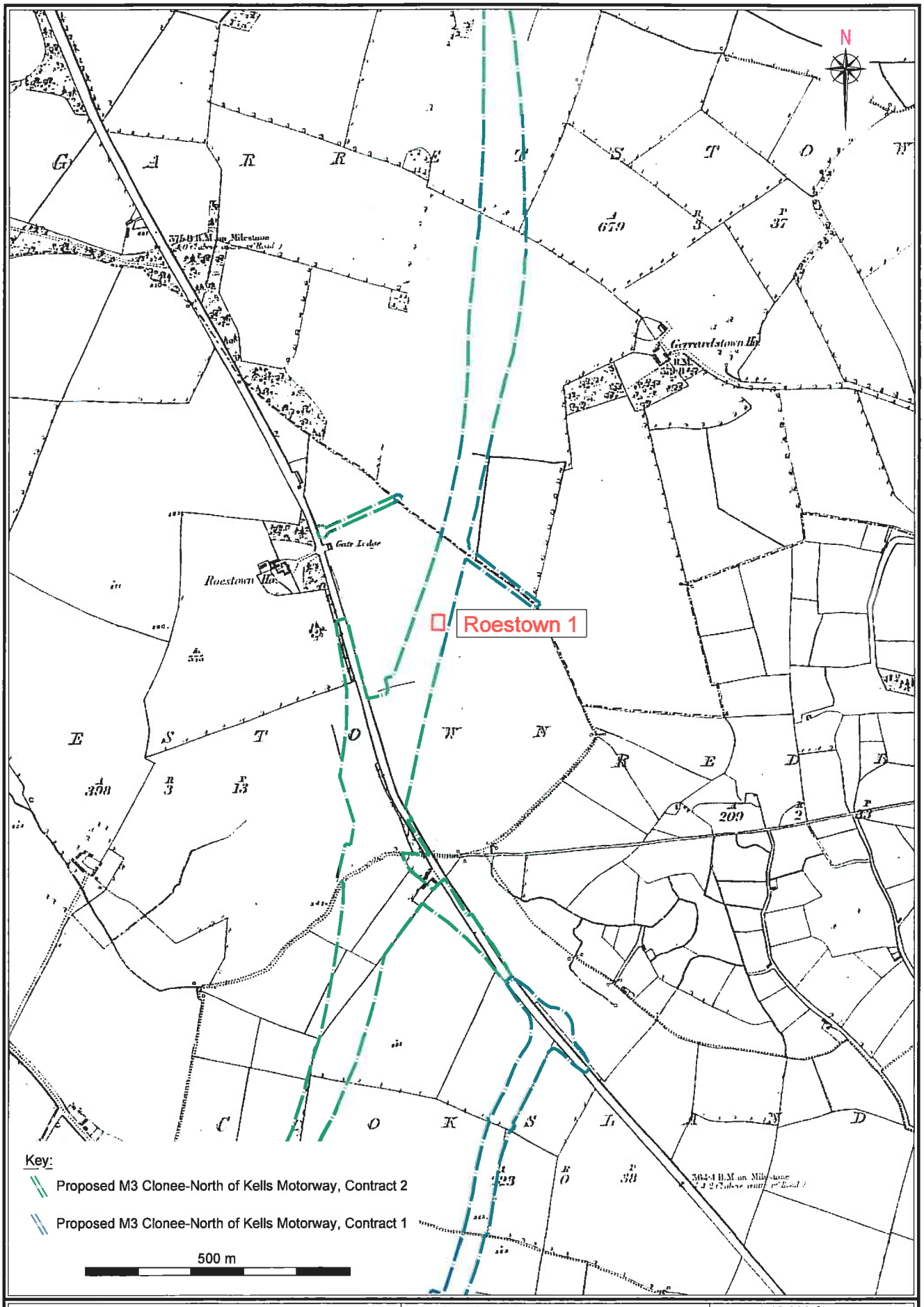
	Client: Meath County Council	Drawing no.: 04_01_C7742i

