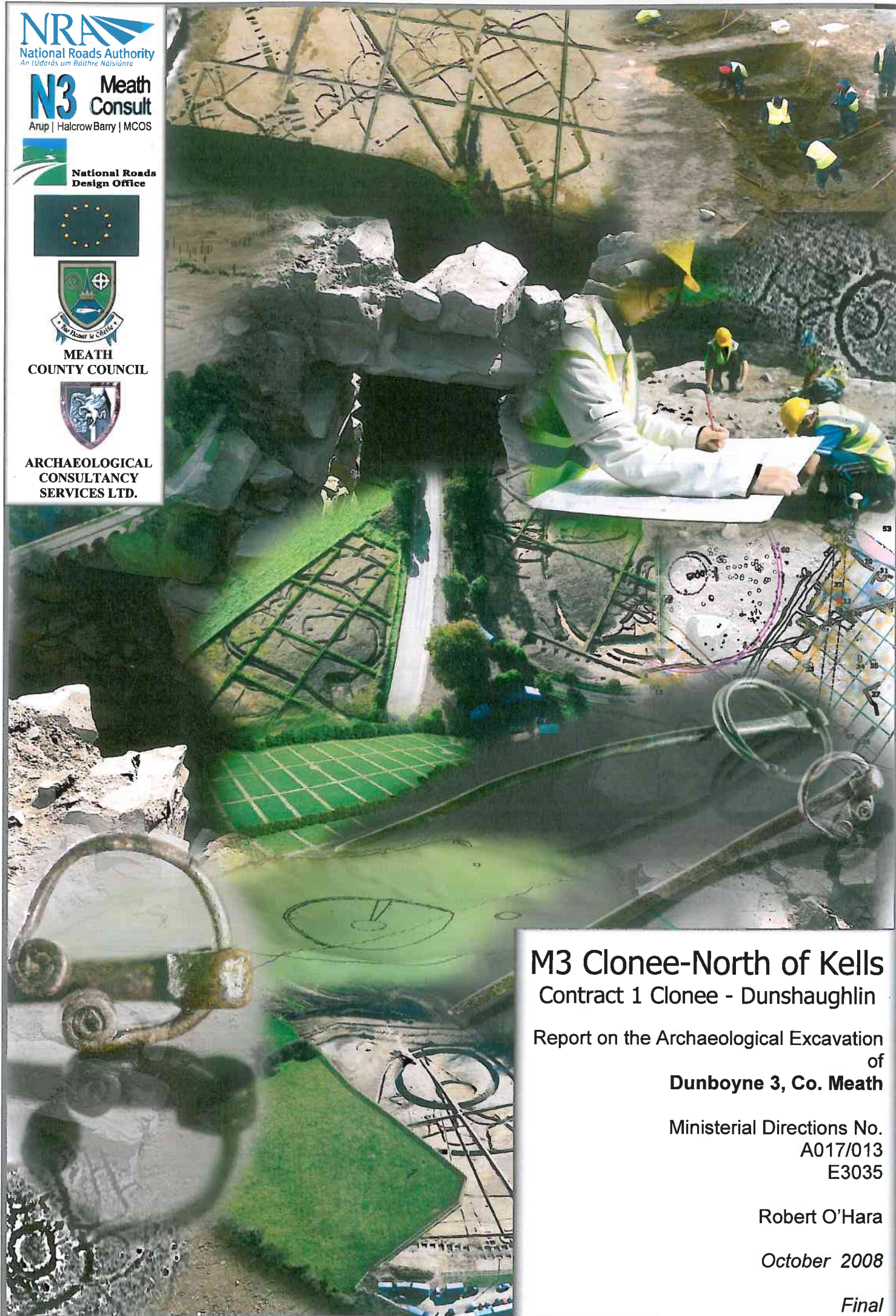




**MEATH  
COUNTY COUNCIL**



**ARCHAEOLOGICAL  
CONSULTANCY  
SERVICES LTD.**



## **M3 Clonee-North of Kells** **Contract 1 Clonee - Dunshaughlin**

**Report on the Archaeological Excavation  
of  
Dunboyne 3, Co. Meath**

**Ministerial Directions No.  
A017/013  
E3035**

**Robert O'Hara**

**October 2008**

**Final**

## PROJECT DETAILS

<b>Project</b>	M3 Clonee–Kells Motorway
<b>Site Name</b>	Dunboyne 3
<b>Ministerial Direction Number</b>	A017/013
<b>Registration Number</b>	E3035
<b>Senior Archaeological Consultant</b>	Donald Murphy
<b>Archaeologist</b>	Robert O’Hara
<b>Excavated</b>	9–29 August 2005
<b>Client</b>	Meath County Council, National Roads Design Office, Navan Enterprise Centre, Navan, County Meath
<b>Townland</b>	Dunboyne
<b>Parish</b>	Dunboyne
<b>County</b>	Meath
<b>National Grid Reference</b>	302054, 243345
<b>Chainage</b>	1850–2050
<b>Height</b>	71.51m OD
<b>Report Type</b>	Final
<b>Report Status</b>	Submitted
<b>Date of Report</b>	October 2008
<b>Report by</b>	Robert O’Hara

