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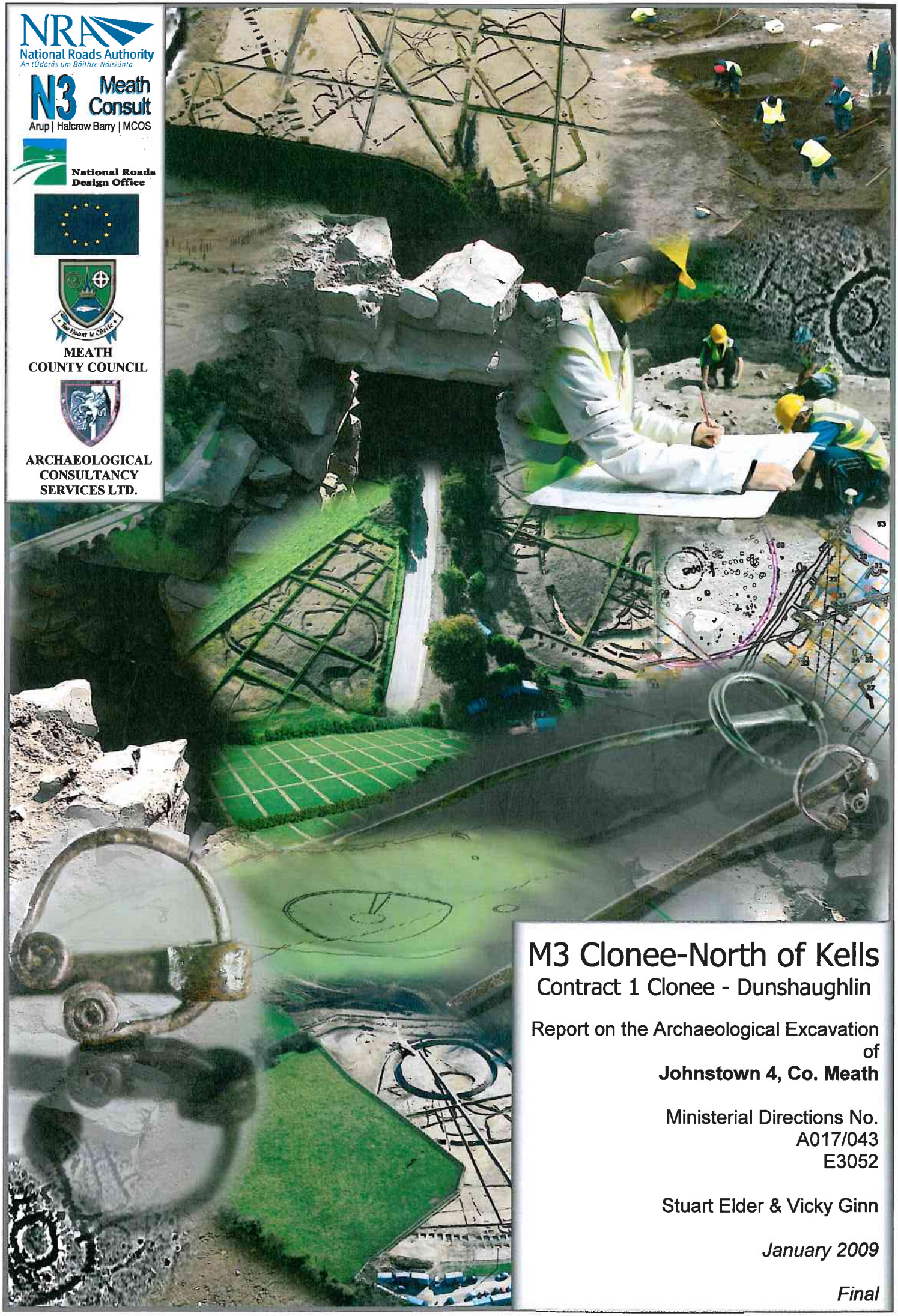

M3 Clonee-North of Kells

Contract 1 Clonee - Dunshaughlin

Report on the Archaeological Excavation of
Johnstown 4, Co. Meath

Ministerial Directions No.
A017/043
E3052

Stuart Elder & Vicky Ginn

January 2009

Final

PROJECT DETAILS

Project	M3 Clonee–Kells Motorway
Site Name	Johnstown 4
Ministerial Direction Number	A017/043
Registration Number	E3052
Senior Archaeological Consultant	Donald Murphy
Site Director	Stuart Elder
Excavated	22 February – 21 July 2006
Client	Meath County Council, National Roads Design Office, Navan Enterprise Centre, Navan, County Meath
Townland	Johnstown
Parish	Dunshaughlin
County	Meath
National Grid Reference	295662 251657
Chainage	12650–12850
Report Type	Final
Report Status	Submitted
Date of Report	January 2009
Report by	Stuart Elder with 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).

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NON-TECHNICAL SUMMARY

The site at Johnstown 4 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. The excavation was carried out between 22 February and 21 July 2006 under Ministerial Direction Number A017/043 issued by the DoEHLG in consultation with the NMI.

The site comprised a ringditch with a well-defined entrance to the southeast, and was flanked by three small cremation pits. Two other pits and a spread of burnt material were noted within the enclosed area, but there were no formal burials. Cremated bone and associated charcoal-rich deposits were present in the upper level of the ditch fills either side of the entrance.

The site at Johnstown 4 can be dated to the Later Bronze Age or Early Iron Age (c.900–200 BC).

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1 INTRODUCTION

The site at Johnstown 4 (Figures 1–7; Plates 1–2) was identified by Stuart Elder when excavating the adjacent site of Johnstown 3 (A017/021). It was situated on a north-facing slope at a height of approximately 99m OD. The plot was tested by Eamonn Cotter during March 2004 under licence number 04E0476 (Cotter 2004). Archaeological test trenching revealed an elongated spread (c. 2m long) of charcoal-rich material with occasional inclusions of cremated bone. It was interpreted as an isolated spread, due to the fact that no other features or deposits were located in the vicinity. However, while the site at Johnstown 3 was being excavated cremation deposits and pottery were noted and the area of the spread at Johnstown 4 was therefore investigated further, as it was thought that the locale may represent a more formal burial site.

Topsoil stripping was undertaken of an area measuring 20m x 20m surrounding the feature, but this was extended to 60m north–south by 40m east–west, following the discovery of a ringditch. Resolution of the site followed in February 2006, but was delayed in April due to bad weather. Excavation continued again in June 2006.

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 1) commences at the end of the existing Clonee Bypass, east of Dunboyne (NGR 303385 241281) and proceeds in a north western direction, finishing to the west of Dunshaughlin (NGR 295633 253070).

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 took place between 22 February and 21 July 2006 under Ministerial Direction Number A017/043 issued to Meath County Council NRDO. The work was carried out by Stuart Elder on behalf of ACS. The topsoil (F170: 0.35m depth) was silty clay that was peaty in places and was removed by a machine equipped with a grading bucket under archaeological supervision. A light-orange clay comprised the subsoil (F171).

All archaeological features exposed were recorded and excavated by hand using the single context method. 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 recovered from the site underwent an initial archaeological assessment and where deemed appropriate further specialist analysis was carried out on each artefact type.

2.1 Results

One hundred and sixty three contexts of archaeological interest were identified within the excavation area. Only the principal archaeological features of Johnstown 4 will be discussed within this report; full details of all these, and further, contexts are located in Appendix 1.

2.1.1 Enclosing ditch

A sub-rectangular ditch was identified (F163: c.1.70m average width x c. 0.70m average depth) (Figures 7–9; Plates 3–6). It enclosed an area measuring 24.50m north–south by 19.50m east–west and had a southeastern entrance. A small portion of the ditch, on the northeast side, was located outside the proposed landtake, but the excavated portion still amounts to over 98%. Over 130 fills (F3–F9, F12–F121, F123, F125–F130, F135, F142–F144, and F157–F162) predominantly consisting of clayey silt and also silty clay, were identified. The majority of these contained decayed stones including sandstones and mudstones and many also contained varying levels of charcoal flecks (alder, hazel, ash,

Maloideae and cherries; Appendix 5). Burnt animal bone fragments (were identifiable) were recovered from some fills (F3, F24, F121, F123 and F143). This bone could not be identified to species, while charred grains (oats and barley where identifiable) were also recovered from F24 and F121 (Appendix 5). Evidence that the ditch had been re-cut could be seen in some of the sections but this was not uniform throughout the whole ditch. Sloe/blackthorn from F135 was dated to 896–675 BC (Beta 246955), while Maloideae from F143 was dated to 896–773 BC (Beta 246956); see Appendix 9).

Five fills (F14, F130, F135, F142, and F143) contained animal bone and, with the exception of F14, these deposits were located on either side of the entrance. Not all of the animal bone was identifiable and only a single species – cattle (*Bos taurus*) – was noted (see Appendix 4). A single loose tooth from F130 and one each of tooth, pelvis fragment, lower foreleg fragment, and heel fragment from F143 were identified. Due to the fragmentary nature and poor preservation of some of the specimens, it was not possible to determine sex, height, or pathology, although an approximate age for two of the F143 specimens was determined at between 6–10 and 42–48 months based upon the detailed analysis of the stages of bone fusing. The sample, although sparse, can be compared to the nearby Johnstown 3 (A017/021) assemblage, where teeth and lower limb fragments predominated (Sloane 2007). This may suggest the ritual placement of food as part of the funeral process.

2.1.2 Internal features

Five pits, a spread and a posthole were all located in the interior of the enclosing ditch (Figures 7–9). Three of the pits were sub-circular and similarly sized (F138: 0.33m width x 0.06m depth; F146: 0.37m x 0.22m x 0.05m and F148: 0.38m x 0.36m x 0.08m); each contained one fill (F133, F145 and F147, respectively), which consisted of charcoal flecks and burnt bone. Burnt bone was also recovered from the upper fill (F134) of oval, east–west pit (F140: 1.60m x 0.66m x 0.25; Plate 7) and from a shallow, silt spread (F149: 3.72m x 3.00m x 0.10m). None of this bone could be identified to species (Appendix 5). There was no evidence of in situ burning in any of these features.

The fifth pit (F151: 0.82m x 0.40m x 0.08m) had unidentified charcoal flecks in its fill (F150). A pit/posthole (F154: 0.53m x 0.45m x 0.24m; Plate 8) was also identified. Among its four, charcoal-rich fills (F152, F153, F155, and F156; Maloideae where identified (Appendix 5)) were packing stones and also animal bones and a chert flake (A017/043:153:2; Appendix 8). The flake was typologically diagnostic of Early Mesolithic technology and is certainly residual in this context. This was accompanied by a limestone flake (A017/043:153:2; Appendix 8). Further Early Mesolithic material was found elsewhere along the project, most

locally to the site under discussion at Johnstown 1 (A017/019). F153 was dated to 968–801 BC (Beta 246957; Appendix 9). A rubbing stone was also identified came from F153 also (see Appendix 10).

2.1.3 External features

A further three, sub-circular pits were observed during the excavations (Figure 7). F137 (0.58m x 0.52m x 0.20m) was located to the NNE of the ditch and contained two fills, the primary of which (F136) consisted of burnt stones while the secondary (F10) also contained frequent unidentified burnt bone and charcoal (alder, hazel, ash, Maloideae; Appendix 5). Hazel from this deposit was dated to 407–208 BC (Beta 246954; Appendix 9). Clayey silt with occasional stones, a nutshell and burnt bone comprised the fill (F11) of the shallow, eastern pit F131 (0.32m x 0.32m x 0.05m). The third pit, F141 (0.22m x 0.20m x 0.05m), situated to the southeast of the ditch, had a single fill of sandy silt, also with occasional burnt bones and charcoal (F132). Once again, none of the burnt bone assemblage could be identified to species.

2.2 Finds

Artefacts were few at Johnstown 4 and limited to a rubbing stone and chert flake (A017/043:153:1–2) and a small pottery sherd of middle to late Bronze Age domestic ware (A017/043:171:1) recovered during a clean back of the site.

3 DISCUSSION

The site at Johnstown 4 comprised a trapezoidal ditched enclosure with an opening to the east. Within the site, a collection of spreads and cut features contained traces of charcoal, burnt bone and charred grain. The site does not draw immediate conclusions as to its original function. A possible interpretation is a ringditch; such monuments were constructed to create a focal point in the landscape acknowledging the deceased of a community or local group, through rites associated with the funerary ritual (Cooney & Grogan 1999, 140). This interpretation is hampered somewhat by the failure to positively identify human remains within the burnt bone assemblage from the site.

Ringditches occur in many forms, and across a broad date range. Circular, sub-circular, sub-rectangular, and oval ring ditches occur from the Late Neolithic to the early medieval periods, without any one form being necessarily attached to a particular period. Ring ditches are one of the monument types classified under the label barrow. Newman has identified five main types in the Tara area (Newman 1997). He classes them on the difference of morphology of the monuments. The first and most simple type is the ring-ditch that is defined by an annular

or penannular enclosing ditch, usually 6-15m in diameter. The second type is the embanked ring-ditch which has the same distinguishing features as a ring ditch but is encompassed by an external bank, usually 10-60m in diameter. The third type is the ring barrow, which is simply constructed by adding a low mound to the monument. The bowl barrow is the fourth category that consists of a large prominent mound surrounded by a ditch and outer bank. The final type is identical to a bowl barrow but lacks an external bank. Two additional barrow types have been identified by Farrelly and Keane (2002). They are stepped barrows and enclosure barrows. The stepped barrow consists of a barrow supported on a larger platform, thus giving the appearance of a berm or ledge surrounding the barrow. The enclosure barrow is composed of a raised circular area enclosed by a bank and sometimes an external ditch. Although such classifications provide a structured way of thinking about the monuments they obscure differences and variations between monument form and thus possibly their function. Such categorization also ignores the possibility that many monuments have been altered by later activity on the site. Waddell has noted that many of the monuments classified as ring-ditches may once have been ring barrows where the mound has subsequently being removed by ploughing (Waddell, 1998, 365). Approximately 178 recorded examples of ring ditches/ring barrows have been excavated or otherwise investigated to date in Ireland, only 16 examples fall within the range of dimensions of the Johnstown 4 example, i.e. 19–25m (Table 1); the rest are much smaller. Twelve other possibly Bronze Age ringditch sites (Castlefarm (A017/001), Cooksland 3 (A017/023), Raynestown 1 (A017/016), Ardsallagh 2 (two ringditches) (A008/035), Garretstown 2 (two ringditches) (A008/008), Lismullin 1 (A008/021), Ross 1 (A008/077), Ross 2 (A008/082), Boyerstown 3 (A023/015), Cakestown Glebe (A029/038), Commons of Lloyd 1 (A029/037), and Grange 3 (A029/005), and a single site dating to the Iron Age (Ardsallagh 1, A008/034) were excavated as part of the M3 Motorway Scheme Contracts 1-3 & 5. Johnstown 4 was the largest of the M3 examples. With the exception of the possible ringditch at Boyerstown 3 (A023/015), all of the other M3 ringditch sites appear to be located on higher ground (Johnstown 4 was located on 99m OD) and within 1km of a river. The multi-period site at Boyerstown 3 was situated approximately 1.7km from the nearest stream depicted on the OS Discovery Series maps, although there was a stream close to Boyerstown 2 approximately 700m away (Terry Connell, pers. comm.). Boyerstown 3, like Johnstown 4, was located in an area of prehistoric activity, and a number of burnt mounds were located nearby.

Site Name	County	Date	Shape	Dimensions
Ardsallagh 2	Meath	Bronze Age	Circular	21m
Ballykane Hill	Kildare	Not recorded	Circular	22m
Balregan	Meath	Not recorded	Circular	20m
Carn More 1	Louth	Early Bronze Age	Circular	25m
Carrowjames IV	Mayo	Middle Bronze Age	Circular	21.35m
Cloncowan 2	Meath	Middle Bronze Age	Penannular	23m
Gortatlea	Kerry	Not recorded	Not recorded	25m
Harlockstown	Meath	Early Bronze Age	Circular	25m
Laytown	Meath	Iron Age	Circular	33m
Mell 2 : Site A	Louth	Early-Middle Bronze Age	Oval	19.26 x 12m
Mitchelstowndown West – Barrow 54	Limerick	Bronze Age (presumed)	Sub-circular	21 x 17.50m
Morett 4	Laois	Iron Age	Sub-circular	20 x 16m
Mount Usher	Wicklow	Early Bronze Age	Circular	19m
Mullaghmore A	Down	Late Bronze Age	Circular	21.34m
Pubble	Derry	Bronze Age (presumed)	Circular	23.80m
Rath 1A	Meath	Middle Bronze Age	Circular	19.50m
Raystown	Meath	Late Iron Age/Early Medieval	Penannular	20m

Table 1: Comparatively sized ring ditches/ring barrows
(information from **www.excavations.ie**, except Ardsallagh 2 (M3))

The majority of the examples listed in Table 1 have at least some form of formal burial deposit, either in the form of inhumations, urn-burials (cremations), or associated cremation pits. The lack of any formal cremation within the enclosure at Johnstown 4, and indeed across the range of such sites found on the M3 Motorway Scheme, may indicate that the deposition of human remains was not necessarily the primary function of these monuments. Grogan has suggested that such sites displaying an absence of burial remains, or perhaps only token deposits, may represent cenotaphs (Daly & Grogan 1993, 60). This would seem plausible in a landscape where other, earlier burial monuments exist, or where flat cremation cemeteries are located nearby. At Johnstown 4 cremation deposits were located outside the enclosed space and also in the upper levels of the ditch terminals. Nearby, cremation deposits were also located at Johnstown 3 (A023/021), and are dated to the Early Bronze Age.

The dates from the ditch and from associated pits at Johnstown 4 indicate a floruit for the site during the Late Bronze Age and Early Iron Age.