Figure 2: Location of Roestown 1 on current OS background



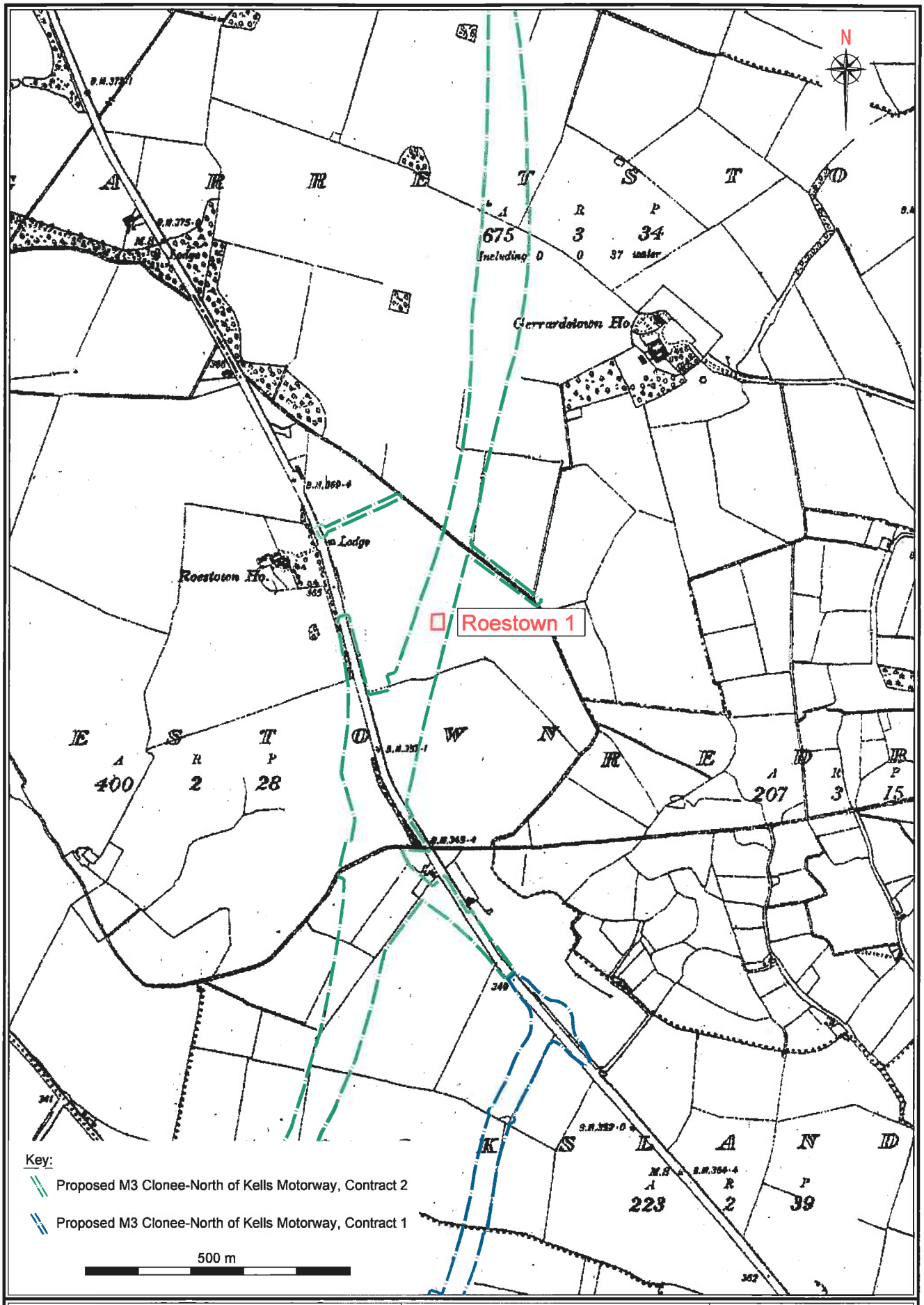
Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 2, Roestown 1	Scale: 1:10,000 A4
		Date: Jul '08
	Issued for: Excavation Report	Origin: OSi (1836)
	Client: Meath County Council	Drawing no.: 04_01_C7743i