## **ACKNOWLEDGEMENTS**

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

### **Consulting Engineers - N3 Meath Consult**

Engineer – Peter Thorne and Thomas Meagher

Resident Engineer – Conor Wilkinson

### **Meath County Council, National Roads Design Office**

Senior Engineer – John McGrath

Project Archaeologist – Mary Deevy

Project Liaison Officer – Ambrose Clarke

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

Archaeologist – Martin Reid

### **Irish Antiquities Division, National Museum of Ireland**

Keeper – Nessa O'Connor

### **NON-TECHNICAL SUMMARY**

This site at Dunboyne 3 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. Three postholes flanked a kidney-shaped pit that contained burnt bone, flint and chert debitage, and a number of Late Neolithic and Beaker pottery sherds. Radiocarbon dating returned a calibrated date of 2576–2341 BC.

The site was located on the edge of the proposed roadtake, so it was possible that associated archaeological features remain at that location, however much of the surrounding landscape has been extensively quarried, so associated features may not have survived.

## CONTENTS

1 INTRODUCTION .....	1
1.1 Development .....	1
2 EXCAVATION .....	2
2.1 Results .....	2
2.2 Finds .....	3
3 DISCUSSION .....	4
3.1 Form and function .....	4
3.2 Date and sequence .....	6
4 CONCLUSIONS .....	7
5 REFERENCES .....	7

### **APPENDIX 1** *Context Details*

### **APPENDIX 2** *Finds List*

### **APPENDIX 3** *Sample List*

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

### **APPENDIX 5** *Prehistoric pottery report: Dr. Eoin Grogan & Dr. Helen Roche*

### **APPENDIX 6** *Lithics report: Joanna Nolan*

### **APPENDIX 7** *Plant macrofossil, charcoal and cremated bone analysis: Durham University*

### **APPENDIX 8** *Radiocarbon dates: Beta Analytic*

## **FIGURE LIST**

Figure 1: Location of Dunboyne 3

Figure 2: Location of Dunboyne 3 on current OS background

Figure 3: Dunboyne 3, extract from 1st edition OS map, Meath sheets 50 & 51

Figure 4: Dunboyne 3, extract from 2nd edition OS map, Meath sheets 50 & 51

Figure 5: Dunboyne 3, extract from 3rd edition OS map, Meath sheets 50 & 51

Figure 6: Detailed location of Dunboyne 3

Figure 7: Post-excavation plan of Dunboyne 3

Figure 8: Sections and profiles of Dunboyne 3

## **PLATE LIST**

Plate 1: Pre-excavation view of features at Dunboyne 3

Plate 2: Post-excavation of features at Dunboyne 3

## **ILLUSTRATION LIST**

Illustration 1 Selected Beaker sherds



## 1 INTRODUCTION

The site at Dunboyne 3 (Figures 1–6, Plates 1 and 2) was identified during advance testing carried out by Robert O’Hara during 16–30 May 2004 under licence number 04E0490. A kidney-shaped pit (1.82m x 0.81m x 0.17m) containing charcoal inclusions, burnt animal bone, a flint plano-convex knife (04E490:09:1), early Neolithic carinated bowl pottery (04E490:09:2–7) and sherd from a fine Beaker vessel were revealed during testing (O’Hara 2004). Two circular deposits, one of which contained three sherds of Neolithic pottery (04E490:11:1–3), and an irregularly shaped cut feature were also discovered (*ibid.*). A Topsoil Assessment (metal detection, field walking and test pits) was conducted on site in 2005; two nails (from metal detection) and a coin (from the test pits) were recovered (Appendix 4). During full archaeological resolution of the site in August 2005 these features were re-located and the two deposits and the irregular cut were interpreted as the remains of shallow postholes.

### *1.1 Development*

Meath County Council is constructing 49km of two-lane, dual-carriageway motorway between Clonee and Kells and 10km of single carriageway from Kells to just north of Kells alongside additional road upgrades, realignments and associated ancillary works. The scheme has been subdivided into five separate sections as follows: Clonee to Dunshaughlin (Contract 1), Dunshaughlin to Navan (Contract 2), the Navan Bypass (Contract 3), Navan to Kells and the N52 Kells Bypass (Contract 4), and Kells to North of Kells (Contract 5). This section of the scheme (Contract 1) commences at the end of the existing Clonee Bypass, immediately east of Dunboyne (NGR 303070, 241625), and proceeds in a northwestern direction, finishing to the west of Dunshaughlin (NGR 295567, 253082).