3.1 Form and Function

The working hypothesis formed during excavation and early post-excavation analysis, that the site at Johnstown 4 was a ring ditch remains plausible, however the lack of positively identified human bone remains a stumbling block to full interpretation. It is assumed that this site represents a sacred space for activity relating to the burial rites of the local later Bronze Age or early Iron Age community.

Surrounding Environment

The largest volume of charcoal was present in cremation pit fill (F10), and comprised elm, Maloideae (Hawthorn, whitebeams, apple or pear), ash, hazel and alder (Appendix 5). Oak charcoal dominated the assemblage in the clay layer (F131), while hazel and Maloideae were the main species in ditch fill (F121), cremation deposit (F135) and ditch (F143). Blackthorn and cherries (wild cherry, bird cherry or blackthorn) were also present in the cremation deposit (F135). If the wood was gathered locally, the results suggest that the landscape included deciduous woodland comprising ash, oak and elm. Hazel would have grown in the understorey vegetation, or by the woodland margins with blackthorn, cherries and Maloideae. Alder would have occupied wetland areas, for example along riverbanks or in carr vegetation. This local woodland would have provided an important source of wild food, as identified by the charred plant macrofossils, in addition to a resource of wood for fuel and building materials.

Cremation pit fill (F10) comprised ash, elm, Maloideae, hazel and alder, and the cremation deposit (F135) included hazel, Maloideae, blackthorn and cherries. This may indicate that these species were used for fuel on the cremation pyre. Although these species (particularly Maloideae and cherries) have been associated with prehistoric cremations, studies indicate that oak was usually chosen, as it allowed the high temperatures (500ºC) needed to burn body fats and maintain combustion. As the cremation deposits appear to either have been token, the charcoal in these contexts may not reflect the full range of species used for the cremations, or may include material which derived from domestic activity or burnt structures.

Oak and ash were abundant in the clay layer (F131). Both of these trees provided important structural timbers in prehistory, and oak also made an excellent firewood. Hazel was frequently recorded on the site, which was a species traditionally used for wattling, due to the

flexibility of the young stems. It was also a useful firewood as it burns slowly, giving off considerable heat.

3.2 Date and Sequence

The main period of activity at Johnstown 4 was the Late Bronze Age and Early Iron Age period. There was insufficient evidence to devise a more in-depth sequence of deposition at the site.

Context	Beta Code	Lab Calibrated Date (2-sigma)	Oxcal Calibrated date	Conventional Date (BP)
10: fill of cremation pit	246954	Cal BC 400-350 & Cal BC 290-220	407-208 BC	2290 +/- 40
135: fill of ditch near entrance	246955	Cal BC 840-780	896-675 BC	2630 +/- 40
143: fill of ditch	246956	Cal BC 840-780	896-773 BC	2640 +/- 40
153: fill of pit	246957	Cal BC 920-800	968-801 BC	2710 +/- 40

Table 2: Radiocarbon dating from Johnstown 4 (see Appendix 9)

4 CONCLUSIONS

Johnstown 4 (A017/043) was excavated from 22 February to 21 July 2006 by Stuart Elder (ACS) as part of the M3 Clonee–North of Kells Motorway Scheme on behalf of Meath County Council NRDO and the NRA. The site represents a ringditch burial monument of probable Bronze Age date. The three small pits outside the monument formed token burials along with the cremated remains found throughout the ditch fills close to the entrance and the site represented a burial focus in the local landscape. The site has been dated to the Late Bronze Age or Early Iron Age.

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Signed:

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Stuart Elder and Vicky Ginn

January 2009

APPENDIX 1 *Context Details*

Johnstown 4: A017/043											
No	**Type**	**Fill of/ Filled with**	**Strat above**	**Strat below**	**Description**	**Interpretation**	**Group**	**Artefacts**	**Animal bone**	**Cremated bone**	**Samples**
1	Sod				Sod	Sod					
2	Clean back				Clean back	Clean back		Pottery			
3	Fill				Firm, greyish-yellow, clayey silt with occasional pebbles and moderate sub-rounded stones	Upper fill of barrow ditch 163					#271
4	Fill	163	13	170	Compact, reddish-greyish-brown, silty clay with very occasional charcoal flecks, occasional sandstones, mudstones and decayed stones. 1.17m width x 0.26m depth	Upper fill of barrow ditch 163					#92, #120 soil
5	Fill	163	6	4	Firm, greyish-yellow, clayey silt with occasional pebbles and moderate sub-rounded stones (0.05m x 0.06m). 2.00m x 0.43m x 0.12m	Fill of barrow ditch 163					#121 soil
6	Fill	163	8, 9, 12	4, 5	Moderately compact, light-greyish-brown, clayey silt with occasional mudstones, charcoal flecks and moderate sub-angular stones (0.04m x 0.05m). 2.00m x 0.88m x 0.32m	Fill of barrow ditch 163					#133 soil
7	Fill	163	8	6, 170	Moderately compact, dark-brownish-grey, clayey silt with occasional sub-rounded stones and frequent mudstones. 2.00m x 0.41m x 0.10m	Fill of barrow ditch 163					#123 soil
8	Fill	163	12	6, 7	Soft, mid-greyish-brown, clayey silt with very occasional charcoal flecks, occasional rounded pebbles and frequent mudstones. 2.00m x 0.29m x 0.06m	Fill of barrow ditch 163					#93, #124 soil
9	Fill	163	12	4-6	Same as 008. 2.00m x 0.80m x 0.15m	Fill of barrow ditch 163					#8, #125 soil
10	Fill	137	136	170	Moderately compact, dark-greyish-brown, clayey silt with occasional moderate stones and frequent burnt bone. 0.62m x 0.49m x 0.15m	Upper fill of cremation pit 137				Yes	#157-160 soil
11	Fill	131	131	170	Loose, light-greyish-brown, clayey silt with occasional stones (0.02m x 0.04m) and cremated bone. 0.32m x 0.32m x 0.05m	Fill of cremation pit 131				Yes	#5

12	Fill	163	163	6, 8, 9, 14, 20, 21	Soft, light-greyish-brown, clayey silt with occasional decayed stones, mudstones and sub-angular stones. 6.00m x 0.48m x 0.20m	Primary fill of barrow ditch 163					
13	Fill	163	14	4, 170	Friable, mottled-greyish-brown to greyish-yellow, clayey silt with very occasional charcoal flecks, occasional sandstones and mudstones. 3.00m x 1.04m x 0.25m	Fill of barrow ditch 163					#9, #126 soil
14	Fill	163	16, 20, 21	13	Soft, yellowish-grey, clayey silt with very occasional charcoal flecks, occasional mudstones (0.03m x 0.04m) and decayed stones. 1.00m x 1.13m x 0.20m	Fill of barrow ditch 163			Yes		#10, #127 soil
15	Fill	163	163, 171	14, 170	Firm, dark-brownish-grey, clayey silt with occasional sandstones and moderate mudstones (0.03m x 0.04m). 2.00m x 0.34m x 0.19m	Fill of barrow ditch 163					#11, #128 soil
16	Fill	163	12	14	Firm, mid-greyish-yellow, clayey silt with occasional sandstones and moderate mudstones. 2.00m x 0.60m x 0.12m	Fill of barrow ditch 163					#129 soil
17	Fill	163	18, 163	170	Firm, mid-greyish-brown, clayey silt with occasional decayed stones and frequent decayed mudstones. 2.00m x 0.25m x 0.23m	Fill of barrow ditch 163					#130 soil
18	Fill	163	163	19, 170	Compact, light-yellowish-grey, clayey silt with occasional small pebbles. 2.00m x 0.17m x 0.20m	Fill of barrow ditch 163					#131 soil
19	Fill	163	163	170	Moderately compact, mid-greyish-brown, clayey silt with moderate sub-angular stones. 2.00m x 0.33m x 0.25m	Fill of barrow ditch 163					#132 soil
20	Fill	163	21, 12	14	Compact, light-greyish-yellow, clayey silt with moderate sub-angular stones (0.02m x 0.03m) and pebbles. 2.00m x 0.55m x 0.22m	Fill of barrow ditch 163					#12 soil
21	Fill	163	12	20, 14	Compact, light-brownish-grey, clayey silt with very occasional charcoal flecks, moderate sandstones and frequent pebbles. 9.00m x 0.34m x 0.15m	Fill of barrow ditch 163					#13 soil
22	Fill	163	24, 25	4, 170	Friable, light-brownish-yellow, silty clay with moderate sub-angular stones (0.03m 0.04m), sandstones and frequent pebbles. 2.00m x 0.43m x 0.12m	Fill of barrow ditch 163					#14 soil
23	Fill	163	24, 25	4, 170	Compact, light-brownish-yellow, clayey silt with occasional sub-angular stones (0.02m x 0.02m), charcoal flecks, sandstones and moderate mudstones (0.04m x 0.05m). 8.00m x 0.65m x 0.16m	Fill of barrow ditch 163					#15 soil

24	Fill	163	22, 25	4, 23	Friable, light-brownish-yellow, clayey silt with moderate sub-angular stones and pebbles. 8.00m x 0.77m x 0.19m	Fill of barrow ditch 163					#1, #16 soil
25	Fill	163	14	22-24	Firm, light-greyish-brown, clayey silt with very occasional charcoal flecks and frequent pebbles. 3.00m x 1.27m x 0.16m	Fill of barrow ditch 163					#17 soil
26	Fill	163	22, 27	24	Moderately compact, mid-brown, silty clay with occasional charcoal flecks and pebbles. 3.00m x 0.17m x 0.07m	Fill of barrow ditch 163					#18 soil
27	Fill	163	14, 28	13, 26	Compact, mid-greyish-yellow, clayey silt with occasional sandstones and pebbles. 7.00m x 1.12m x 0.22m	Fill of barrow ditch 163					#19 soil
28	Fill	163	14	22, 25-27	Firm, light-brownish-grey, clayey silt with occasional sub-angular stones (0.04m x 0.05m) and decayed mudstones. 3.00m x 0.56m x 0.11m	Fill of barrow ditch 163					#20 soil
29	Fill	163	21	14	Soft, light-greyish-yellow, clayey silt with occasional sandstones and pebbles. 7.00m x 0.95m x 0.20m	Fill of barrow ditch 163					#21 soil
30	Fill	163	31	170	Firm, light-reddish-brown, silty clay with occasional angular stones, pebbles and decayed sandstones. 0.50m width x 0.24m depth	Fill of barrow ditch 163					#22 soil
31	Fill	163	23	30	Firm, light-reddish-brown, silty clay with occasional decayed stones. 5.00m x 0.45m x 0.24m	Fill of barrow ditch 163					#23 soil
32	Fill	163	21, 163	14	Firm, light-greyish-brown, silty clay with occasional decayed stones, sandstones and pebbles. 5.00m x 0.54m x 0.17m	Fill of barrow ditch 163					#24 soil
33	Fill	163	47	45, 170	Soft friable, mid-greyish-brown, silty clay with occasional sub-rounded pebbles. 4.00m x 0.49m x 0.17m	Fill of barrow ditch 163					#7 soil
34	Fill	163	37	170	Firm friable, reddish-brown, silty clay with occasional angular pebbles. 3.00m x 0.12m x 0.13m	Fill of barrow ditch 163					
35	Fill	163	37	4	Soft friable, mid-reddish-brown, silty clay with occasional angular to sub-rounded pebbles. 3.00m x 0.49m x 0.12m	Fill of barrow ditch 163					#94 soil
36	Fill	163	40	170	Firm, orangey-grey, clayey silt with occasional decayed stones, pebbles and charcoal flecks. 7.00m x 0.37m x 0.10m	Fill of barrow ditch 163					#25, #133 soil
37	Fill	163	38, 39	34-36	Soft friable, reddish-brown, silty clay with occasional angular pebbles. 3.00m x 0.63m x 0.07m	Fill of barrow ditch 163					#95 soil

38	Fill	163	39	37	Same as 037. 3.00m x 0.33m x 0.10m	Fill of barrow ditch 163					
39	Fill	163	40	36-38	Soft plastic, yellowish-grey, silty clay with occasional angular and decayed stones. 3.00m x 0.42m x 0.24m	Fill of barrow ditch 163					#96 soil
40	Fill	163	163	39	Soft plastic, orangey-brown, clayey silt with occasional angular to rounded pebbles and decayed stones. 5.00m x 0.65m x 0.26m	Fill of barrow ditch 163					#26, #134 soil
41	Fill	163	31, 42	4	Firm, yellowish-brown, clayey silt with occasional decayed stones (0.02m x 0.03m) and sub-angular stones (0.01m x 0.05m). 5.00m x 0.44m x 0.12m	Fill of barrow ditch 163					#27 soil
42	Fill	163	43	4, 41	Friable, light-greyish-orange, silty clay with occasional angular stones, charcoal and moderate sub-angular stones (0.01m x 0.03m). 5.00m x 0.87m x 0.27m	Fill of barrow ditch 163					#28 soil
43	Fill	163	40	42	Soft friable, light-greyish-brown, silty clay with occasional angular pebbles. 0.83m x 0.14m x 0.35m	Fill of barrow ditch 163					#29 soil
44	Fill	163	47	43, 170	Soft friable, mid-greyish-brown, silty clay with occasional angular pebbles. 0.19m width x 0.21 depth	Fill of barrow ditch 163					#30 soil
45	Fill	163	47	44, 170	Soft friable, light-yellowish-grey, silty clay with occasional decayed pebbles. 0.10m width x 0.16m depth	Fill of barrow ditch 163					#31 soil
46	Fill	163	47	170	Moderately compact, orangey-brown, clayey silt with occasional sub-angular stones (0.01m x 0.02m) and flat stones. 5.00m x 0.56m x 0.15m	Fill of barrow ditch 163					#32 soil
47	Fill	163	163	33, 44-46	Firm, greyish-yellow, clayey silt with occasional sandstones and moderate decayed mudstones. 3.00m x 0.46m x 0.07m	Fill of barrow ditch 163					#33 soil
48	Fill	163	42	4, 170	Firm, dark-orangey-brown, clayey silt with occasional angular pebbles and decayed stones. 3.00m x 0.32m x 0.14m	Fill of barrow ditch 163					#34 soil
49	Fill	163	52	50, 4	Firm, yellowish-brown, clayey silt with occasional sub-angular stones (0.01m x 0.02m). 3.00m x 0.21m x 0.07m	Fill of barrow ditch 163					#35 soil
50	Fill	163	49, 50	4	Firm, light-greyish-brown, clayey silt with moderate sub-angular stones (0.01m x 0.02m). 3.00m x 0.27m x 0.07m	Fill of barrow ditch 163					#36 soil

51	Fill	163	43, 53	41, 4	Firm, light-brown, clayey silt with occasional sandstones (0.02m) and decayed stones. 3.00m x 0.32m x 0.16m	Fill of barrow ditch 163					#37 soil
52	Fill	163	40, 53	49, 50	Moderately compact, mid-grey, clayey silt with moderate angular stones (0.01m). 3.00m x 0.60m x 0.15m	Fill of barrow ditch 163					#38 soil
53	Fill	163	40	51	Firm, light-orangey-brown, clayey silt with occasional angular pebbles (0.01m x 0.02m) and decayed stones. 3.00m x 0.24m x 0.07m	Fill of barrow ditch 163					#39 soil
54	Fill	163	55, 56	170	Firm, light-greyish-brown, clayey silt with occasional angular pebbles and moderate sub-angular stones (0.1m x 0.03m). 6.00m x 1.13m x 0.06m	Fill of barrow ditch 163					
55	Fill	163	56, 62	54	Moderately compact, light-orangey-brown, silty clay with occasional charcoal flecks and moderate pebbles. 6.00m x 0.72m x 0.19m	Fill of barrow ditch 163					#40 soil
56	Fill	163	43, 57	54, 55	Firm, mid-reddish-brown, clayey silt with occasional stones (0.01m x0.015m) and angular pebbles. 5.00m x 0.53m x 0.14m	Fill of barrow ditch 163					#41 soil
57	Fill	163	58	56	Firm, mid-orangey-brown, clayey silt with occasional sub-angular stones (0.02m), charcoal flecks and moderate pebbles. 3.00m x 0.40m x 0.08m	Fill of barrow ditch 163					#42 soil
58	Fill	163	40	57	Friable, light-greyish-orange, clayey silt with occasional mudstones, sandstones and moderate sub-angular to rounded stones (0.05m). 5.00m x 0.29m x 0.07m	Fill of barrow ditch 163					#45 soil
59	Fill	163	60	170	Moderately compact, mid-greyish-brown, clayey silt with occasional sandstones and moderate rounded pebbles. 6.00m x 0.30m x 0.09m	Fill of barrow ditch 163					#46 soil
60	Fill	163	40	59	Firm, light-brownish-grey, clayey silt with occasional pebbles and moderate decayed mudstones. 3.00m x 0.38m x 0.08m	Fill of barrow ditch 163					#43 soil
61	Fill	163	36	170	Firm, mottled-reddish-light-greyish-brown, clayey silt with occasional angular pebbles. 3.00m x 0.20m x 0.10m	Fill of barrow ditch 163					#44 soil
62	Not assigned										
63	Fill	163	64, 65	58	Firm, light-greyish-yellow, silty clay with occasional angular pebbles. 3.00m x 0.21m x 0.06m	Fill of barrow ditch 163					#48 soil