Figure 3: Roestown 1, extract from 1st edition OS map, Meath sheet 38



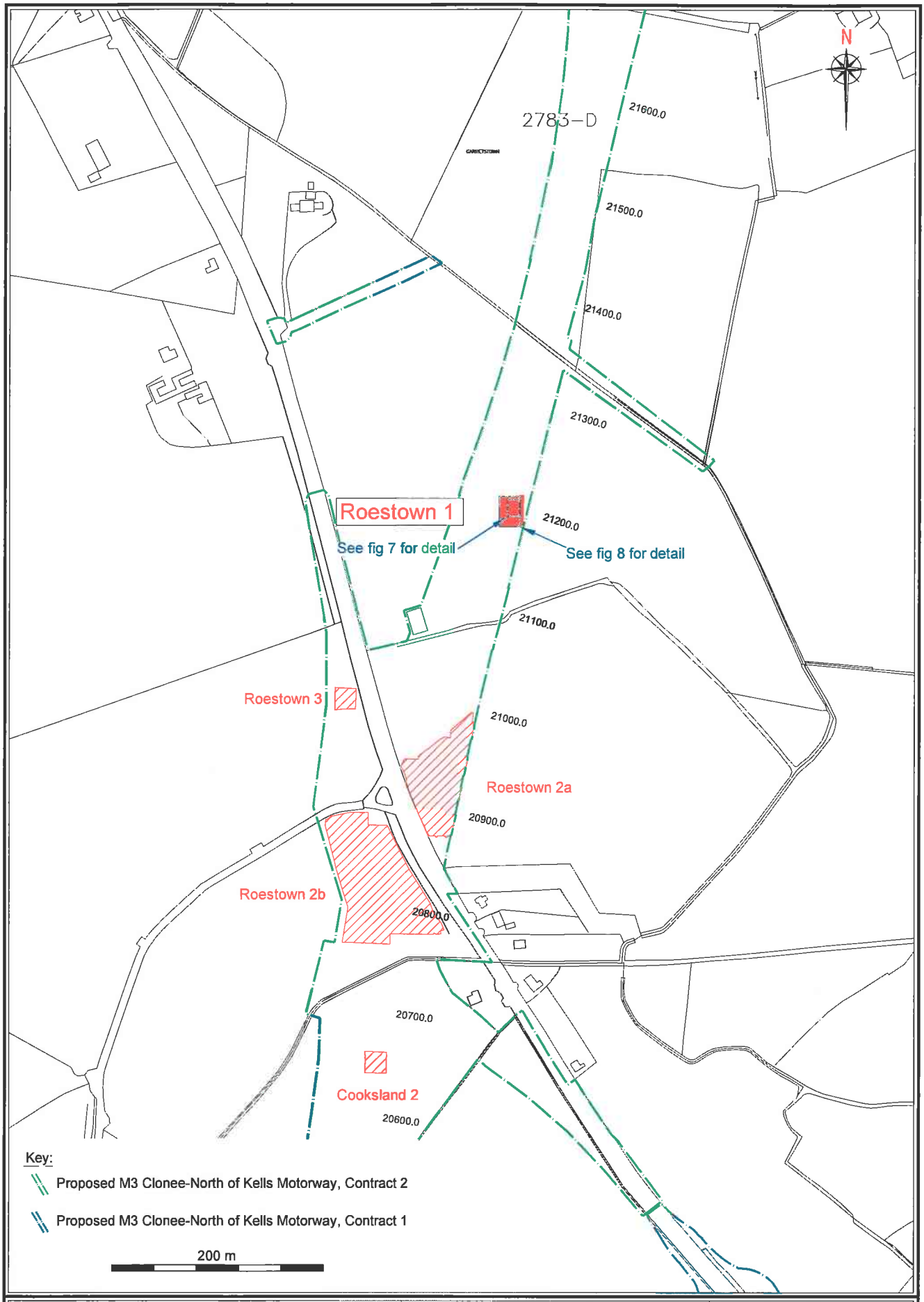
Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 2, Roestown 1	Scale: 1:10,000 A4
		Date: Jul '08
	Issued for: Excavation Report	Origin: OSi (1883)
	Client: Meath County Council	Drawing no.: 04_01_C7744i