The desk-based study and the field survey for the whole scheme, carried out in 2000–2001, were divided into sections which were investigated by Valerie J Keeley Ltd and Margaret Gowan and Company Ltd. The Record of Monuments and Places, the Sites and Monuments Record, Topographical files, and literary sources were all consulted. This information was augmented by geophysical testing conducted by Bartlett-Clark Consultancy who undertook a magnetometer survey across sample transects which was then supplemented by magnetic susceptibility, and also by GSB Prospection who undertook gradiometer scanning and a detailed gradiometer survey. The Environmental Impact Survey (EIS) compiled this data set to identify approximately 100 sites of interest either along the route or in its proximity (500m of the landtake). Advance archaeological testing was completed in 2004 by ACS and Irish Archaeological Consultancy Services Ltd (IAC). Excavation of the sites identified during testing was conducted by ACS and IAC on behalf of Meath County Council, and the NRA

under directions issued by the Minister for the Environment, Heritage and Local Government following consultation with the Director of the National Museum of Ireland.

## 2 EXCAVATION

Excavation was undertaken between 9 and 29 August 2005 under Ministerial Direction Number A017/013 issued to Meath County Council NRDO. The work was carried out by Robert O'Hara on behalf of ACS. Topsoil was 0.50m deep across the excavation area and was mechanically excavated. The subsoil (F13) consisted of mottled, brown, boulder clay.

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.

### 2.1 Results

Fourteen contexts of archaeological interest were identified within the excavation area. Only the principal archaeological features of Dunboyne 3 will be discussed within this report; full details of all these, and further, contexts are located in Appendix 1.

A kidney-shaped pit (F7: 0.80–2.00m x 1.00–2.00m x 0.30m; Figures 7–8; Plates 1–2) contained two fills, the primary of which (F11: 0.10m depth) consisted of firm, light-greyish-brown clay with occasional bone flecks and frequent charcoal inclusions. The secondary fill (F15: 0.30m depth) was similar to F11 with frequent charcoal inclusions and burnt bone flecks. Artefacts included flint and chert debitage (A017:013:15:1–3, A017:013:15:20) along with 22 pottery sherds (A017:013:15:4–19; See Appendix 2) representing the broken remains of 6 vessels (see Appendix 5), including 1 medium sized early Neolithic carinated bowl (Vessel 1) and 5 Beaker vessels (Illustration 1), two of which were decorated with applied comb impressed lines immediately beneath the rim (Vessels 2 and 4) and closely spaced horizontal shell impressed lines which could represent all-over-ornament (AOO) (Vessel 3). Such decoration is rare, but has been identified at Newgrange (Cleary 1983) and Knowth (Eogan 1984, 256-9, fig. 90)

F15 yielded 11.5 g of charcoal, which was dominated by ash (*Fraxinus excelsior*), with lesser proportions of elm (*Ulmus* sp), oak (*Quercus* sp), Maloideae (hawthorn, whitebeams, apple

and pear) and hazel (*Corylus avellana*), an assemblage which suggested the local landscape at the time comprised mixed deciduous woodland. The high canopy species (ash, elm and oak) were predominantly fragments of timber rather than roundwood, representing perhaps mature trees, possibly felled for use as structural timbers. The recorded hazel fragments were roundwoods, more suitable for use as wattling or firewood. The Maloideae fragments were mainly timber; it is more likely that these were used for firewood rather than structural timbers, due to the relatively small size of these trees (see Appendix 7). A fragment of ash from this deposit gave a calibrated date of 2576–2341 BC (Beta 241273; Appendix 8).

There were limited charred plant remains in this deposit, but these suggested the cultivation of wheat (*Triticum* spp) in the vicinity of the site. The grains could not be identified to species. Wheat was among the most important cereal crops in Ireland during the Neolithic and early Bronze Age (Grogan *et al* 2007; Monk 1986). Fat-hen (*Chenopodium album*) may have been growing as an arable weed amongst the crop, or on proximate areas of disturbed ground (see Appendix 7).

A moderate amount of cremated bone (34.8g) was recovered from the feature. The bone was white in colour suggesting exposure to temperatures in excess of 600°C (see Appendix 7). Only one fragment could be identified as sheep/goat calcaneum (heel bone), with two further fragments from an unidentified animal. Human bone was not present among the collection.