64	Fill	163	163	58, 63, 65	Friable, light-yellowish-brown, clayey silt with occasional pebbles and decayed stones. 4.00m x 0.51m x 0.12m	Fill of barrow ditch 163					#49 soil
65	Fill	163	163, 81	66	Soft, light-greyish-yellow, clayey silt with occasional charcoal flecks, pebbles, decayed mudstones and moderate sandstones. 13.00m x 0.77m x 0.16m	Fill of barrow ditch 163					#50 soil
66	Fill	163	65	79, 80	Moderately compact, mid-yellowish-grey, silty clay with occasional angular stones and moderate pebbles. 8.00m x 0.22m x 0.07m	Fill of barrow ditch 163					#51soil
67	Fill	163	75	55, 68	Firm, light-greyish-yellowish-brown, silty clay with occasional angular pebbles. 5.00m x 0.21m x 0.09m	Fill of barrow ditch 163					#52 soil
68	Fill	163	74	67	Firm, mottled-light-yellowish-reddish-brown, clayey silt with occasional angular stones. 5.00m x 0.39m x 0.09m	Fill of barrow ditch 163					#53 soil
69	Fill	163	65	59, 74	Firm, greyish-brown, clayey silt with occasional angular pebbles. 3.00m x 0.20m x 0.04m	Fill of barrow ditch 163					#54 soil
70	Fill	163	71	62, 66, 67	Compact, light-yellowish-reddish-brown, clayey silt with occasional angular pebbles. 3.00m x 0.30m x 0.06m	Fill of barrow ditch 163					#55 soil
71	Fill	163	72, 73	70	Firm, yellowish-brown, clayey silt with occasional angular pebbles. 3.00m x 0.24m x 0.10m	Fill of barrow ditch 163					#56 soil
72	Fill	163	163	64, 65, 74	Compact, greyish-yellowish-brown, clayey silt with occasional angular pebbles and decayed stones. 3.00m x 0.12m x 0.12m	Fill of barrow ditch 163					#57 soil
73	Fill	163	64, 163	64, 170	Firm, greyish-brown, clayey silt with occasional angular pebbles. 3.00m x 0.43m 0.06m	Fill of barrow ditch 163					#58 soil
74	Fill	163	65, 72	67, 68	Firm, mid-yellowish-reddish-brown, clayey silt with occasional angular pebbles. 3.00m x 0.48m x 0.09m	Fill of barrow ditch 163					#59 soil
75	Fill	163	163	67	Moderately compact, mid-brownish-orange, clayey silt with moderate pebbles (0.015m). 3.00m x 0.60m x 0.17m	Fill of barrow ditch 163					#60 soil
76	Fill	163	65, 68	55, 59, 170	Firm, reddish-brown, clayey silt with moderate pebbles (0.01m). 3.00m x 0.44m x 0.09m	Fill of barrow ditch 163					#97 soil
77	Fill	163	78	170	Very compact, yellowish-grey, clayey silt with occasional pebbles. 3.00m x 0.68m x 0.06m	Fill of barrow ditch 163					#98 soil
78	Fill	163	59, 79, 80	77, 170	Loose, brownish-grey, silty clay with occasional charcoal flecks, decayed sandstones and moderate pebbles. 9.00m x 0.63m x 0.15m	Fill of barrow ditch 163					#99 soil

79	Fill	163	65	78	Moderately compact, orangey-brown, silty clay with very occasional charcoal flecks, occasional sandstones, moderate sub-angular stones (0.02m x 0.03m) and pebbles. 6.00m x 0.92m x 0.13m	Fill of barrow ditch 163					#100 soil
80	Fill	163	079	059, 170	Friable, mid-grey, silty clay with occasional sandstones and moderate pebbles. 3.00m x 0.26m x 0.13m	Fill of barrow ditch 163					#101 soil
81	Fill	163	82, 83	65	Soft, mid-greyish-yellow, clayey silt with occasional sub-rounded stones (0.02m x 0.03m) and frequent pebbles. 9.00m x 0.63m x 0.10m	Fill of barrow ditch 163					#102 soil
82	Fill	163	163	81	Soft, mottled-yellowish-light-greenish-grey, clayey silt with occasional sandstones, moderate pebbles and frequent decayed mudstones. 9.00m x 0.52m x 0.13m	Fill of barrow ditch 163					#103 soil
83	Fill	163	82, 84	81	Firm, light-yellowish-brown, clayey silt with moderate decayed mudstones and sandstones. 3.00m x 0.24m x 0.05m	Fill of barrow ditch 163					#104 soil
84	Fill	163	82	83	Friable, light-yellowish-brown, clayey silt with decayed mudstones and sandstones. 3.00m x 0.19m x 0.10m	Fill of barrow ditch 163					#105 soil
85	Fill	163	86	65, 78, 81	Moderately compact, mid-greyish-brown, clayey silt with moderate pebbles. 3.00m x 0.15m x 0.07m	Fill of barrow ditch 163					#106 soil
86	Fill	163	82	85	Firm, mid-brownish-grey, clayey silt with very occasional pebbles and moderate mudstones 3.00m x 0.20m x 0.07m	Fill of barrow ditch 163					#107 soil
87	Fill	163	65, 89	79, 170	Friable, reddish-brown, clayey silt with occasional pebbles. 3.00m x 0.30m x 0.11m	Fill of barrow ditch 163					#108 soil
88	Fill	163	89, 90	65	Compact, orangey-brown, clayey silt with occasional pebbles. 3.00m x 0.60m x 0.07m	Fill of barrow ditch 163					#109 soil
89	Fill	163	90	65, 88	Compact, greyish-brown, clayey silt with occasional angular to sub-angular stones (0.03m). 5.00m x 0.90m x 0.09m	Fill of barrow ditch 163					#110 soil
90	Fill	163	81, 91	89	Moderately compact, orangey-brown, clayey silt with occasional angular pebbles, mudstones and moderate sub-angular stones (0.02m x 0.03m). 5.00m x 0.95m x 0.08m	Fill of barrow ditch 163					#111 soil
91	Fill	163	81, 82	90	Moderately compact, mid-brownish-grey, clayey silt with occasional pebbles. 5.00m x 0.22m x 0.11m	Fill of barrow ditch 163					#112 soil

92	Fill	163	93	170	Soft friable, reddish-brown, clayey silt with occasional sub-angular stones (0.04m), decayed stones and pebbles. 3.00m x 0.60m x 0.09m	Fill of barrow ditch 163					#113 soil
93	Fill	163	94	92	Friable, brownish-grey, clayey silt with occasional rounded to sub-angular pebbles and sandstones. 4.00m x 0.97m x 0.25m	Fill of barrow ditch 163					#114 soil
94	Fill	163	97	93	Firm, orangey-grey, clayey silt with moderate decayed pebbles and frequent angular stones (0.03m). 8.00m x 0.48m x 0.15m	Fill of barrow ditch 163					#115 soil
95	Fill	163	96	170	Firm, orangey-grey, clayey silt with occasional angular stones (0.01m x 0.02m) and decayed stones. 4.00m x 0.37m x 0.16m	Fill of barrow ditch 163					#116 soil
96	Fill	163	97, 98	94, 95	Friable, greyish-orange, clayey silt with moderate pebbles. 4.00m x 0.24m x 0.12m	Fill of barrow ditch 163					#117 soil
97	Fill	163	90, 98	94, 96	Crumbly, mid-grey, clayey silt with occasional sandstones and frequent sub-angular stones (0.05m x 0.07m). 15.00m x 0.34m x 0.12m	Fill of barrow ditch 163					#119, #135 soil
98	Fill	163	81, 90	96, 97	Moderately compact, orangey-brown, clayey silt with occasional decayed sandstones and moderate pebbles. 0.24m width x 0.12m depth	Fill of barrow ditch 163					#118 soil
99	Fill	163	98	170	Firm, dark-greyish-brown, clayey silt with occasional sub-angular stones (0.03m x 0.04m), moderate decayed mudstones and pebbles. 0.56m width x 0.29m depth	Fill of barrow ditch 163					#136 soil
100	Fill				Details missing	Fill of barrow ditch 163					
101	Fill	163	94, 107	92, 170	Friable, mid-brownish-orange, clayey silt with occasional sub-angular stones (0.02m) and charcoal flecks. 6.00m x 0.55m x 0.15m	Fill of barrow ditch 163					#66 soil
102	Fill	163	108	92, 170	Friable, light-brownish-orange, silty clay with occasional mudstones and moderate pebbles. 9.00m x 0.38m x 0.18m	Fill of barrow ditch 163					#67 soil
103	Fill	163	163	102	Moderately compact, orangey-brown, clayey silt with occasional pebbles and decayed sandstones. 3.00m x 0.32m x 0.19m	Fill of barrow ditch 163					#68 soil
104	Fill	163	163	97	Soft, mottled-yellowish-greyish-brown, clayey silt with occasional sub-angular stones and moderate pebbles. 9.00m x 0.32m x 0.14m	Fill of barrow ditch 163					#69 soil

105	Fill	163	163	94, 99	Soft, light-greyish-brown, clayey silt with occasional mudstone pebbles. 3.00m x 0.09m x 0.13m	Fill of barrow ditch 163					#70 soil
106	Fill	163	94, 108	102	Soft, light-greyish-yellow, clayey silt with occasional pebbles, moderate sub-angular to rounded stones (0.04m). 3.00m x 0.50m x 0.16m	Fill of barrow ditch 163					
107	Fill	163	97	101	Moderately compact, mottled-orangey-greyish-brown, clayey silt with occasional charcoal flecks and moderate pebbles. 9.00m x 0.27m x 0.12m	Fill of barrow ditch 163					#71 soil
108	Fill	163	97	94, 106	Soft, mottled-mid-greyish-yellowish-brown, clayey silt with occasional sandstones. 6.00m x 0.21m x 0.15m	Fill of barrow ditch 163					#72 soil
109	Fill	163	94, 110	170	Soft, mid-brown, clayey silt with occasional flat stones (0.07m x 0.13m), charcoal flecks and moderate sub-angular stones. 0.04m x 0.06m	Fill of barrow ditch 163					#73 soil
110	Fill	163	94	109	Soft, mid-greyish-brown, clayey silt with occasional sandstones, moderate decayed mudstones and frequent pebbles. 3.00m x 0.26m x 0.09m	Fill of barrow ditch 163					
111	Fill	163	97	107	Soft, yellowish-grey, clayey silt with occasional sandstones, moderate decayed mudstones and frequent pebbles. 3.00m x 0.10m x 0.10m	Fill of barrow ditch 163					#74 soil
112	Fill	163	94, 114	170	Friable, light-orangey-yellowish-brown, silty clay with moderate angular pebbles. 0.20m width x 0.08m depth	Fill of barrow ditch 163					#75, #137 soil
113	Fill	163	122	170	Firm, light-orangey-yellowish-brown, silty clay with occasional angular pebbles. 0.15m width x 0.13m depth	Fill of barrow ditch 163					#76 soil
114	Fill	163	115	102, 112	Firm, mid-yellowish-brown, silty clay with occasional pebbles 0.37m width x 0.06m depth	Fill of barrow ditch 163					#77 soil
115	Fill	163	97, 116	94, 114	Firm, dark-yellowish-brown, silty clay with occasional angular pebbles. 0.25m width x 0.10m depth	Fill of barrow ditch 163					#78, #138 soil
116	Fill	163	97, 104	115	Firm, dark-yellowish-grey, silty clay with occasional pebbles. 0.05m width x 0.09m depth	Fill of barrow ditch 163					
117	Fill	163	118, 122	170	Friable, light-greyish-brown, silty clay with occasional angular pebbles. 0.12m width x 0.10m depth	Fill of barrow ditch 163					#79 soil

118	Fill	163	163	107, 113, 117	Firm, mottled-mid-greyish-yellowish-brown, silty clay. 0.23m width x 0.10m depth	Fill of barrow ditch 163					#80 soil
119	Fill	163	163	107, 170	Firm, mid-greyish, silty clay with occasional pebbles and decayed stones. 0.08m width x 0.21m depth	Fill of barrow ditch 163					
120	Fill	163	122, 94	170	Firm, orangey-grey, silty clay with moderate angular pebbles. 0.10m width x 0.10m depth	Fill of barrow ditch 163					#81 soil
121	Fill	124	123	170	Soft, blackish-brown, clayey silt with occasional charcoal flecks and sub-angular stones. 0.43m x 0.42m x 0.05m	Upper fill of cremation pit 124					#2 burnt bone and charcoal
122	Fill	163	97	117, 120	Firm, orangey-grey, silty clay with frequent angular stones (0.02m x 0.03m x 0.04m). 0.10m width x 0.07m depth	Fill of barrow ditch 163					#82 soil
123	Fill	124	124	121	Compact, dark-brown, clayey silt with occasional charcoal flecks. 0.43m x 0.42m x 0.08m	Primary fill of cremation pit 124					#3, #4, soil and burnt bone
124	Cut	121, 123	171	123	Circular cut (0.43m x 0.42m x 0.13m) with a sharp-imperceptible break of slope, concave sides and an imperceptible to gradual break of slope leading to a concave base	Cremation pit					
125	Fill	163	126, 115	102, 112, 170	Firm, greyish-orange, silty clay. 0.33m width x 0.10m depth	Fill of barrow ditch 163					#83 soil
126	Fill	163	97	170	Firm, orangey-reddish-brown, silty clay with occasional pebbles and small stones. 0.90m width x 0.20m depth. Cut by cremation pit 141.	Fill of barrow ditch 163					#84 soil
127	Fill	163	97	126, 170	Firm, light-brown, clayey silt with occasional pebbles and mudstones. 0.04m width x 0.32m depth	Fill of barrow ditch 163					#86, #140 soil
128	Fill	163	163	170	Friable, cream, silty clay with occasional pebbles (3%: 0.02m - 0.10m). 0.15m width x 0.10m depth	Fill of barrow ditch 163					#87 soil
129	Fill	163	115	126	Firm, yellowish-brown, silty clay with occasional pebbles. 0.22m width x 0.09m depth	Fill of barrow ditch 163					#141 soil
130	Fill	163	97	115, 170	Firm, light-brownish-yellow, clayey silt with occasional charcoal. 0.06m width x 0.42m depth	Fill of barrow ditch 163			Yes		#85, #142 soil

131	Cut	11	171	11	Sub-circular cut (0.32m x 0.32m x 0.05m) with a gradual break of slope, steep to gently concave sides and an imperceptible break of slope leading to a concave base	Cremation pit					
132	Fill	141	141	170	Loose, mid-grey, sandy silt with occasional burnt bones. 0.22m x 0.20m x 0.05m	Fill of cremation pit 141				Yes	#143 soil
133	Fill	138	138	170	Friable, mid-greyish-brown, clayey silt with occasional bone fragments and frequent charcoal flecks. 0.33m width x 0.06m depth	Fill of cremation pit 138				Yes	#144 soil, charcoal and burnt bones
134	Fill	140	139	170	Friable, dark-reddish-brown, clayey silt with occasional burnt stones (0.01m x 0.02m) and sub-angular stones (0.06m x 0.08m). 0.60m width x 0.12m depth	Upper fill of cremation pit 140					#145 soil
135	Fill	163	142	170	Firm, dark-grey, sandy silt with moderate burnt bones. 1.55m x 0.60m x 0.12m	Fill of barrow ditch 163				Yes	#146 soil
136	Fill	137	137	010	Moderate, mid-grey silty clay with frequent burnt sub-angular stones. 0.43m x 0.43m x 0.05m	Primary fill of cremation pit 137					
137	Cut	10, 136	171	136	Sub-circular, east-west cut (0.58m x 0.52m x 0.20m) with a sharp break of slope, sharp to convex sides and a sharp to convex break of slope leading to a concave base	Cremation pit					
138	Cut	133	171	133	Sub-circular, north-south cut (0.33m width x 0.06m depth) with a sharp break of slope, gradually sloping sides and a gradual break of slope leading to a flat base	Cremation pit					
139	Fill	140	140	134	Friable, mid-greyish-brown, silty clay with occasional sub-angular stones (0.02m x 0.03m), burnt stones, moderate decayed stones (0.01m) and frequent decayed limestone (0.01m x 0.02m). 0.57m width x 0.18m depth	Primary fill of cremation pit 140					
140	Cut	134, 139	171	139	Oval, east-west cut (1.60m x 0.66m x 0.25m) with a gradual break of slope, steep sides and an imperceptible break of slope leading to a concave base	Possible cremation pit					

141	Cut	132	171	132	Sub-circular, north-south cut (0.22m x 0.20m x 0.05m) with a sharp break of slope, gradual to gently sloping sides and an imperceptible break of slope leading to a flat base. Cuts barrow ditch 163	Cremation pit					
142	Fill	163	143	135, 170	Firm, greyish-brown, sandy silt with occasional sub-rounded to sub-angular stones (0.01m x 0.03m) and charcoal flecks. 4.10m x 0.75m x 0.08m	Fill of barrow ditch 163			Yes		#147 soil
143	Fill	163	97, 130	142	Soft, brown, clayey silt with occasional sub-angular to sub-rounded pebbles (0.01m x 0.03m) and charcoal flecks. 4.60m x 1.80 x 0.16m	Fill of barrow ditch 163			Yes		#88 soil and bones, #148 soil, charcoal and bones, #149, #150 soil
144	Fill	163	7	5	Soft, light-greenish-brown, silty clay with occasional sub-rounded pebbles (0.01m x 0.03m). 2.90m x 1.30m x 0.12m	Fill of barrow ditch 163					
145	Fill	146	146	170	Firm, mid-grey, silt with occasional sub-rounded pebbles, burnt bones and charcoal flecks. 0.37m x 0.22m x 0.05m	Fill of cremation pit 146				Yes	#89 soil and burnt bones
146	Cut	145	171	145	Sub-oval, southeast-northwest cut (0.37m x 0.22m x 0.05m) with a gradual break of slope, gradually sloping sides and an imperceptible break of slope leading to an uneven base	Cremation pit					
147	Fill	148	148	170	Firm, mid-grey silt with occasional sub-rounded stones, burnt bones (0.01m x 0.02m) and charcoal flecks. 0.38m x 0.36m x 0.08m	Fill of cremation pit 148				Yes	#90 soil
148	Cut	147	171	147	Sub-oval, southeast-northwest cut (0.38m x 0.36m x 0.08m) with an imperceptible break of slope, gradually sloping sides and an imperceptible break of slope leading to an uneven base	Cremation pit					
149	Spread	N/A	171	170	Firm, mid-grey silt with moderate sub-angular to sub-rounded pebbles (0.01m-0.05m), cobble stones (0.05m - 0.10m), burnt bones and charcoal flecks. 3.72m x 3.00m x 0.10m	Spread				Yes	