Figure 4: Roestown 1, extract from 2nd edition OS map, Meath sheet 38



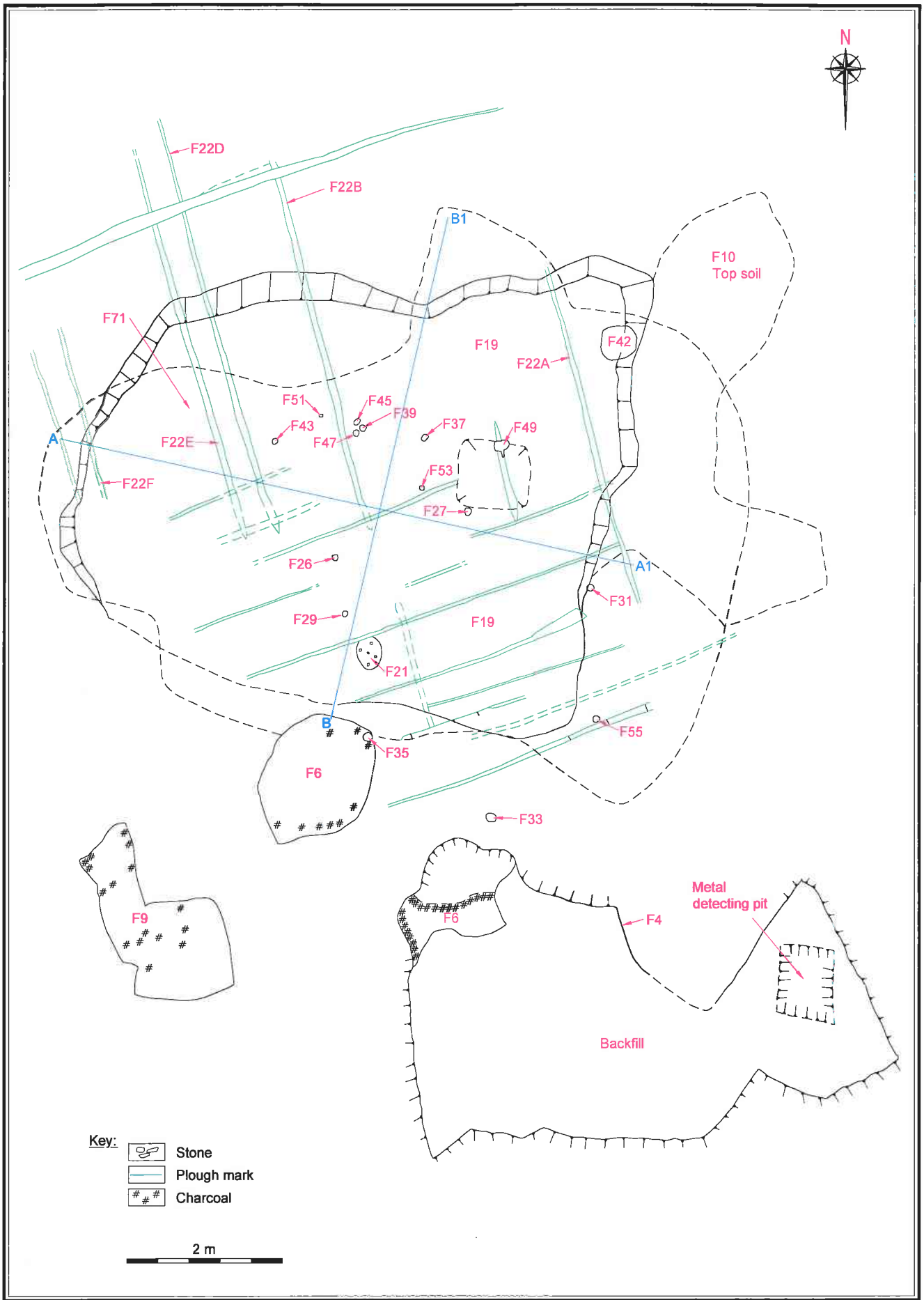
Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 2, Roestown 1	Scale: 1:10,000 A4
		Date: Jul '08
	Issued for: Excavation Report	Origin: OSi (1909)
	Client: Meath County Council	Drawing no.: 04_01_C7745i

Figure 5: Roestown 1, extract from 3rd edition OS map, Meath sheet 38



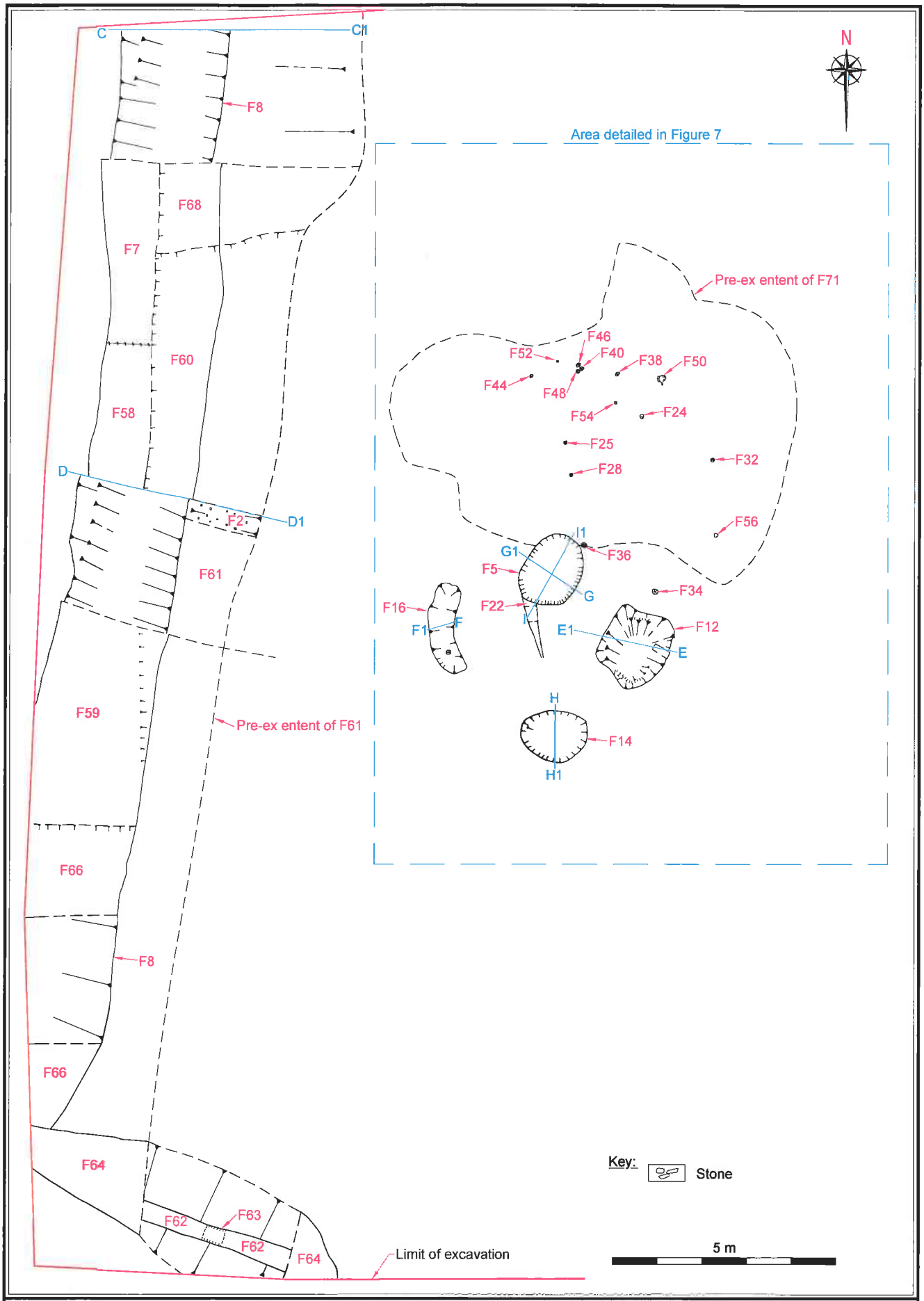
Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 2, Roestown 1	Scale: 1:5,000 A4
		Date: Jul '08
	Issued for: Excavation Report	Origin: Client/ACS Ltd.
	Client: Meath County Council	Drawing no.: 04_01_C7746i