150	Fill	151	151	170	Firm, mid-grey silt with occasional sub-rounded pebbles (0.01m x 0.02) and charcoal flecks. 0.82m x 0.40m x 0.08m	Fill of pit 151					#91 soil
151	Cut	150	171	150	Oval, east-west cut (0.82m x 0.40m x 0.08m) with a sharp break of slope, steep sides and a gradual break of slope leading to a concave base	Pit					
152	Fill	154	153, 155, 156	170	Friable, dark-grey, sandy silt with occasional charcoal flecks. 0.28m x 0.28m x 0.05m	Upper fill of posthole/pit 154					#61 soil
153	Fill	154	154	152, 156	Firm, brownish-grey silt with occasional sub-rounded stones (0.01m x 0.02m) and charcoal flecks. 0.53m x 0.45m x 0.24m	Fill of posthole/pit 154		Stone	Yes		#62 soil
154	Cut	152, 153, 155, 156	171	153	Sub-circular, north-south cut (0.53m x 0.45m x 0.24m) with sharp break of slope, steep sides and a gradual break of slope leading to an uneven base	Posthole/pit					
155	Fill	154	156	152, 170	Loose, brown, sandy silt with occasional charcoal flecks. 0.45m x 0.34m x 0.05m	Fill of posthole/pit 154					#63 soil
156	Fill	154	153	152, 155	Firm, yellowish-brown, clayey silt with occasional sub-angular stones (0.01m - 0.04m). 0.28m x 0.28m x 0.03m	Fill of posthole/pit 154					#64 soil
157	Fill	163	158, 161	170	Firm, light-grey, sandy silt with occasional sub-rounded to sub-angular stones (0.01 x 0.03m). 9.40m x 0.78m x 0.22m	Fill of barrow ditch 163					#151 soil
158	Fill	163	159, 160	157, 170	Firm, brownish-grey, sandy silt with occasional sub-angular to sub-rounded stones (0.01m - 0.05m). 9.40m x 0.88m x 0.28m	Fill of barrow ditch 163					#152 soil
159	Fill	163	160	158	Firm, brown silt with occasional sub-rounded to sub-angular stones (0.01m - 0.05m). 9.20m x 2.22m x 0.45m	Fill of barrow ditch 163					#65 soil and charcoal, #153 soil
160	Fill	163	163	159, 161, 162	Firm, dark-brown, clayey silt with occasional sub-rounded to sub-angular pebbles (0.01m - 0.05m). 9.60m x 2.30m x 0.34m	Fill of barrow ditch 163					#154 soil
161	Fill	163	160	170	Firm, brownish-grey, sandy silt with occasional sub-rounded stones (0.01m x 0.02m). 5.95m x 0.46m x 0.20m	Fill of barrow ditch 163					#155 soil

162	Fill	163	160	161, 170	Firm, greyish-brown, sandy silt with occasional sub-angular stones (0.01m x 0.03m). 5.90m x 0.55m x 0.18m	Fill of barrow ditch 163					#156 soil
163	Cut		171	*	Ditch (c.1.70m width x c.0.70m depth) encloses area c.24.50m north-south x c.19.50m east-west	Ditch					
* Cut 163 is filled with 3-9, 12-120, 122, 125-130, 135, 142-144, and 157-162											
164-169	NOT ASSIGNED										
170	Topsoil				Silty clay, peaty in places. 0.35m depth	Topsoil					
171	Subsoil				Light orange clay	Subsoil					

APPENDIX 2 *Finds List*

Find Number	Description
A017/043:153:1	Possible worked stone
A017/043:153:2	Chert flake
A017/043:171:1	Late-Middle Bronze Age domestic vessel body sherd

APPENDIX 3 *Sample List*

Sample No	Context No	Description
1	24	29g cremated bone fragments and uncremated bone fragments removed from residue/Nothing visible in residue
2	121	2g cremated bone fragments/Nothing visible in residue
3	123	2g uncremated bone fragments/Nothing visible in residue
4	123	Nothing visible in residue
5	11	1g nutshell/Nothing visible in residue
7	33	Nothing visible in residue
8	9	Nothing visible in residue
9	13	Nothing visible in residue
10	14	Very little organics in flot/nothing visible in residue
11	15	Organics in flot/Nothing visible in residue
12	20	Organics in flot/Nothing visible in residue
13	21	Nothing visible in residue
14	22	Organics in flot/Nothing visible in residue
15	23	Organics in residue
16	24	Nothing visible in residue
16	24	Nothing visible in residue
17	25	Nothing visible in residue
18	26	Nothing visible in residue
19	27	Organics in flot, charcoal flecks in residue
19	27	Nothing visible in residue
20	28	Nothing visible in residue
21	29	Nothing visible in residue
22	30	Nothing visible in residue
23	31	Nothing visible in residue
24	32	Organics in flot/Nothing visible in residue
25	36	Nothing visible in residue
26	40	Nothing visible in residue
27	41	Nothing visible in residue
28	42	Nothing visible in residue
29	43	Nothing visible in residue
29	43	Nothing visible in residue
30	44	Organics in flot
31	45	Nothing visible in residue
32	46	Nothing visible in residue
33	47	Nothing visible in residue
34	48	Nothing visible in residue
35	49	Nothing visible in residue
36	50	Nothing visible in residue
37	51	Organics in flot/Nothing visible in residue
38	52	Nothing visible in residue

39	53	Organics in flot/Nothing visible in residue
40	55	Very little organics in flot/nothing visible in residue
41	56	Organics in flot/Nothing visible in residue
42	57	Nothing visible in residue
43	60	Organics in flot/Nothing visible in residue
44	61	Nothing visible in residue
45	58	Nothing visible in residue
46	59	Small amount organics in flot/Nothing visible in residue
47	62	Nothing visible in residue
48	63	Organics in flot/Nothing visible in residue
49	64	Nothing visible in residue
50	65	Organics in flot/Nothing visible in residue
51	66	Nothing visible in residue
52	67	Nothing visible in residue
53	68	Organics in flot/Nothing visible in residue
54	69	Nothing visible in residue
55	70	Nothing visible in residue
56	71	Nothing visible in residue
57	72	Nothing visible in residue
58	73	Nothing visible in residue
59	74	Nothing visible in residue
60	75	Organics in flot/Nothing visible in residue
61	152	Organics and charcoal flecks in residue
62	153	Organic remains, charcoal and bones in residue
63	155	Nothing visible in residue
64	156	Nothing visible in residue
65	159	Organics and charcoal flecks in residue
66	101	Nothing visible in residue
67	102	Nothing visible in residue
68	103	Nothing visible in residue
69	104	Organics in flot/Nothing visible in residue
70	105	Nothing visible in residue
71	107	Nothing visible in residue
72	108	Organics in flot/Nothing visible in residue
73	109	Nothing visible in residue
74	111	Nothing visible in residue
75	112	Nothing visible in residue
76	113	Organics and charcoal flecks in flot/nothing visible in residue
77	114	Nothing visible in residue
78	115	Organics in flot/Nothing visible in residue
79	117	Nothing visible in residue
80	118	Nothing visible in residue
81	120	Nothing visible in residue
82	122	Nothing visible in residue
83	125	Nothing visible in residue
84	126	Organics in flot/Nothing visible in residue

85	130	Nothing visible in residue
86	127	Nothing visible in residue
87	128	Nothing visible in residue
88	143	Nothing visible in residue
89	145	<1g cremated bone recovered
90	147	Organics and charcoal flecks in residue
91	150	Organics in flot/Nothing visible in residue
92	4	Nothing visible in residue
93	8	Nothing visible in residue
94	35	Nothing visible in residue
95	37	Nothing visible in residue
96	39	Nothing visible in residue
97	76	Nothing visible in residue
98	77	Organics and some charcoal flecks in residue
99	78	Organics in flot/organics in residue
100	79	Organics in flot/Nothing visible in residue
100	79	Nothing visible in residue
101	80	Nothing visible in residue
102	81	Organics in flot/Nothing visible in residue
103	82	Nothing visible in residue
104	83	Nothing visible in residue
105	84	Nothing visible in residue
106	85	Nothing visible in residue
107	86	Nothing visible in residue
108	87	Nothing visible in residue
109	88	Nothing visible in residue
110	89	Organics in flot/Nothing visible in residue
111	90	<1g flot, organics and charcoal flecks in residue
112	91	Organics in flot/Nothing visible in residue
113	92	Organics in flot/Nothing visible in residue
114	93	Nothing visible in residue
115	94	Organics in flot/Nothing visible in residue
116	95	Organics and charcoal flecks in flot/ residue
117	96	Nothing visible in residue
118	98	Nothing visible in residue
119	97	Organics in flot
120	4	Nothing visible in residue
121	5	Nothing visible in residue
121	5	Nothing visible in residue
123	7	Nothing visible in residue
123	7	Nothing visible in residue
125	9	Nothing visible in residue
126	13	Nothing visible in residue
127	14	Nothing visible in residue
128	15	Nothing visible in residue
129	16	Nothing visible in residue
130	17	Nothing visible in residue
131	18	Organics in flot/Nothing visible in residue

132	19	Nothing visible in residue
133	6	Organic remains in flot/nothing visible in residue
133	36	Nothing visible in residue
134	40	Nothing visible in residue
135	97	Nothing visible in residue
136	99	Nothing visible in residue
137	112	Nothing visible in residue
138	115	Organics in flot/Nothing visible in residue
140	127	Nothing visible in residue
141	129	Nothing visible in residue
142	130	Organics in flot and charcoal flecks in residue
143	132	Charcoal & organics in residue
144	133	Charcoal and organics in residue
145	134	2g cremated bone recovered
146	135	Flot all charcoal, charcoal in residue, 3g cremated bone
147	142	Small amount of charcoal in flot & organics/Nothing visible in residue
148	143	Organics in flot/Nothing visible in residue
149	143	Bone fragments in residue
150	143	Organics and charcoal flecks in flot/nothing visible in residue
151	157	Very little organics in flot/nothing visible in residue
152	158	Nothing visible in residue
153	159	Nothing visible in residue
154	160	Nothing visible in residue
155	161	Nothing visible in residue
156	162	Nothing visible in residue
157	10	Organics and charcoal flecks in residue
158	10	Charcoal flecks, organics and burnt bones in residue
159	10	Charcoal flecks, organics and burnt bones in residue
160	10	5g cremated bone recovered, more in residue, organics in flot
161-270	-	Numbers not assigned
271	3	8g cremated bone recovered, more in residue
272	149	56g cremated bone recovered
273	24	Animal bone & cremated bone in residue

APPENDIX 4 *Faunal Remains: Rachel Sloane*

1. Introduction

This report details the results of analysis of mammalian bone remains recovered during archaeological excavation at the site of Johnstown 4, County Meath. This site was identified during excavation of the adjacent Johnstown sites as part of the M3 Clonee to North of Kells Road Scheme. Resolution phase excavation took place at Johnstown 4 from 22nd February to 21st July 2006 (Ginn pers. comm.). A sub-rectangular ditch with an eastern entrance was revealed with a continuous spread of charcoal-rich material located at the eastern side (*Ibid*). The only locations within the ditch where animal bone was retrieved were from the ditch deposits on both sides of the entrance. A charcoal-rich spread and two pits were revealed inside the ditch (*Ibid*). Three shallow cremation pits were also identified (*Ibid*). At the time of writing this report an archaeological excavation report was not yet available.

Following thorough inspection of the animal bone assemblage five countable specimens were recorded from two archaeological features. Only one species is represented by this minute collection as each element was identified as cattle (*Bos taurus*). Descriptions of the archaeological features from which this material was retrieved are given in Table 1.

Feature	Description
F130	Fill in southeast end of ring ditch.
F143	Top outer deposit of ring ditch.

Table 1: Archaeological features from which countable mammalian bone remains were retrieved.

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, recovered from archaeological excavation carried out as part of the M3 Clonee-North of Kells Road Scheme. The quantification method applied is a modified version of that used by Albarella and Davis (1996). It entails a selective approach which, rather than counting every fragment of bone, results in the production of NISP values i.e. number of identifiable specimens. The method

involves examination of all faunal bone remains but specimens found to be of low-grade information value are not recorded. Consequently the recording of a narrower range of clearly defined bone elements is ensured. Selected elements are recorded provided at least 50% of the diagnostic zone survives. This procedure avoids multiple counting of very fragmented elements (*Ibid*). The MNI i.e. minimum number of individuals was calculated for all species. This estimates the minimum number of animals that the recorded faunal remains could have come from (Chaplin 1971, 70). It is calculated through dividing the recorded value of each element for a species by its frequency in the skeleton. The resulting highest value is the MNI for that particular species. While both sides and proximal or distal were taken into account for MNI calculations, ageing data was not.

3. Results of Analysis

3.1 Summary of Findings

Table 2 indicates the range of elements recorded for F130 and F143. The NISP and MNI values for F130 are one while for F143 the total NISP is four and the MNI is also one. With such a small collection, zooarchaeological data and interpretation is extremely limited. However, it was possible to record some ageing data.

Element	Species	Total	Feature
[1]Loose tooth	Cattle	1	F130
Loose mandibular premolar	Cattle	1	F143
Radius	Cattle	1	F143
Pelvis	Cattle	1	F143
Astragalus	Cattle	1	F143

Table 2: Number of identifiable specimens by element and species for F130 and F143.

3.2 Ageing Data

For analysing mammalian bone remains, two ageing methods are used. These include recording the state of tooth eruption and wear, which is recognised as the more reliable ageing method. Tooth

[1] Loose teeth include loose maxillary teeth and teeth that could not be definitely classified as either mandibular or maxillary.

eruption and wear is recorded for cattle, sheep/goat and pig teeth wherever the occlusal surface of the mandibular dP4 (deciduous fourth premolar), P4 (fourth premolar), M1/2 (first or second molar) or M3 (third molar) survives. In any case where tooth wear is observed for a loose mandibular M3, as this is the innermost tooth, a mandible wear stage (MWS) is assigned thereby facilitating estimation of a minimum age range for the animal represented. Likewise, for mandible specimens with teeth remaining in situ, if the innermost tooth is present a MWS can be allocated. The more problematic ageing method (Watson 1978, 97-101) entails recording state of epiphyseal fusion for appropriate elements. Establishing the stage of epiphyseal fusion of a specimen involves examining the rate of development the metaphysis or epiphysis has reached. The metaphysis is the growing end of the shaft of a developing long bone while the epiphysis is a part of a bone that develops from a separate ossification centre but later fuses with the bone (Davis 1987, 16).

3.2.1 Tooth wear

Tooth wear data for Johnstown 4 was restricted to one P4 specimen. As the occlusal surface was unworn and the specimen was not yet fully erupted, it was assigned a tooth wear stage (TWS) of 'a' following Grant (1982, 92). Unfortunately this is of no further value as a MWS can only be assigned when dealing with the innermost tooth.

3.2.2 Epiphyseal Fusion

It was possible to record epiphyseal fusion data for two elements from F143. Interpretation of the stage of fusion followed Reitz and Wing (1999, 76). A pelvis specimen was observed as fully fused indicating that the animal to which it belonged had reached a minimum age of 6-10 months before its death (*Ibid*). The unfused epiphysis of a radius signifies that the animal it represents was below the age of 42-48 months when it died (*Ibid*).

CATTLE	Fusion Zone	Age in months
Early Fusing	[2]Pelvis p.	6-10 months

Table 3: Fused (fused and fusing) cattle specimen present, classified as early, middle or late fusing after Reitz and Wing (1999, 76).

[2] Pelvis p. equivalent to acetabulum as referred to by Reitz and Wing (1999, 76).

CATTLE	Fusion Zone	Age in months
Late Fusing	Radius d.	42-48 months

Table 4: Unfused cattle specimen present, classified as early, middle or late fusing after Reitz and Wing (1999, 76).

3.3 Metrical Data

No metrical data was recorded for this assemblage.

3.4 Sex Determination

Determination of sex was not applicable to any of the Johnstown 4 material.

3.5 Butchery/Gnawing/Burning/Pathology/Injury

No evidence for butchery, gnawing, burning, pathology, injury or developmental defect was observed amongst this collection. While the mandibular P4 was noted as being in a good state of preservation, some of the other specimens, particularly the pelvis and distal radius were in a poorer state as the outer surface of the bone had been substantially eroded. This may have been a consequence of taphonomic factors impacting on the remains between their time of burial and unearthing. However, due to the small size of this assemblage a more conclusive consideration of taphonomy i.e. "The study of the environmental phenomena and processes that affect organic remains after death" (Davis 1987, 17) is not possible.

4. Conclusion

A total of only five countable elements were observed amongst the Johnstown 4 animal bone assemblage with cattle being the only species represented. The most significant zooarchaeological information it was possible to ascertain related to ageing. The presence of a fused pelvis and an unfused radius epiphysis indicated the presence of an animal that had reached the age of at least 6-10 months and had not lived to reach an age of 42-48 months respectively (Reitz and Wing 1999, 76). Some of the elements were in a markedly poor state of preservation. No further zooarchaeological data was derived from this collection.

5. Recommendations

It is recommended that the countable material from Johnstown 4 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.

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APPENDIX 5 *Plant macrofossil, charcoal and cremated bone analysis: Durham University*

Archaeological Services
University of Durham

Johnstown 4, M3 Motorway Project, Co Meath, Ireland

plant macrofossil, charcoal and cremated bone analysis

on behalf of

Archaeological Consultancy Services Ltd

Report 2031

November 2008

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1. Summary

The project

1.1 An excavation of a prehistoric ringditch was undertaken by Archaeological Consultancy Services Ltd at Johnstown 4, Co Meath, Ireland. This report presents the results of plant macrofossil, charcoal and cremated bone analysis of the fills of the ditch, pits, postholes and a spread.