Figure 6: Detailed location of Roestown 1



Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 2, Roestown 1	Scale: As scalebar
		Date: Jul '08
	Issued For: Excavation Report	Origin: ACS Ltd.
	Client: Meath County Council	Drawing no.: 04_01_C7747i

Figure 7: Pre-excavation plan of features



Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 2, Roestown 1	Scale: As scalebar
		Date: Jul '08
	Issued For: Excavation Report	Origin: ACS Ltd.
	Client: Meath County Council	Drawing no.: 04_01_C7748i

Figure 8: Mid-excavation plan of drain F63 and ditch F8 and post-excavation plan of features

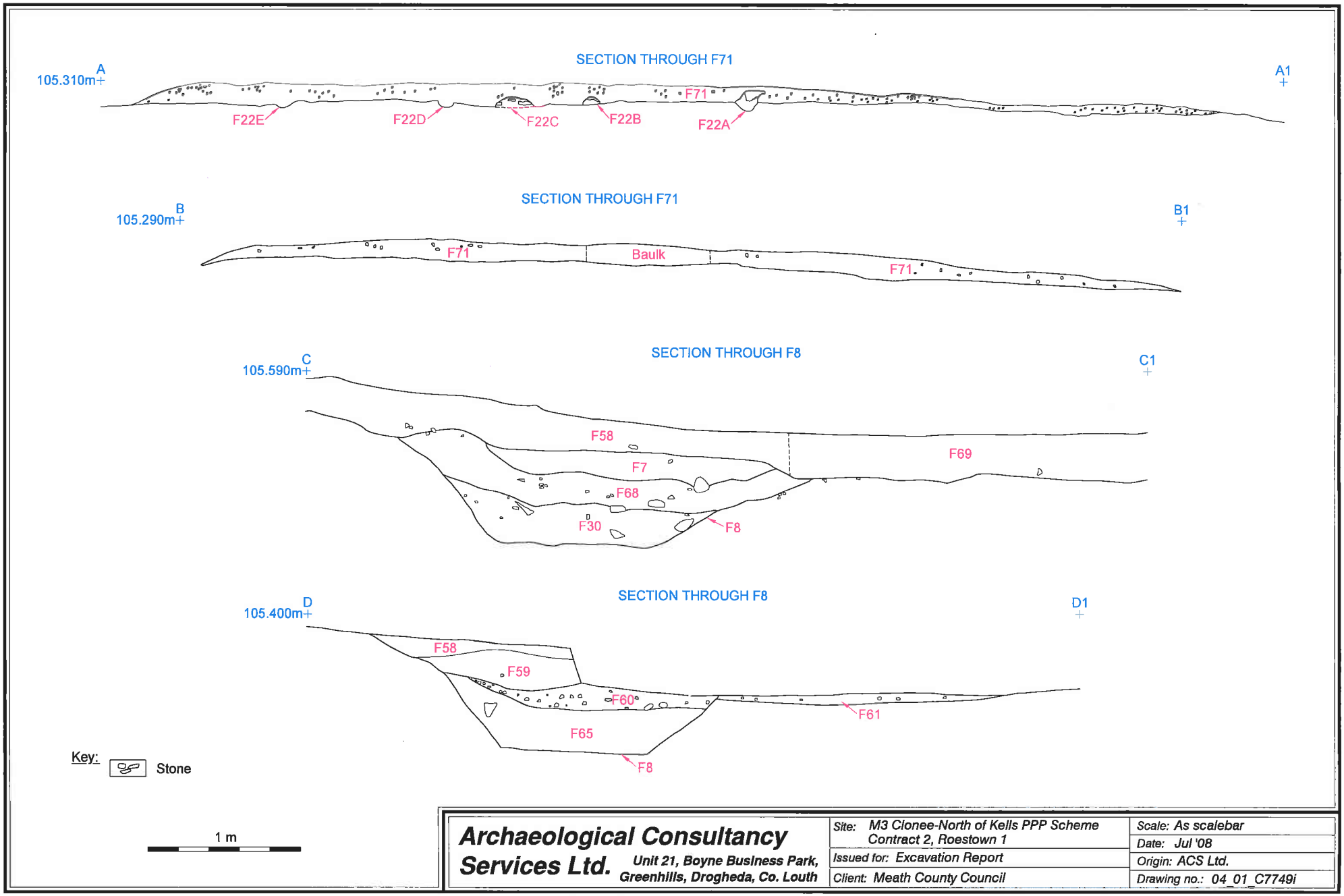
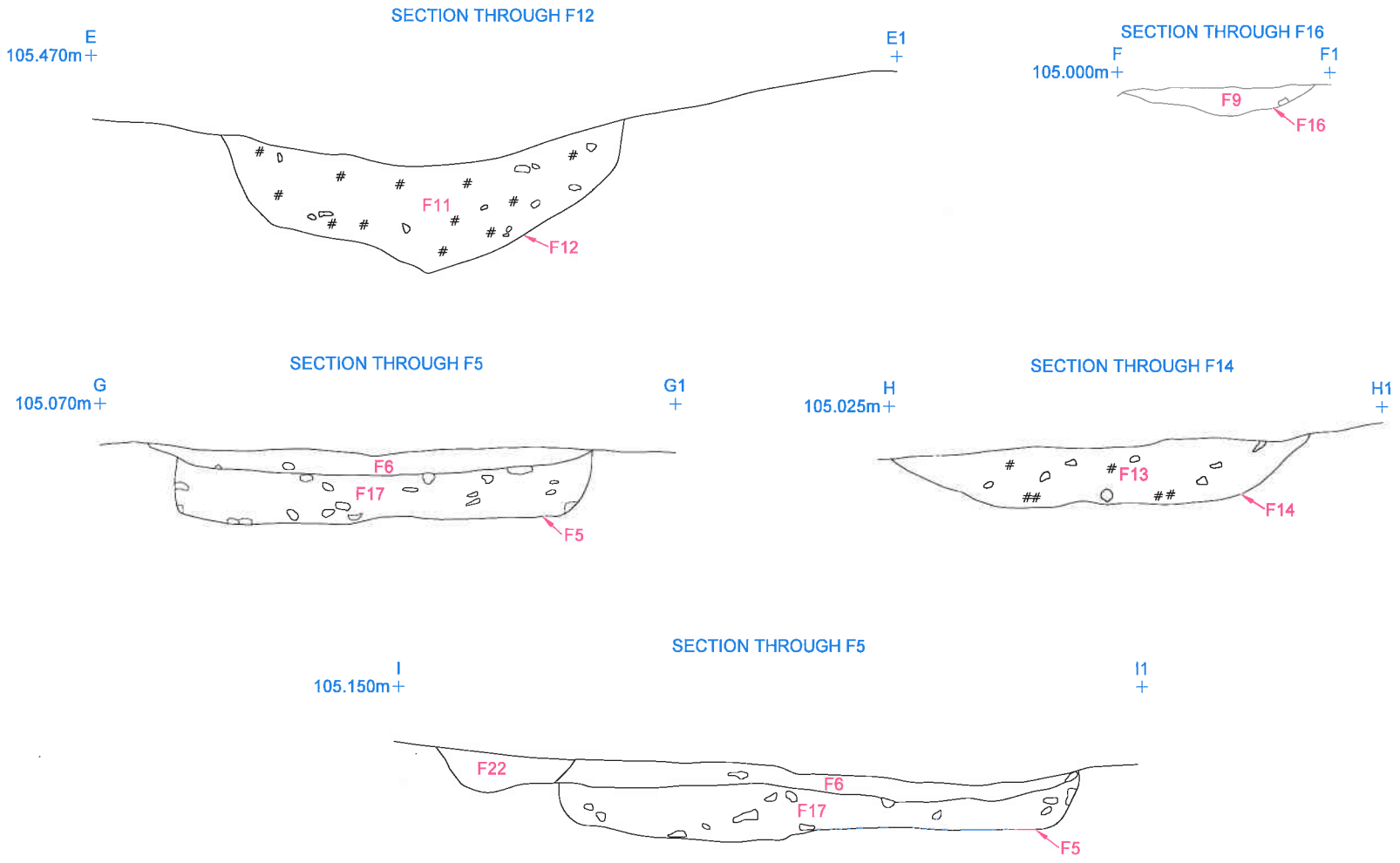


Figure 9: Sections of features



Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 2, Roestown 1	Scale: 1:20 A4
		Date: Jul '08
	Issued for: Excavation Report	Origin: ACS Ltd.
	Client: Meath County Council	Drawing no.: 04_01_C7750i

Figure 10: Sections of features

Plate 1: Roestown 1, pre-excavation, from the east (04_01_Roestown 1_CP001_02)

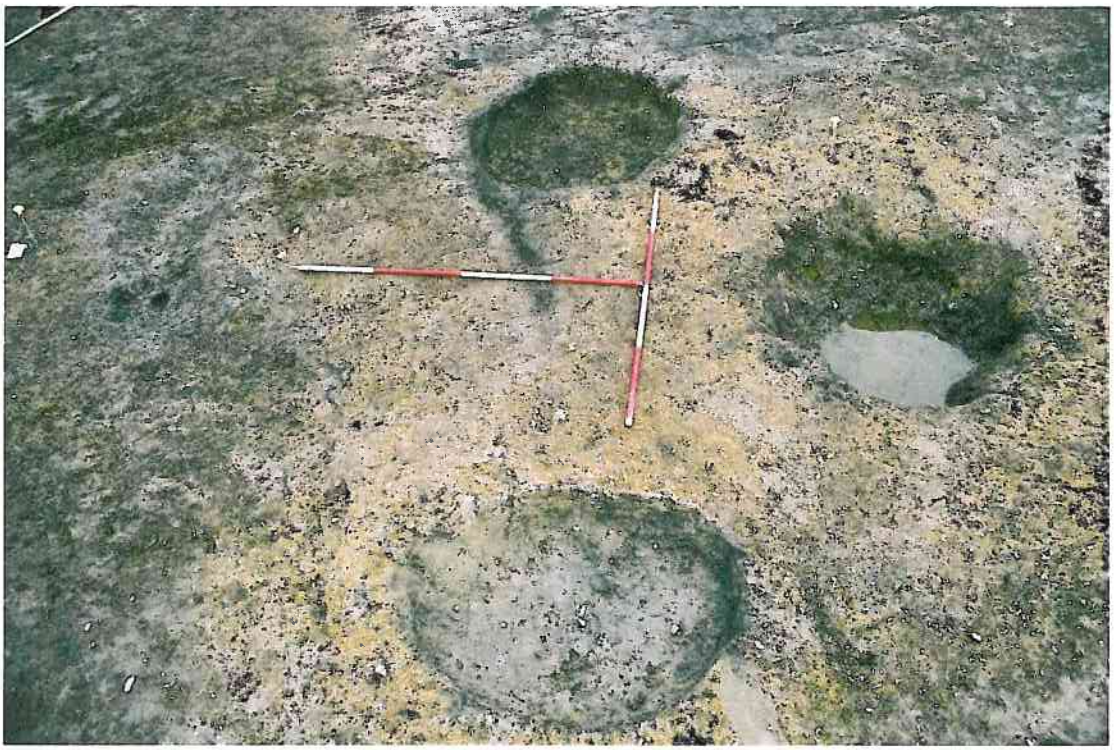


Plate 2: Post-excavation of possible trough F5, possible well F12, trough F14, and gully F16 (from the northwest) (04_01_ Roestown 1_CP003_05)

Plate 3: Trough F5, from the northeast (04_01_ Roestown 1_CP003_11)

Plate 4: Possible well F12, from the east (04_01_Roestown 1_CP003_14)

Plate 5: Arrowhead A008/001:4:1 (04_01_ Roestown 1_A008_001_4_1)