Results

1.2 Hazelnuts, barley and possibly also oats, formed a part of the diet of the prehistoric inhabitants of Johnstown 4. The local landscape included mixed deciduous woodland which provided an important source of food, fuel and building materials. The main species present were oak, ash, hazel, alder and blackthorn.

1.3 Most of the cremated bone came from the ditch fills and the spread; only a small quantity of bone was recovered from the cremation-related deposits, and these probably represent token burials. Three contexts (two ditch fills and the spread) contained animal or possible animal bone/tooth fragments. None of the bone in the remaining contexts (including the cremation deposits) could be identified, and it was not possible to tell whether it was human or animal. Several contexts contained bone that had been burnt at high temperatures and was fully oxidised, although 4 contained partially oxidised bone, and 1 contained charred bone.

2. Project background

Location and background

2.1 An excavation was undertaken by Archaeological Consultancy Services Ltd at Johnstown 4, Co Meath, Ireland (NGR 295662 251657). The site included a sub-rectangular ringditch, with charcoal spreads and pits. Radiocarbon analysis indicated a prehistoric date for the site. This report presents the results of plant macrofossil, charcoal and cremated bone analysis of the fills of the ditch, pits, postholes and a spread.

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 April 2008. Analysis and report preparation was conducted between April – November 2008.

Personnel

2.4 Sample processing was undertaken by Archaeological Consultancy Services Ltd. Plant macrofossil analysis, charcoal analysis and report preparation were carried out by Dr Charlotte O'Brien. Cremated bone analysis was by Dr Anwen Caffell, with faunal identification by Ms Louisa Gidney. The residues were sorted by Mr Lorne Elliott.

Archive

2.5 The licence number is A017/043. 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 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 MZ7.5 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).

Results

3.2 Charcoal, heat-cracked stones and calcined bone were recorded in a number of the residues. A few flint fragments occurred in cremation pit fill (10) and ditch fill (14), and fragments of animal tooth enamel were present in ditch fill (143). Insect remains, modern roots and uncharred seeds were occasionally recorded in the flots, but the non-waterlogged nature of the site suggests these are later intrusive material. Charred hazel nutshell fragments were present in cremation pit fill (10) and the clay layer (131), and cereal grains were recorded in low numbers in 4 contexts (24, 121, 123, 131). Some of the grains were too degraded to be identified, but those which could were oats and barley. The results of the plant macrofossil analysis are present in Appendix 1.

Discussion

3.3 The presence of charred hazel nutshell fragments indicates that this wild food formed a part of the diet at Johnstown 4. Hazel nutshells are frequently recorded from prehistoric sites (McComb & Simpson 1999), and would have provided a highly nutritious food source, which was easily gathered and could be stored with little preparation (ibid.).

3.4 A few cereal grains were also recorded and included barley and oats. The barley grains were in a poor condition which prevented their differentiation between the hulled and naked varieties, and it was not possible to identify if they were from 2-row or 6-row barley. The small size of the oat grains may indicate that they were from a wild rather than cultivated species, but as with barley, diagnostic chaff was absent. While there is evidence that both barley and oats were cultivated in the late Bronze Age and Iron Age in Ireland, oats did not become common until the early historic period (Johnston 2007; Monk 1986).

3.5 The occurrence of charred hazel nutshell fragments in cremation pit (10) may indicate that some of the charred plant remains derive from food offerings burnt on the funeral pyre. However, the charred plant macrofossils in the other fills are more likely to represent the remains of domestic waste. This is corroborated by the presence of animal remains in the ditch fills (see section 5).

4. Charcoal analysis

Methods

4.1 Charcoal was collected from the residues and flots and added to pre-sorted material. Following Boardman (1995), identifications were made on fragments >4mm. At least 100 fragments were identified per context, where available. 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 Schweingruber (1978), and modern reference material held in the Environmental Laboratory at Archaeological Services Durham University. The different species were weighed separately. A single entity of charcoal from a short-lived tree species was provided for radiocarbon dating from each of contexts (10), (135), (143) and (153).

Results

4.2 The largest volume of charcoal was present in cremation pit fill (10), and comprised elm, Maloideae (Hawthorn, whitebeams, apple or pear), ash, hazel and alder. Oak charcoal dominated the assemblage in the clay layer (131), while hazel and Maloideae were the main species in ditch fill (121), cremation deposit (135) and ditch (143). Blackthorn and cherries (wild cherry, bird cherry or blackthorn) were also present in the cremation deposit (135). The results of the charcoal analysis are presented in Appendix 1 and Figure 4.1.

Discussion

4.3 If the wood was gathered locally, the results suggest that the landscape included deciduous woodland comprising ash, oak and elm. Hazel would have grown in the understorey vegetation, or by the woodland margins with blackthorn, cherries and Maloideae. Alder would have occupied wetland areas, for example along riverbanks or in carr vegetation. This local woodland would have provided an important source of wild food, as identified by the charred plant macrofossils (see section 3), in addition to a resource of wood for fuel and building materials.

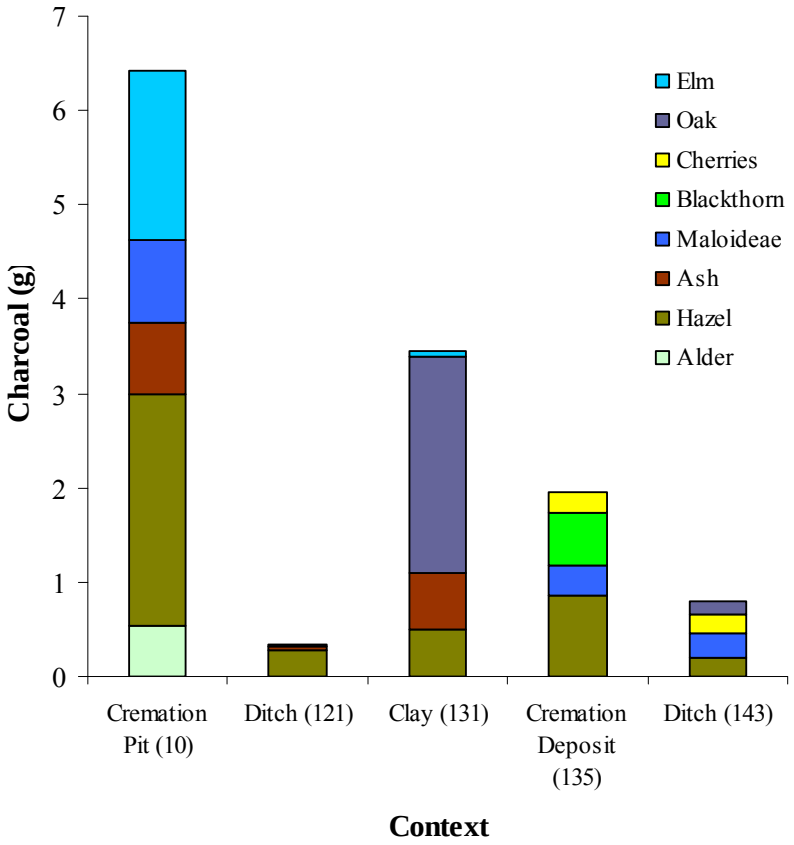

Figure 4.1: Proportions of identified charcoal from Johnstown 4

(only contexts with charcoal >0.3g are shown)

4.4 Cremation pit fill (10) comprised ash, elm, Maloideae, hazel and alder, and the cremation deposit (135) included hazel, Maloideae, blackthorn and cherries. This may indicate that these species were used for fuel on the cremation pyre. Although these species (particularly Maloideae and cherries) have been associated with prehistoric cremations, studies indicate that oak was usually chosen, as it allowed the high temperatures (500ºC) needed to burn body fats and maintain combustion (O'Donnell 2007.). As the cremation deposits appear to either have been token (see section 5), the charcoal in these contexts may not reflect the full range of species used for the cremations, or may include material which derived from domestic activity or burnt structures.

4.5 Oak and ash were abundant in the clay layer (131). Both of these trees provided important structural timbers in prehistory (Stuijts 2007), and oak also made an excellent firewood (O'Donnell 2007). Hazel was frequently recorded on the site, which was a species traditionally used for wattling (Orme & Coles 1985), due to the flexibility of the young stems. It was also a useful firewood as it burns slowly, giving off considerable heat (O'Donnell 2007).

5. Cremated bone analysis

Methods

5.1 Burnt bone was recovered from contexts associated with the ringditch. These included the ditch fills, a posthole, an elongated burnt feature, and a charcoal-rich spread in the eastern part of the enclosed area. Three shallow cremation pits were identified during excavation, but cremated bone was only recovered from 2 of these; a cremation deposit was also identified in the upper fill of one of the ditches. Eleven contexts were presented for analysis, with a total weight of 68.5g. Each context 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

5.2 Summary data for each context is presented in Table 5.1, and the fraction weights per context are given in Table 5.2.

Table 5.1: Summary of cremated remains

Context	Context Detail	Bone Colour	Species	Weight (g)
3	Upper fill in ditch	White, several dark grey/ black	Unknown	5.7
10	Fill of cremation pit (137)	White/ pale grey	Unknown	6.7
24	Fill in ditch	Dark grey/ black to pale grey/ white	Animal	37.8
121	Fill in ditch	White	Unknown	0.2
123	Fill in ditch	Beige/ white	Animal	0.3
134	Fill of elongated burnt feature	Black/ mid grey, some white	Unknown	1.8
135	Cremation deposit in top of ditch	White	Unknown	0.3
143	Deposit in ditch	White	Unknown	0.6
145	Fill of cremation pit (146)	White with black inner cortex	Unknown	0.4
149	Spread in central area	White/ pale grey	Animal?	14.2
153	Basal deposit of posthole	Brown/ black	Unknown	0.5

5.3 The weight of burnt bone in each context was generally small, ranging from 0.2g to 37.8g (Table 5.1). The two heaviest contexts came from a ditch (context 24) and the spread of material in the enclosed area (context 149). Only a small quantity of bone (6.7g and 0.4g) was recovered from both of the cremation pits, and just 0.3g was recovered from the cremation deposit in the upper ditch fill.

5.4 Bone from all contexts tended to be moderately to severely fragmented, and just 3 contexts contained any bone in the largest sieved fraction (Table 5.2). These included both of the heaviest contexts, in addition to context (134), the fill of the elongated burnt feature. Unsurprisingly, maximum fragment size tended to be small, ranging from 6.6mm to 31.7mm, with a mean of 15.3mm.

Table 5.2: Fraction weights and fragment size

Context	Total Weight	Fraction Weights						Max. Frag Size
		>10mm		5-10mm		2-5mm		
	g	g	%	g	%	g	%	mm
3	5.7	0.0	0.0	1.2	21.1	4.5	78.9	15.2
10	6.7	0.0	0.0	1.2	17.9	5.5	82.1	11.9
24	37.8	1.9	5.0	13.6	36.0	22.3	59.0	31.7
121	0.2	0.0	0.0	0.1	50.0	<0.1	50.0	6.6
123	0.3	0.0	0.0	0.2	66.7	<0.1	33.3	13.1
134	1.8	0.4	22.2	0.4	22.2	1.0	55.6	28.3
135	0.3	0.0	0.0	0.0	0.0	0.3	100.0	6.9
143	0.6	0.0	0.0	0.4	66.7	0.2	33.3	13.1
145	0.4	0.0	0.0	0.2	50.0	0.2	50.0	9.4
149	14.2	1.7	12.0	7.8	54.9	4.7	33.1	20.7
153	0.5	0.0	0.0	0.1	20.0	0.4	80.0	11.8

5.5 Just over half of the contexts contained bone that was pale grey to white in colour, implying exposure to high temperatures in excess of *c.* 600ºC with a plentiful supply of oxygen (McKinley 2004). However, contexts (3), (24) and (134) all contained a considerable proportion of black or dark grey bone fragments, suggesting cooler temperatures (*c.* 300-600ºC) or limited oxygen availability (ibid.). These contexts included the elongated burnt feature, and two ditch fills. The bone fragments from context (145), the fill of cremation pit (146), were white on the outer surface of the bone, but were black on the internal surface, indicating full oxidation of the bone had not taken place. The brown and black colour of the bone in context (153), the basal deposit of a posthole, suggested it had been charred at low temperatures (below *c.* 300ºC), or that oxygen was severely restricted (ibid.).

5.6 All fragments were examined with a view to identification. All the material in one of the ditch fills, context (123), consisted of fragments of animal teeth, which were cf. cattle. Fragments of animal tooth were also present in context (24), the heaviest ditch fill, and were identified as cf. sheep-size. A small fragment of possible animal bone was observed in context (149), the spread of material from the enclosed area. Unfortunately, none of the remaining contexts contained any identifiable bone, and it was not possible to determine whether the bone was human or animal.

5.7.1 As well as the burnt bone recorded above, context (143) also contained heavily fragmented unburnt bone, including fragments of cf. cattle teeth.

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Appendix 1: Plant macrofossil and charcoal analysis from Johnstown 4

Context	3	10	14	18	24	81	97	108	121	123	131	134	135	143	145	150	153	157
Sample	1	157, 158, 159, 160	10, 127	131	1, 16	102	119	72	2	3, 4	5	145	146	5, 88, 148, 149, 150	89	91	62	151
Feature	Ditch	Cremation Pit	Ditch	-	Ditch	-	-	-	Ditch	Ditch	Clay	Elongated feature	Cremation Deposit	Ditch	Cremation pit	-	Posthole	-
Material available for radiocarbon dating	-	✓	-	-	✓	-	-	-	✓	-	✓	-	✓	✓	-	-	✓	-
Volume of flot (ml)	-	200	1	1	1	5	3	3	1	2	80	-	10	5	-	1	10	-
Residue matrix (relative abundance)																		
Bone (calcined)	2	2	-	-	3	-	-	-	-	-	1	-	1	2	-	-	1	-
Charcoal	-	1	1	-	1	-	-	-	1	-	3	-	-	1	-	-	-	-
Heat-cracked stones	-	1	-	-	2	-	-	-	1	-	-	1	1	-	-	-	-	-
Flint (*total number*)		1	2	-	-	-	-	-	-	-	-	-	-	1	-	-	9	-
Tooth enamel	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-
Flot matrix (relative abundance)																		
Bone (calcined)	-	2	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-
Charcoal	-	3	1	-	1	1	-	1	1	-	4	-	2	1	-	-	-	-
Insect (beetle elytra)	-	1	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-
Insect (egg case)	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Roots (modern)	-	2	1	1	1	1	1	1	-	1	1	-	1	1	-	1	1	-
Charcoal (g/number of fragments)																		
Total charcoal (g)	-	13.146	0.029	-	-	-	-	-	0.422	-	3.955	-	1.951	1.536	-		0.033	-
Percentage of sample analysed	-	49	100	-	-	-	-	-	100	-	100	-	100	100	-		100	-
Total charcoal analysed >4mm (g)	-	6.421	0.029	-	-	-	-	-	0.345	-	3.442	-	1.951	0.796	-		0.033	-
Number of analysed charcoal fragments >4mm	-	109	1	-	-	-	-	-	7	-	57	-	30	15	-		1	-
Alnus glutinosa (Alder)	-	0.532 (8F)	0.029 (1F)	-	-	-	-	-	-	-	-	-	-	-	-		-	-
Corylus avellana (Hazel)	-	2.465 (37F)	-	-	-	-	-	-	0.276 (5F)	-	0.492 (13F)	-	0.862 (16F)	0.190 (5F)	-		-	-

Context	3	10	14	18	24	81	97	108	121	123	131	134	135	143	145	150	153	157
Sample	1	157, 158, 159, 160	10, 127	131	1, 16	102	119	72	2	3, 4	5	145	146	5, 88, 148, 149, 150	89	91	62	151
Feature	Ditch	Cremation Pit	Ditch	-	Ditch	-	-	-	Ditch	Ditch	Clay	Elongated feature	Cremation Deposit	Ditch	Cremation pit	-	Posthole	-
Fraxinus excelsior (Ash)	-	0.750 (20F)	-	-	-	-	-	-	0.043 (1F)	-	0.613 (9F)	-	-	-	-		-	-
Maloideae (Hawthorn, whitebeams, apple, pear)	-	0.882 (12F)	-	-	-	-	-	-	0.026 (1F)	-	-	-	0.323 (10F)	0.275 (6F)	-		0.033 (1F)	-
Prunus spinosa (Blackthorn)	-	-	-	-	-	-	-	-	-	-	-	-	0.550 (1F)	-	-		-	-
Prunus spp (Cherries)	-	-	-	-	-	-	-	-	-	-	-	-	0.216 (3F)	0.201 (3F)	-		-	-
Quercus sp (Oak)	-	-	-	-	-	-	-	-	-	-	2.288 (33F)	-	-	0.130 (1F)	-		-	-
Ulmus sp (Elm)	-	1.792 (32F)	-	-	-	-	-	-	-	-	0.049 (2F)	-	-	-	-		-	-
Unidentified <4mm fraction	-	-	-	-	-	-	-	-	0.077	-	0.513	-	-	0.740	-		-	-
Charred remains (total number)																		
(c) *Avena* spp (Oat species) small grain	-	-	-	-	5	-	-	-	4	1	-	-	-	-	-	-	-	-
(c) Cerealia indeterminate grain	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-
(c) *Hordeum* spp (Barley species) grain	-	-	-	-	1	-	-	-	2	-	1	-	-	-	-	-	-	-
(t) *Corylus avellana* (Hazelnut) nutshell fragment	-	26	-	-	-	-	-	-	-	-	73	-	-	-	-	-	-	-
Uncharred remains (relative abundance)																		
(t) *Rubus fruticosus* agg (Bramble) fruitstone	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
(t) *Sambucus nigra* (Elder) fruitstone	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
(x) Poaceae undifferentiated <2mm (Grass family) caryopsis	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-

[c-cultivated plant; t-tree; x-wide niche]. F = number of charcoal fragments. Relative abundance is based on a scale from 1 (lowest) to 5 (highest)

APPENDIX 6: *Wood Identification: Ellen O'Carroll*

List of Tables & Figures

1. INTRODUCTION

One wood sample was identified from a cremation pit excavated in association with a group of features excavated at Johnstown 4. Johnstown 4 (A017/043, NGR 295662 251657, Johnstown townland, Co. Meath) was identified during the excavations of the adjacent Johnstown sites by Stuart Elder and was resolved by Stuart Elder (22 February 2006 – 21 July 2006). A sub-rectangular ditch (c.1.70 width x c.0.70m depth) enclosed an area (24.50m by 19.50m) and had an eastern entrance. A continuous spread of charcoal-rich material containing cremated bone was located in the eastern side. Animal bone was recovered from the ditch deposits on either side of the entrance and was the only location where animal bone was noted throughout the entire ditch. At the north-eastern side the ringditch made a sharp, almost 90° turn, suggesting that a very small portion lies outside the proposed landtake. A spread of charcoal-rich material and two oval pits, one with deposits of oxidised material but no evidence for *in situ* burning and one with charcoal-rich fills, packing stones and a worked stone, were identified inside the ringditch. Three shallow (0.10-0.15m) cremation pits were located containing only a token amount of cremated bone, and no pottery. There has been no date returned for this site yet.

2. METHODS

The wood samples were firstly washed and recorded on wood working sheets and were then identified as to species.

The wood was carefully examined for signs of toolmarks or surface treatment and was then identified to species under a microscope. The process for identifying wood, whether it is charred, dried or waterlogged is carried out by comparing the anatomical structure of wood samples with known comparative material or keys (Schweingruber 1990). Thin slices were taken from the transversal, tangential and longitudinal sections of each piece of wood and sampled using a razor blade. These slices were then mounted on a slide and glycerine was painted onto the wood to aid identification and stop the wood section from drying out. Each slide was then examined under an E200 Nikon microscope at magnifications of 10x to 500x. By close examination of the

microanatomical features of the samples the species were determined. The diagnostic features used for the identification of wood are micro-structural characteristics such as the vessels and their arrangement, the size and arrangement of rays, vessel pit arrangement and also the type of perforation plates.

3. RESULTS

Table 1: Results from identifications

F#	Timber type	Species	Length (cm)	Diameter (cm)	Wood quality	Age	Type of split and Woodworking evidence	Recommend
131 Fill of cremation pit	5	Alder & bark	6 & 4	3.9 & 3.3	Very poor	9	Lumps of degraded wood	Discarding

4. DISCUSSION

There was one species type present in the wood remains (Table 1). Degraded alder wood and bark was present in the cremation pit. There was no toolmarks or woodworking evidence noted on the wood samples. There were 9 annual tree rings present on the wood. The alder wood indicates that the site was located close to a wetland area which is a typical location for *fulacht fiadh* or burnt spread site.

It is difficult to attribute a function to the wood present in the cremation pit but the alder tree may have grown there after the site went out of use particularly if the site became waterlogged. It is not usual to find alder wood associated with cremation pits. Oak charcoal and wood are generally associated with cremation pits from archaeological sites.

Alder, *Alnus glutinosa*

Alder is a widespread native tree and prefers wet habitats along stream and river banks. It is an easily worked and split timber and therefore quite commonly manufactured into planks. Alder poles were a favourite timber for underground foundations in damp or wet conditions. It was used as piles under houses, bridges, boat jetties, canal lock gates, pumps and troughs. The timber can resist

decay in a wet environment almost indefinitely. Venice floats partly on the strength of alder trees. However, it is not very good for fencing in dry land, since the wood seems to need the water to balance its fire power in order to remain solid. Alder fencing posts can rot within the year at the part between the earth and the air. There was no woodworking evident on the wood sample.

5. COMPARATIVE MATERIAL

As stated above oak is generally the wood type associated with cremation pits therefore the alder wood is somewhat incongruous in this particular setting and context.

6. CONCLUSIONS ON WOOD ASSEMBLAGE

Alder wood was identified from the wood assemblage associated with the cremation pit. There was no woodworking or toolmarks recorded on the timbers. The wood results indicate the site was located beside a wetland environment which is a typical settlement for *fulachta fiadh*. The function of the alder is unknown therefore any further comments on wood usage are inconsequential. The alder tree may have grown at the site after the site was abandoned although this can only be determined through examination of the archaeological and contextual records.

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APPENDIX 7: *Prehistoric pottery: Eoin Grogan & Helen Roche*

The prehistoric pottery assemblage from Johnstown 4, Co. Meath (E3052)

Eoin Grogan and Helen Roche

Summary

The site produced a single sherd of prehistoric pottery (weight: 5g).

Context

The pottery at Johnstown came from context **171**.

The pottery

These fragments are from a small bodysherd (**171**:1) of buff fabric with a grey-brown core; both surfaces are smooth. There is a medium content of dolerite inclusions (up to 6 x 5mm); body thickness: 11.11mm; weight: 5g.

Although there is only a single sherd the fabric and finish may indicate a middle to late Bronze Age domestic vessel. Very small quantities of similar material came from Ardsallagh 1, Dunboyne 4, Collierstown 2 and Bennetstown 3 on the M3 scheme (Grogan and Roche 2007a; 2008a; 2008b); at a regional level large assemblages of late Bronze Age occur at, for example, Raynestown 1 and Stamullin, Co. Meath (Grogan and Roche 2008c; 2007b).

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APPENDIX 8: *Lithics report: Farina Sternke MA, PhD*

List of Tables

Introduction

One lithic find from the archaeological investigations of a prehistoric site at Johnstown 4, Co. Meath was presented for analysis (Table 1). The find is associated with the remains of a ringditch flanked by three small cremation pits, two further pits and a spread of burnt material.

Find Number	Context	Material	Type	Condition	Cortex	Length (mm)	Width (mm)	Thickness (mm)	Complete	Retouch
A017/043:153:2	153	Chert	Flake	Reasonably Fresh	No	38	30	5	Yes	No

Table 1 Composition of the Lithic Assemblage from Johnstown 4 (E3052)

Methodology

All lithic artefacts are examined visually and catalogued using Microsoft Excel. The following details are recorded for each artefact which measures at least 2 cm in length or width: context information, raw material type, artefact type, the presence of cortex, artefact condition, length, with and thickness measurements, fragmentation and the type of retouch (where applicable). The technological criteria recorded are based on the terminology and technology presented in Inizan *et al.* 1999. The general typological and morphological classifications are based on Woodman *et al.* 2006. Struck lithics smaller than 2 cm are classed as debitage and not analysed further. The same is done with natural chunks.

Quantification

The lithic is a worked piece of chert.

Provenance

It was recovered from the fill of a posthole/pit (C153).

Condition:

The lithic survives in reasonably fresh and complete condition (Table 1).

Technology/Morphology:

The artefact is a flake. It measures 38 mm long, 30 mm wide and 5 mm thick. It is a classic bifacial production flake, possibly from the production of a core or flake axe, and was manufactured using a soft hammerstone.

Dating:

The lithic from Johnstown 4 is technologically diagnostic and most likely dates to the Early Mesolithic period.

Conservation

Lithics do not require specific conservation, but should be stored in a dry, stable environment. Preferably, each lithic should be bagged separately and contact with other lithics should be avoided, so as to prevent damage and breakage, in particular edge damage which could later be misinterpreted as retouch. Larger and heavier items are best kept in individual boxes to avoid crushing of smaller assemblage pieces.

Comparative Material

Early Mesolithic lithics were also recovered at the nearby prehistoric site E3041 Johnstown 1 (A017/019), Co. Meath (Sternke 2007).

Conclusion

The lithic find from the archaeological investigations at Johnstown 4, Co. Meath is a bifacial production flake made of chert. The artefact is technologically diagnostic and most likely dates to the Early Mesolithic period. It most likely represents evidence of an earlier use of the site and may

have been introduced to the posthole/pit fill by accident. The absence of any other lithic artefacts from this site supports this suggestion.

This lithic find makes a minor contribution to the evidence for prehistoric settlement in Co. Meath.

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APPENDIX 9: *Radiocarbon dates: Beta Analytic*

Context	Sample No	Charcoal id/Weight	Beta Code	Date Type	Lab Calibrated Date (2-sigma)	Oxcal Calibrated date	Conventional Date (BP)	13C/12C
10: fill of cremation pit	157	Hazel (20mg)	246954	AMS (Std)	Cal BC 400-350 & Cal BC 290-220	407-208 BC	2290 +/- 40	-25.8
135: fill of ditch near entrance	146	Sloe/blackthorn (550mg)	246955	AMS (Std)	Cal BC 840-780	896-675 BC	2630 +/- 40	-26.1
143: fill of ditch	148	Maloideae (141mg)	246956	AMS (Std)	Cal BC 840-780	896-773 BC	2640 +/- 40	-24.7
153: fill of pit	62	Maloideae (33mg)	246957	AMS (Std)	Cal BC 920-800	968-801 BC	2710 +/- 40	-26.8

APPENDIX 10: *Stone finds: Jon Stirland*

Project	Johnstown 1, M3 Stone Finds Description Report
Archaeologist	Jon Stirland
Site	Johnstown 4
Project Start Date	20 January 2009
Report Date	20 January 2009
Job No	04_01

1.Introduction

This report provides a description and interpretation of a hammer stone / rubbing stone (A017/043:153:1) found during the excavation of the Johnstown 4 site along the route of the M3. The hammer stone / rubbing stone's limited diagnostic nature inhibits any accurate dating. However its general appearance suggests a prehistoric or early medieval date.

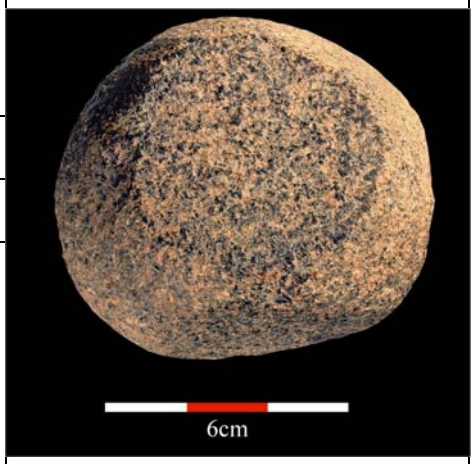
2. Methodology

The methodology used to assess the nature of this rubbing stone was stylistic relative dating and a literature review comparing and contrasting other examples from previous archaeological excavations and publications.

3. List of Stone Finds

Site	Find No	Feature No	Description
Johnstown 4	A017/043:153:1	153	Rubbing stone

4. Catalogue

Project	04_01 M3 Contract 1	
Site	Johnstown 4	
Finds No	A017/043:153:1	
Type	Rubbing stone	**Rubbing stone A017/043:153:1**
Stone Type	Granite igneous / metamorphic rock possibly originally river rolled.	
Weight	544g	
Shape	Circular / rounded	
Description	This circular / rounded stone object appears to have been fashioned from a large river rolled granite pebble. The stone object has a diameter of 82mm and a depth of 45mm All surfaces contain clear evidence of use. Three of its surfaces appear flattened and slightly polished suggesting they have been used as an abrasive surface. Around the edges of the stone slight evidence of a ridge can be seen suggesting evidence of further slight abrasion.	
Interpretation	The stylistic appearance of this rubbing stone suggests a prehistoric date. Its limited diagnostic nature inhibits any more accurate dating.	

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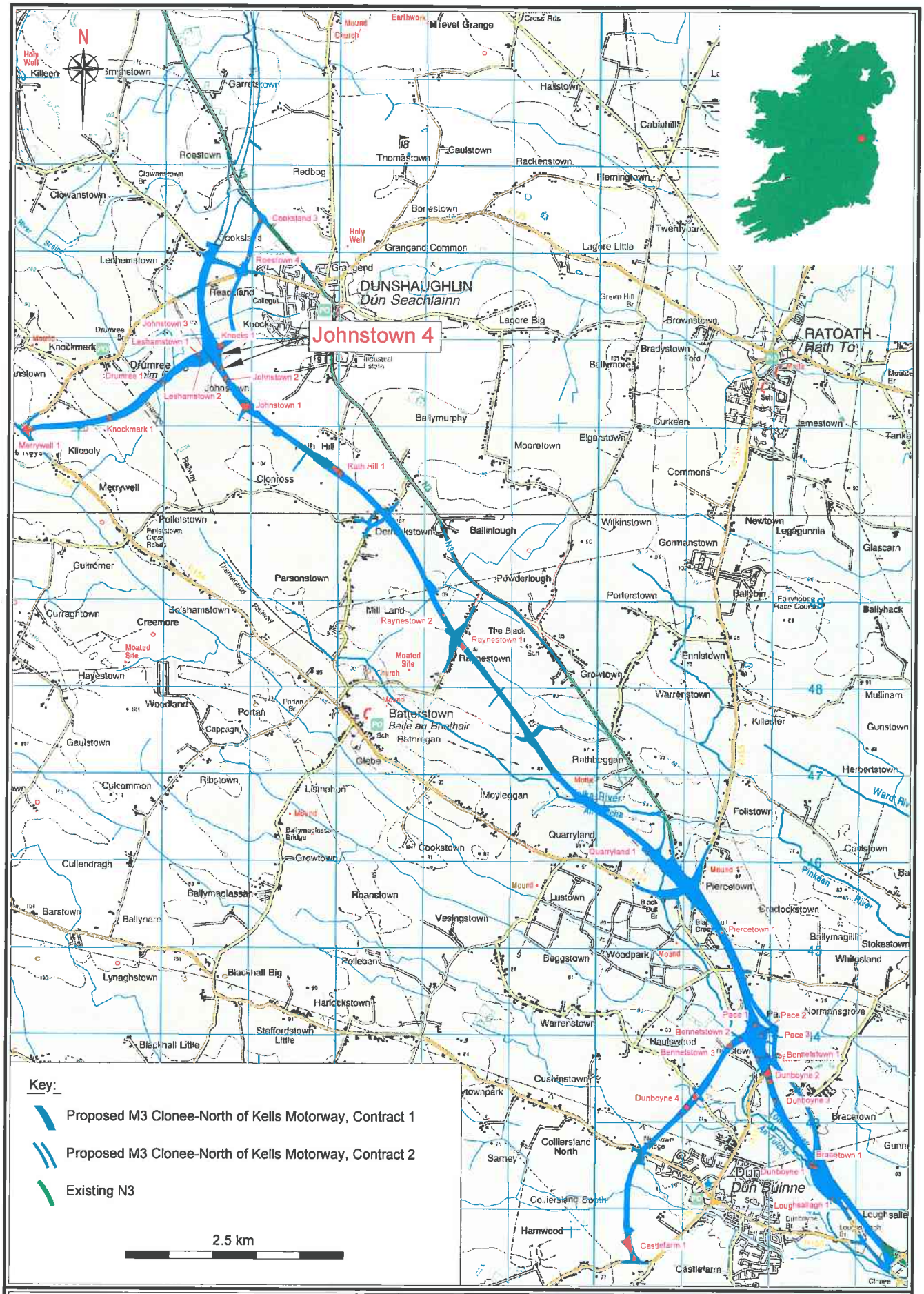
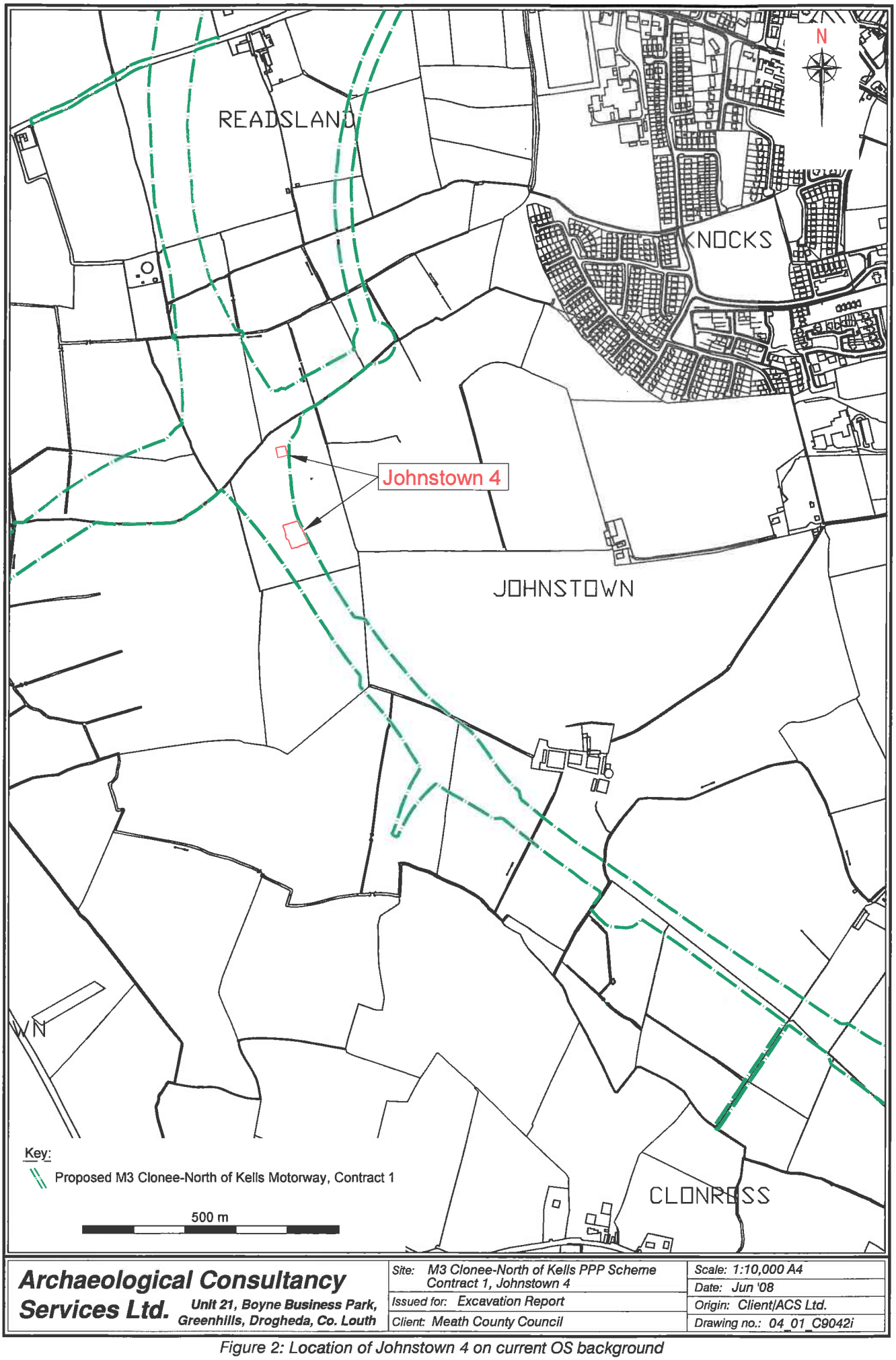