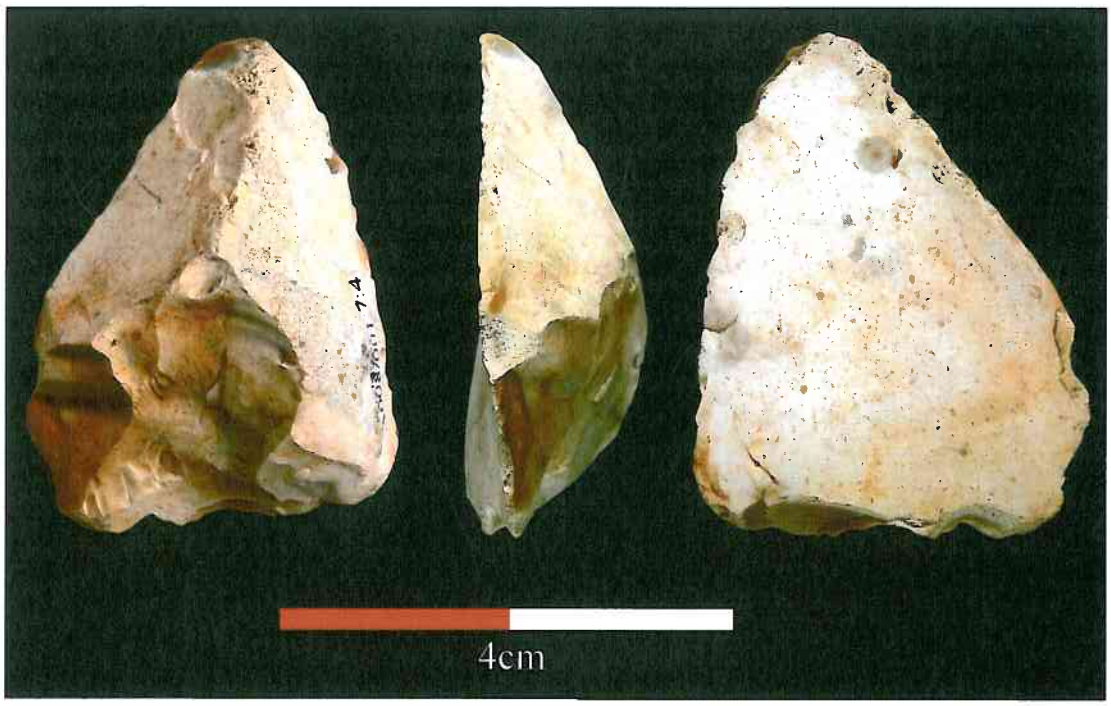


Plate 6: Flake A008/001:7:4 (04_01_ Roestown 1_A008_001_7_4)

Plate 7: Bone bead A008/001:19:4 (04_01_ Roestown 1_A008_001_19_4)

Plate 8: Scraper A008/001:59:1 (04_01_ Roestown 1_A008_001_59_1)

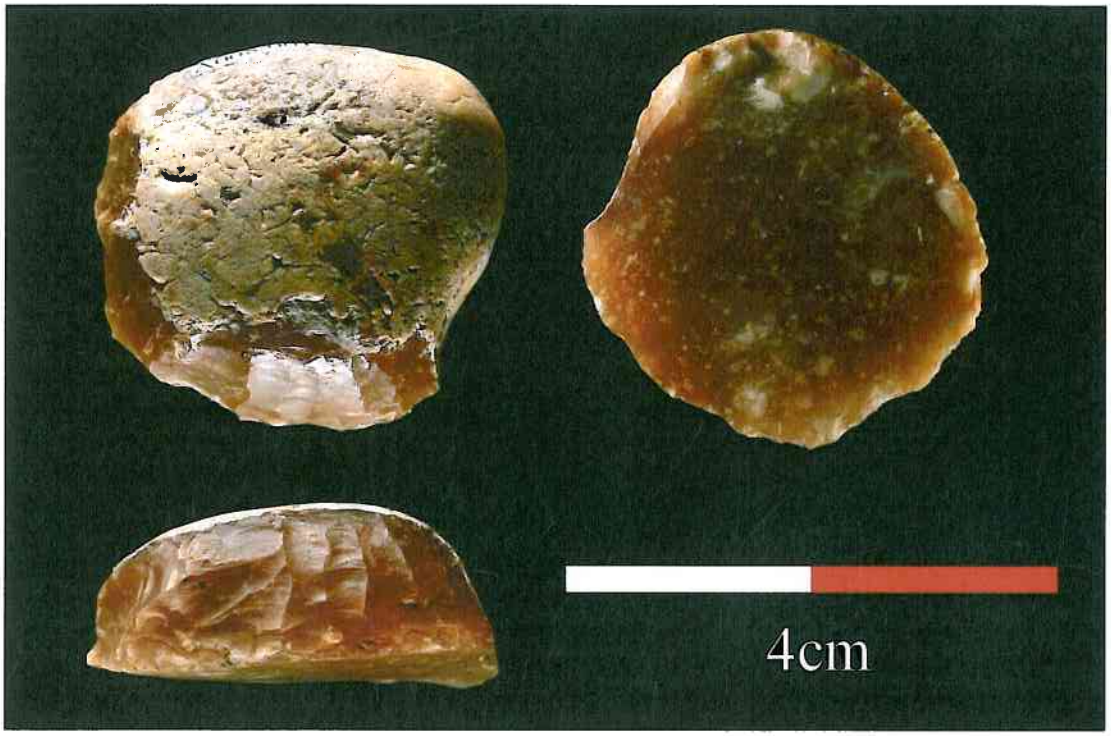


Plate 9: Scraper A008/001:69:2 (04_01_ Roestown 1_A008_001_69_2)