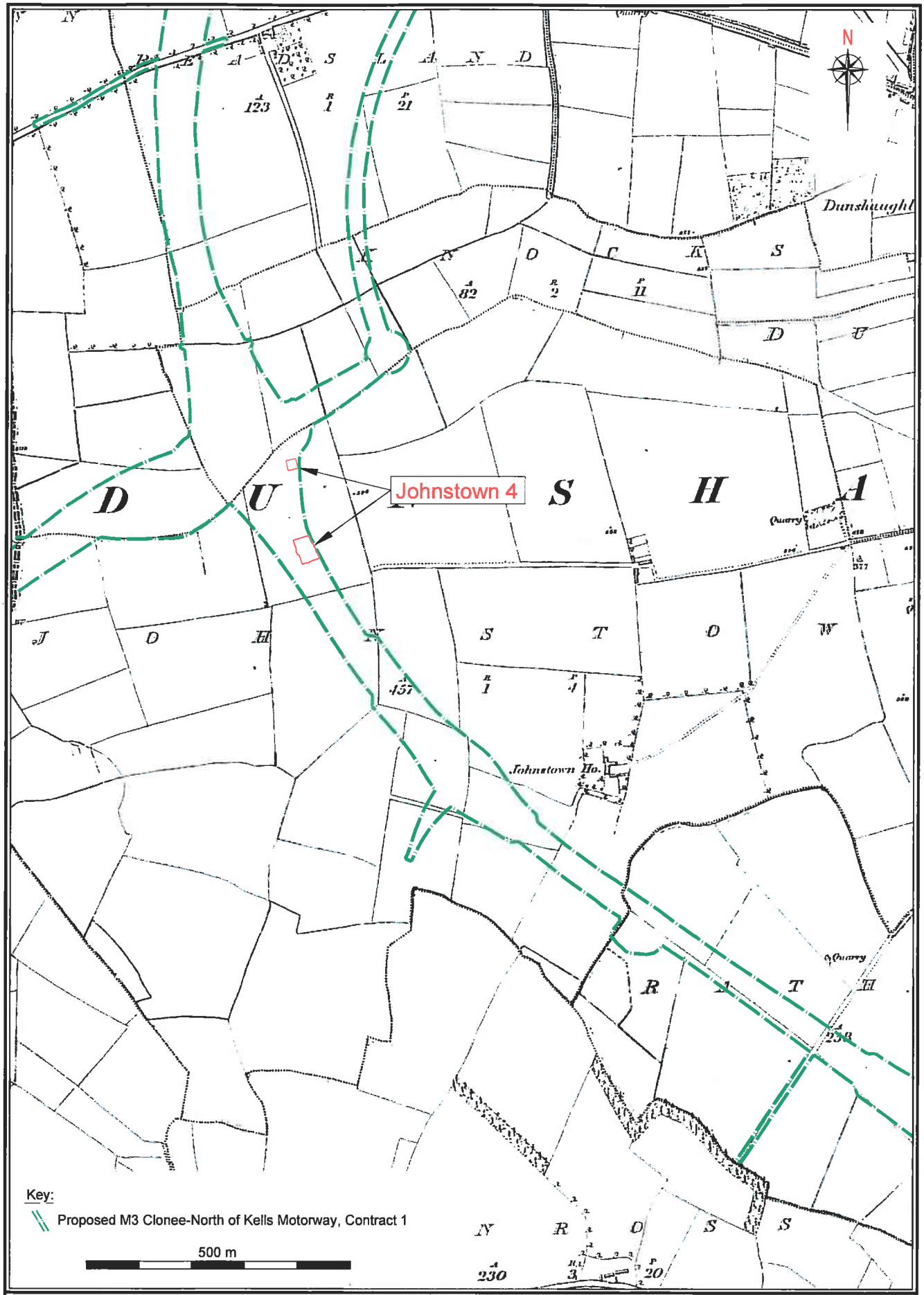
Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 1, Johnstown 4	Scale: 1:60,000 A4
	Issued for: Excavation Report	Date: Jun '08
	Client: Meath County Council	Origin: OSi Discovery Series
		Drawing no.: 04_01_C9041i

Figure 1: Location of Johnstown 4



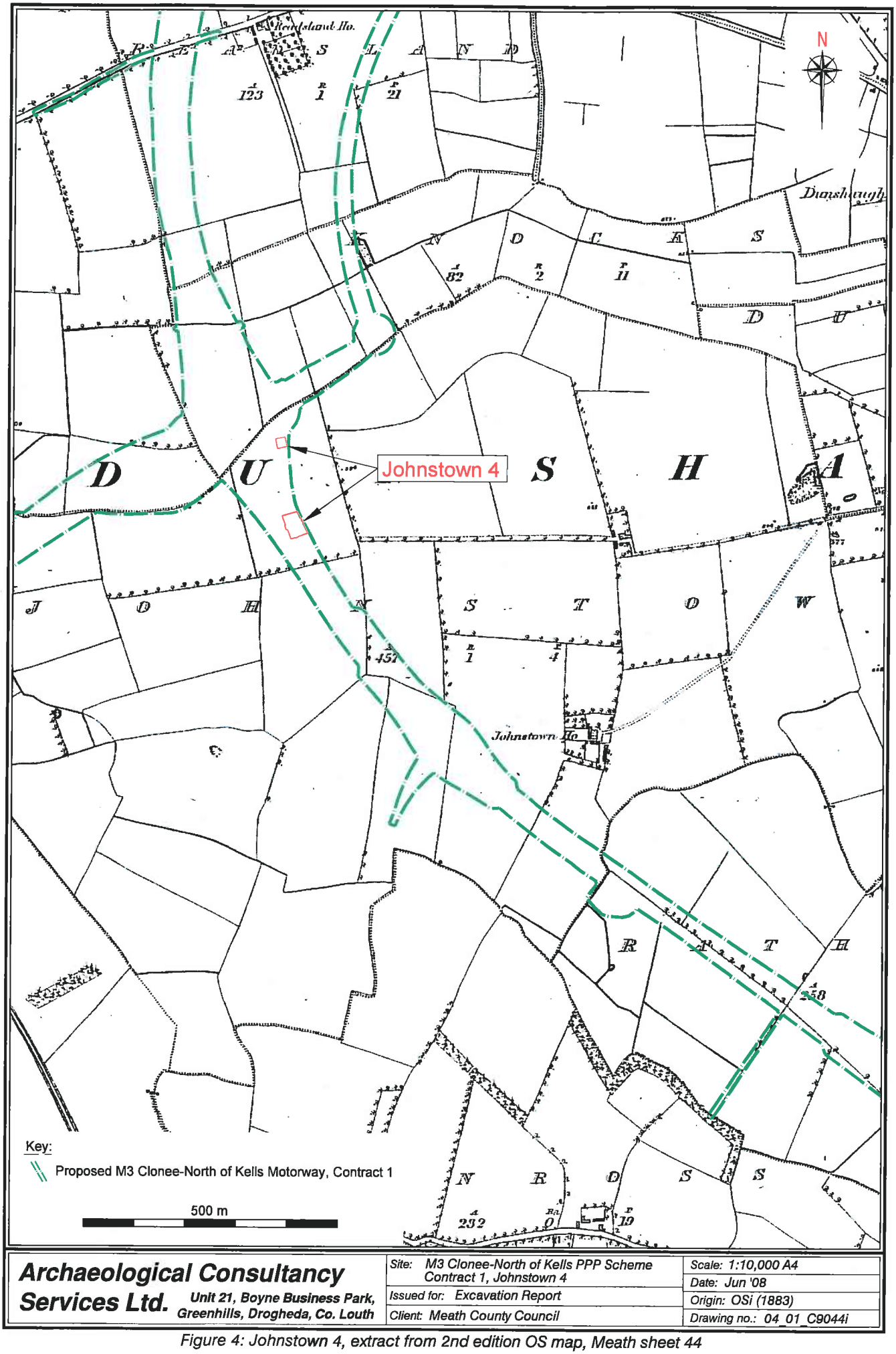
Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 1, Johnstown 4	Scale: 1:10,000 A4
		Date: Jun '08
	Issued for: Excavation Report	Origin: Client/ACS Ltd.
	Client: Meath County Council	Drawing no.: 04_01_C9042i

Figure 2: Location of Johnstown 4 on current OS background



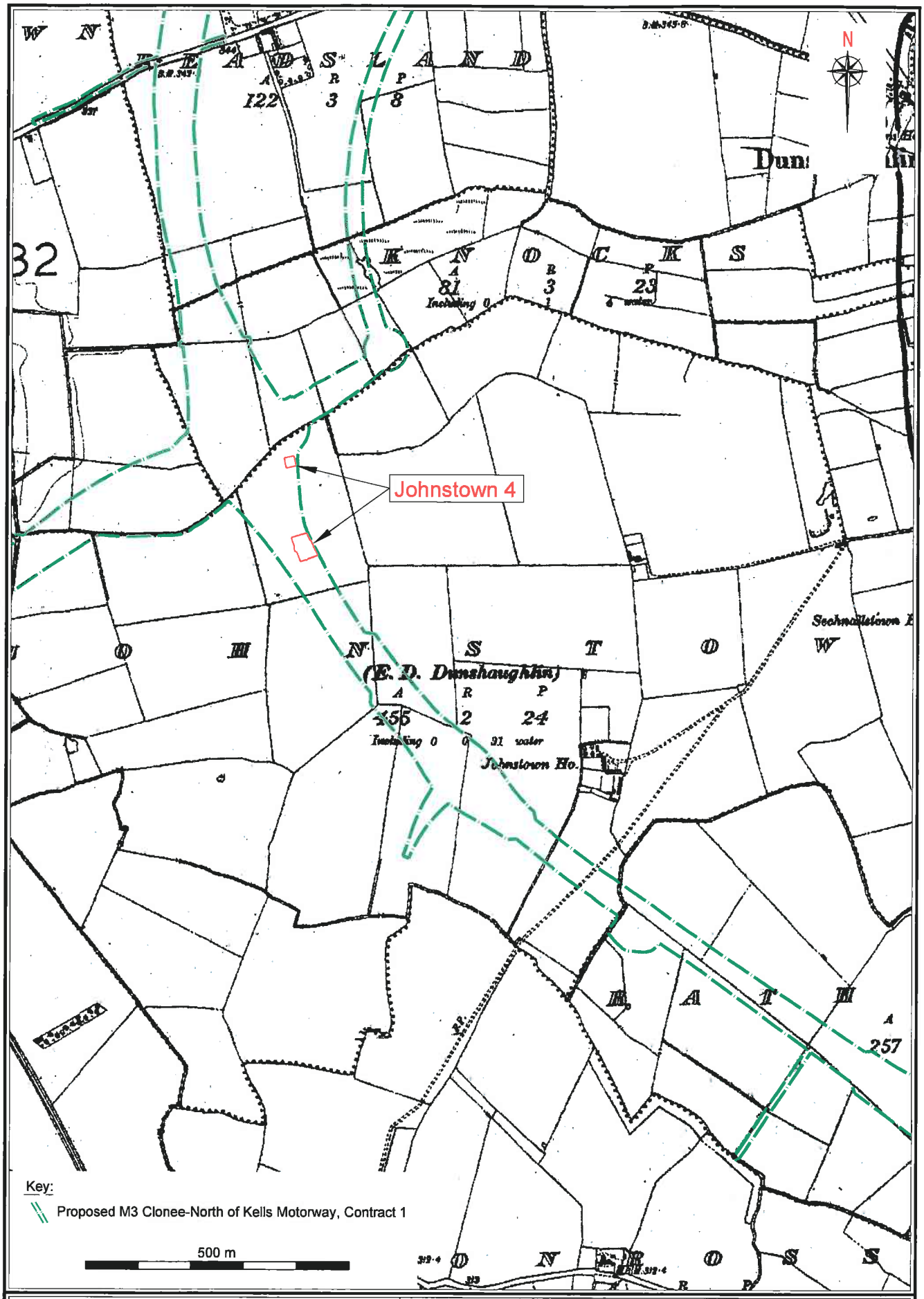
Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 1, Johnstown 4	Scale: 1:10,000 A4
	Issued for: Excavation Report	Date: Jun '08
	Client: Meath County Council	Origin: OSi (1836)
		Drawing no.: 04_01_C9043i

Figure 3: Johnstown 4, extract from 1st edition OS map, Meath sheet 44



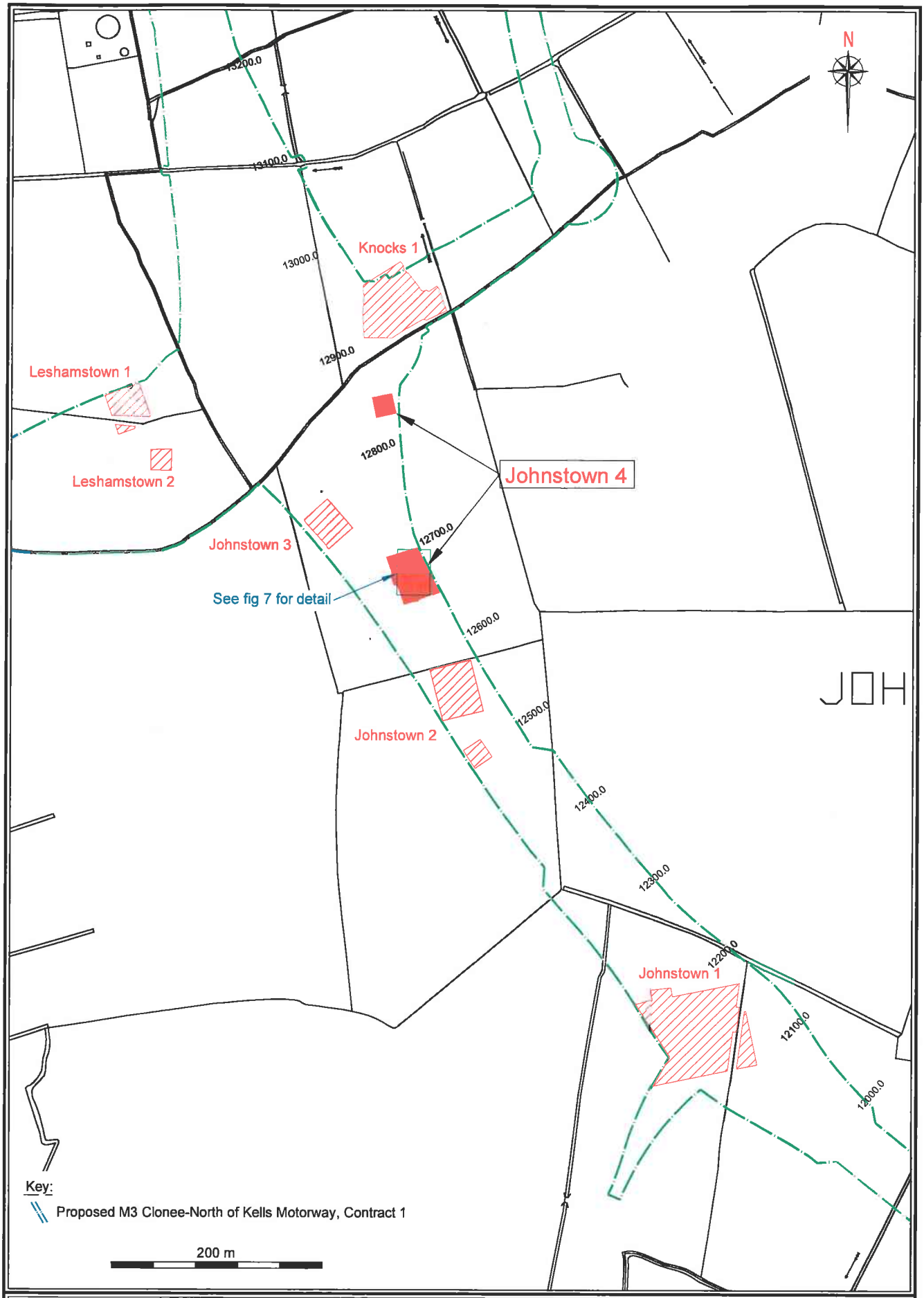
Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 1, Johnstown 4	Scale: 1:10,000 A4
		Date: Jun '08
	Issued for: Excavation Report	Origin: OSi (1883)
	Client: Meath County Council	Drawing no.: 04_01_C9044i

Figure 4: Johnstown 4, extract from 2nd edition OS map, Meath sheet 44



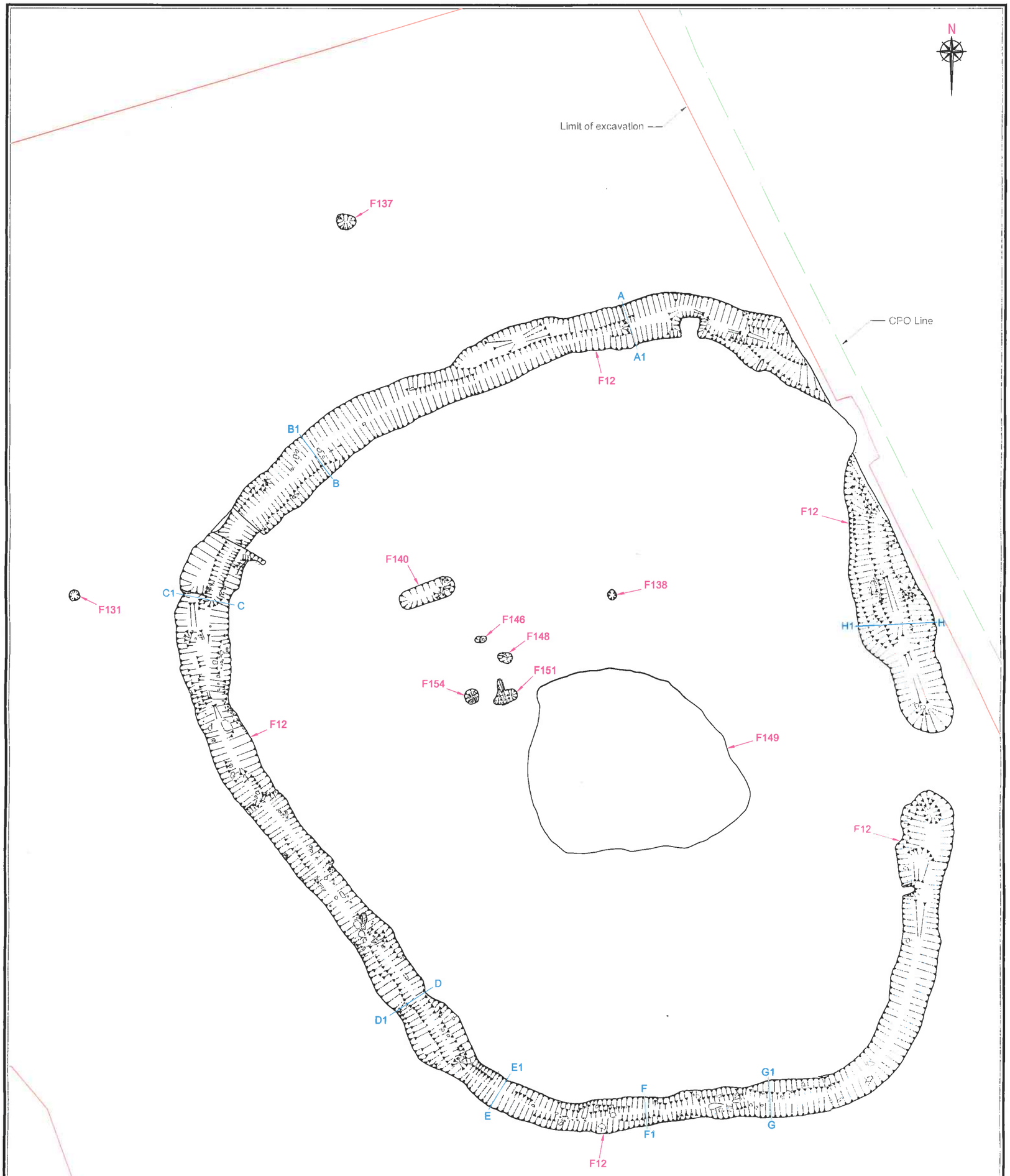
Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 1, Johnstown 4	Scale: 1:10,000 A4
		Date: Jun '08
	Issued for: Excavation Report	Origin: OSi (1909)
	Client: Meath County Council	Drawing no.: 04_01_C9045i

Figure 5: Johnstown 4, extract from 3rd edition OS map, Meath sheet 44



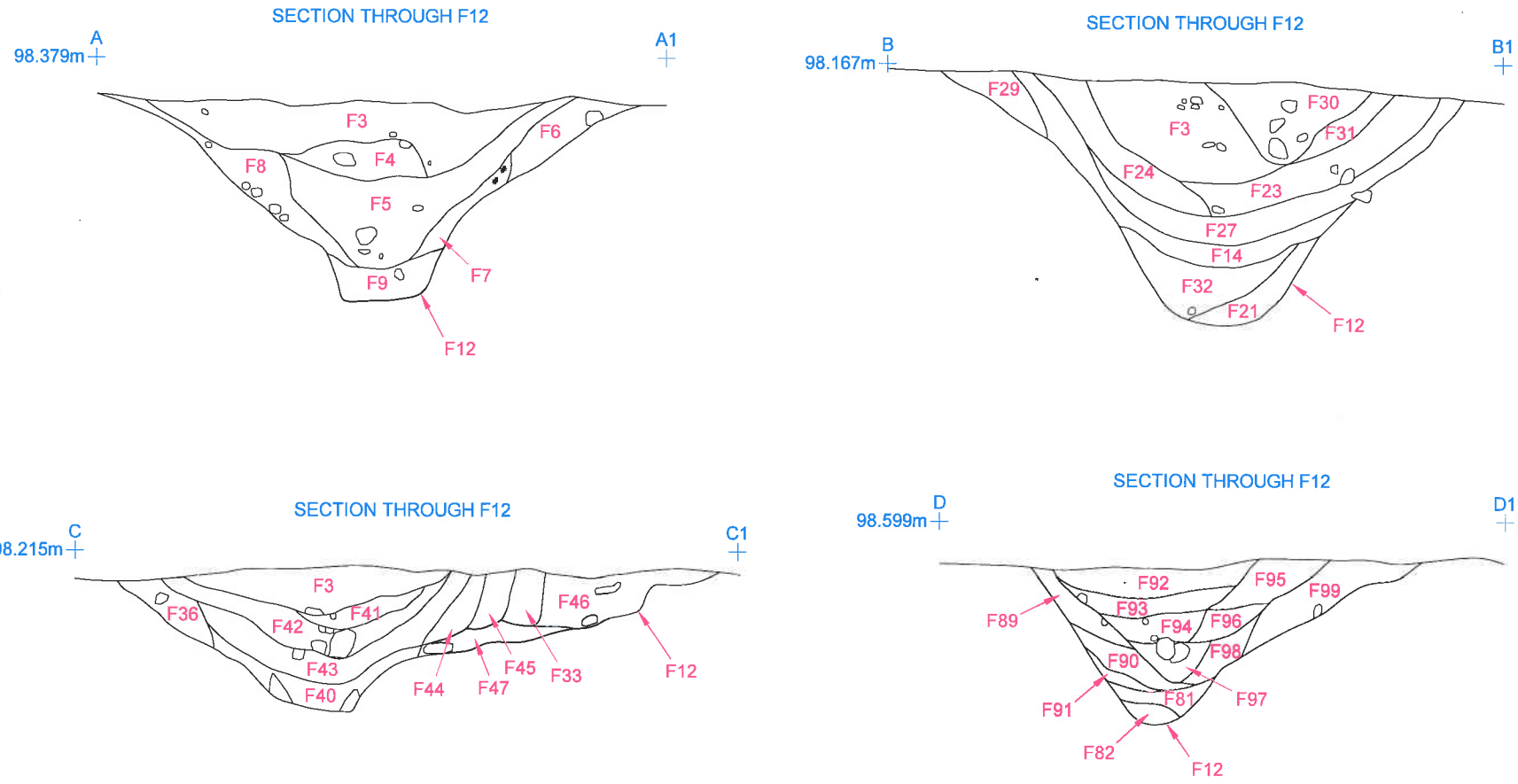
Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 1, Johnstown 4	Scale: 1:5,000 A4
		Date: Jun '08
	Issued for: Excavation Report	Origin: Client/ACS Ltd.
	Client: Meath County Council	Drawing no.: 04_01_C9046i

Figure 6: Detailed location of Johnstown 4



Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 1, Johnstown 4	Scale: 1:125 A3
		Date: Jun '08
	Issued for: Excavation Report	Origin: Client/ACS Ltd.
	Client: Meath County Council	Drawing no.: 04_01_C9047i

Figure 7: Post-excavation plan of site



Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 1, Johnstown 4	Scale: 1:20 A4
		Date: Jun '08
	Issued for: Excavation Report	Origin: ACS Ltd.
	Client: Meath County Council	Drawing no.: 04_01_C9048i

Figure 8: Sections of Johnstown 4

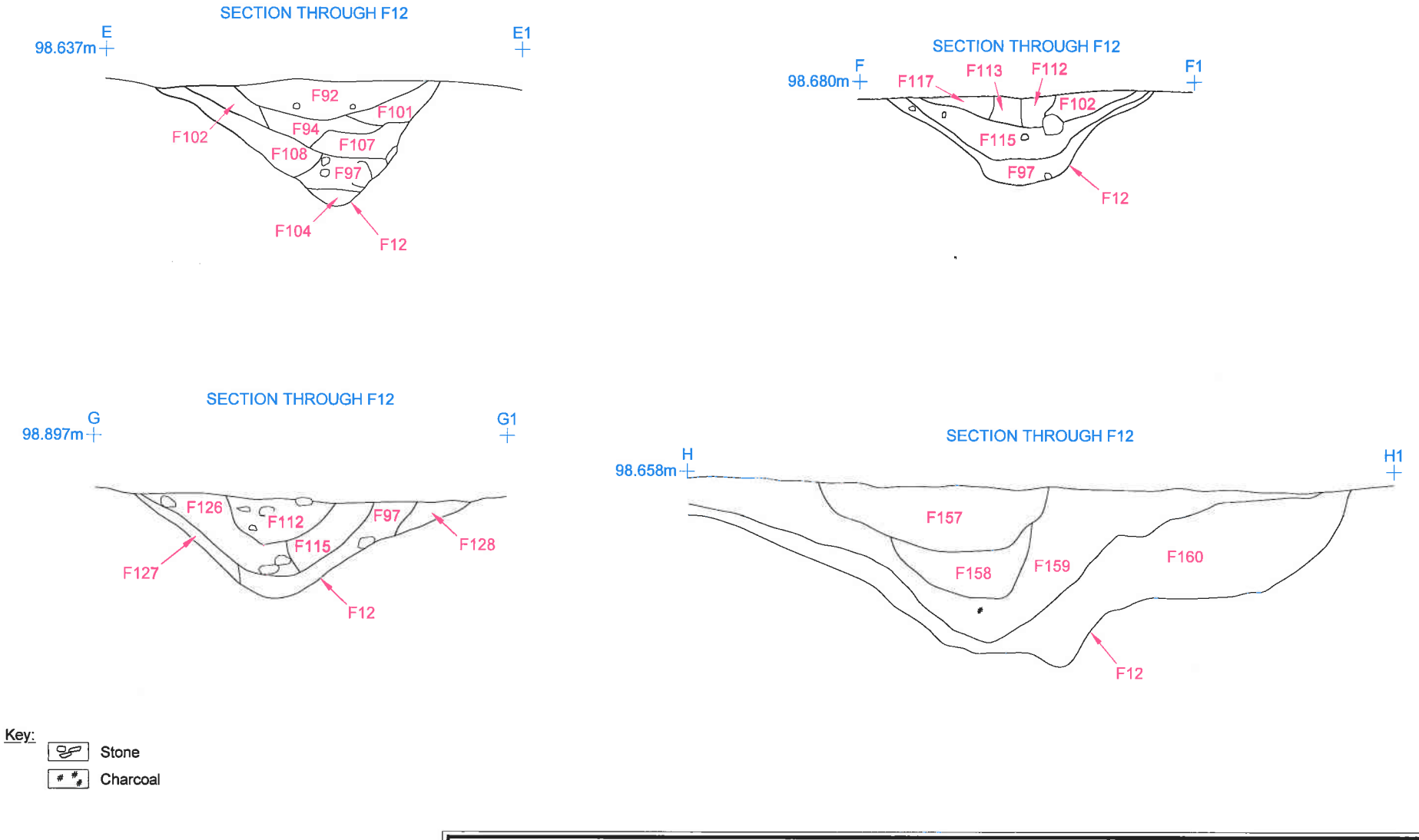


Figure 9: Sections of Johnstown 4

Plate 1: Low aerial view of Johnstown 4 post-excavation, looking southeast (04_01_Hawkeye_Johnstown 4_003)

Plate 2: Low aerial view of entrance to Johnstown 4, looking north (04_01_Hawkeye_Johnstown 4_011)

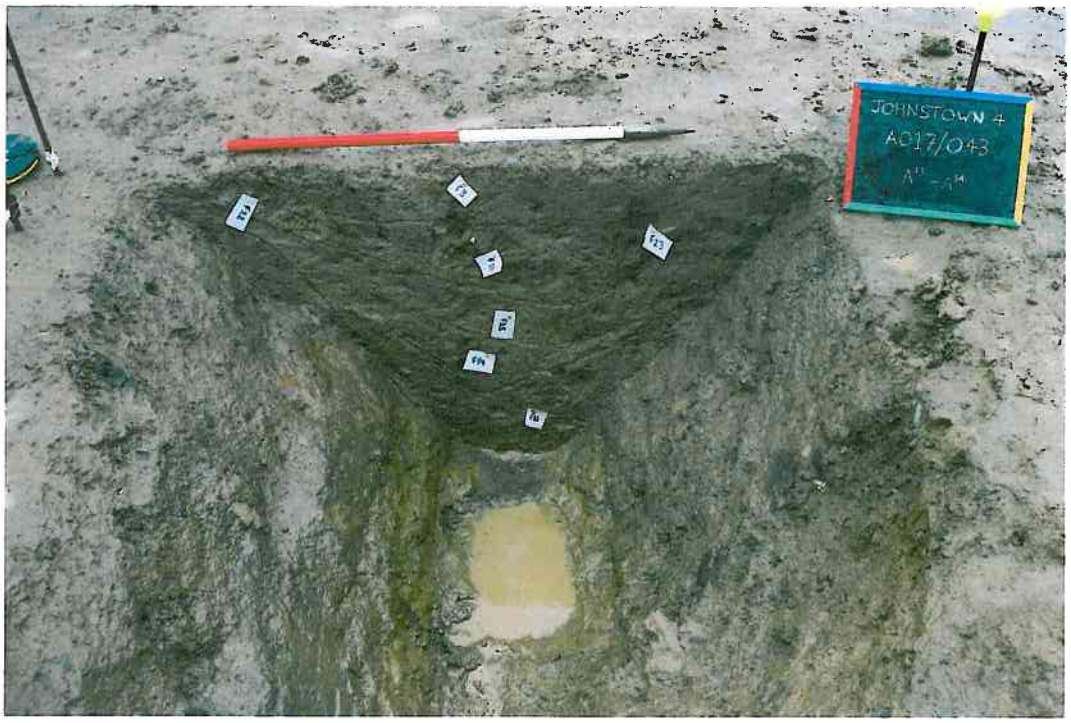


Plate 3: Section through north side of ditch (04_01_Johnstown 4_CP01_05)

Plate 4: Section through southwest side of ditch (04_01_ Johnstown 4_CP01_027)

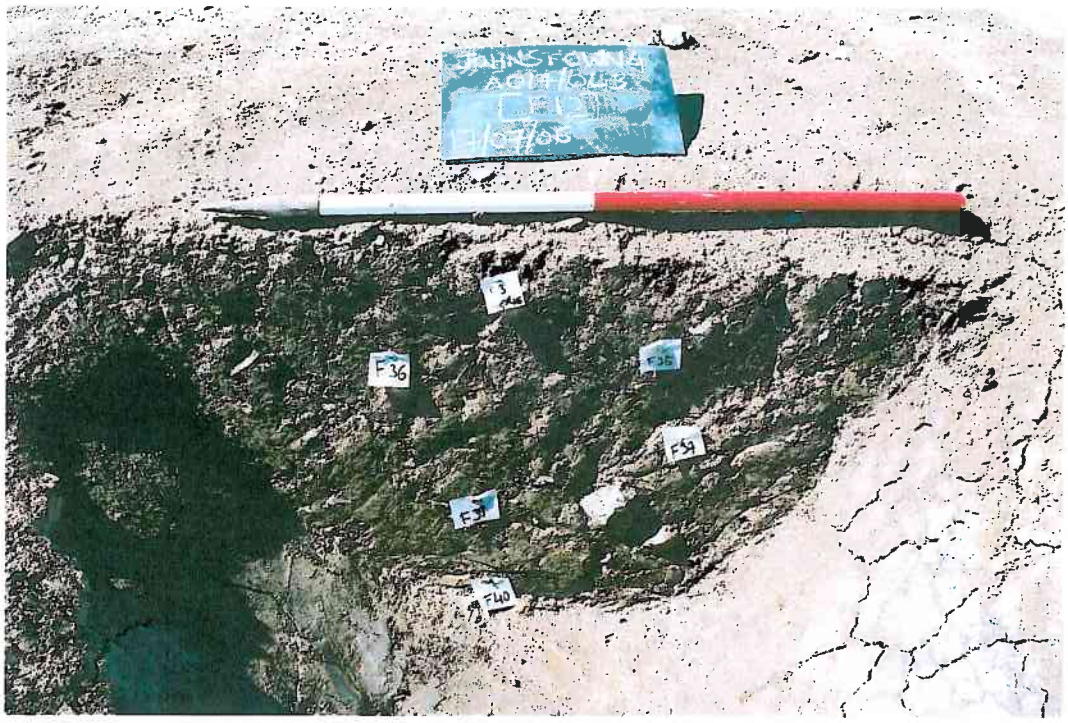


Plate 5: Section through eastern side of ditch, near terminal (04_01_Johnstown 4_ CP01_028)

Plate 6: Section through southern side of ditch (04_01_Johnstown 4_CP01_029)

Plate 7: Post-excavation view of elongated pit F140, looking east (04_01_Johnstown 4_ CP01_030)

Plate 8: Post-excavation view of pit F154, looking north (04_01_Johnstown 4_ CP01_031)