This pit was flanked by three shallow postholes (F8: 0.25m diameter x 0.13m depth; F9: 0.37–0.39m diameter x 0.04m depth; F10: 0.24–0.33m diameter x 0.04m depth; Figures 7–8; Plates 1–2) containing similar fills (F4, F5 and F6, respectively) of firm, light-greyish-brown clay with occasional pebbles and charcoal inclusions. F4 also contained occasional bone flecks while flint (A017/013:6:1) and decorated beaker sherds (A017/013:6:2–3) were derived from F6 (belonging to Vessel 2).

## 2.2 Finds

Only the abovementioned artefacts were discovered on site while a flint plano-convex knife (04E490:09:1), and further sherds of early Neolithic Carinated Bowl and Beaker pottery (04E490:09:2–7) were found during testing (O’Hara 2004; see Table 1 in Appendix 5 & the addendum to Appendix 6). The total pottery assemblage from both phases therefore comprised seven sherds of an early Neolithic carinated bowl (Vessel 1) and 25 sherds of Beaker representing at least 5 separate vessels (Vessels 2–6; see Appendix 5). The nature of the assemblage suggested the material was derived from a domestic context.



### 3 DISCUSSION

#### 3.1 *Form and function*

At Dunboyne 3, a single kidney-shaped pit was flanked by three shallow features, perhaps truncated postholes. The pit contained stone tools and pottery dating to the Late Neolithic approximately 2500 BC, when Beaker pottery appeared in the Irish archaeological record. Beaker pottery is one aspect of a material culture that also included copper daggers, stone wristguards, arrowheads, V-perforated buttons, and a distinctive burial rite that rapidly spread throughout Europe (Carlin 2006). The distinctive Beaker burial rite, a crouched inhumation within a cist or pit grave that is accompanied by Beaker pottery and various other objects, was not widely adopted in Ireland although it eventually developed (with pottery of the bowl tradition) from the late third millennium (approximately 2300–1950 BC; Waddell 1998 118–9, 140–4). In Ireland, the infiltration of Beaker material culture was contemporary with the introduction and adoption of metallurgy, in particular copper working, which may have spread along established trade networks between social elites in different areas (Cooney & Grogan 1994, 84). County Meath had a particularly rich Late Neolithic culture, with Beaker material excavated at Knowth and Newgrange (hereafter Brugh na Bóinne; Eogan 1984; Eogan & Roche 1997), Monknewtown (Sweetman 1976), Carranstown (O’Carroll 2004), Rathmullan 10 and 12 (Bolger 2001), Sheephouse (Nelis 2002), Harlockstown (O’Connor 2004), and Cookstown (Clutterbuck 2004) and also along the proposed M3 motorway at Berrilstown 1 (A008/009); Ardsallagh 4 (E3090; Clarke 2008); Johnstown 3 (E3043; Elder 2008) and Skreen 3 (E3073; O’Neill 2008). In north County Dublin, Beakers have been found at Broomfield (O’Brien 1988), Lusk (Roche 2004) and Beaverstown (Hagen forthcoming 1) and there was a suggestion of Beaker material (an archers bracer and a tanged arrowhead) at Fourknocks (King 1999). The Brugh na Bóinne Beaker complex could be among the earliest Beaker settlements in eastern Ireland, perhaps under influence from western Britain, while western Ireland may have received Beaker influence directly from the Breton region (Eogan & Roche 1997, 257). A potential relationship between Dunboyne 3 and this larger complex was intimated by the recovery of vessels bearing all-over-ornament (AOO) horizontal shell impressed lines at either location (Cleary 1983; Eogan 1984, 256-9, fig. 90).

An increase in archaeological excavations has led to the discovery of greater numbers, and a wider range, of Beaker sites than might generally be expected. Where Beaker distribution had previously been primarily recognized in the northern half of the island, there are now dense distributions of Beaker sites along the western, southern and eastern coasts (Carlin 2006). A typical Beaker site in Ireland would comprise occupational spreads, or groups of pits and postholes commonly with no identifiable pattern. The archaeological features excavated at Dunboyne 3 may be from a domestic context, but may also be representative of a ritual

activity that is increasingly encountered on archaeological excavations producing Beaker remains across Ireland, specifically the deposition of artefacts in pits, sometimes in association with cremated bone, charcoal and charred plant remains. A recurrent aspect of such features is a conscious selection process preceding the final deposition. It is also common for pits to contain sherds from different vessels. A typical example from Kilgobbin, Co. Dublin contained 560 sherds as well as hundreds of flakes, microflakes and fragments that appeared to be originate from knapping waste or debitage. Cremated animal and possibly human bone were found in small quantities with incidences of charred hazelnut shells and barley grains. Wear pattern analysis of the pottery concluded the sherds had been exposed prior to deposition and had probably been obtained from accumulated debris. Similarly, none of the debitage could be refitted, which suggested they had also been derived from waste (Hagen forthcoming; Grogan 2004; Carlin 2006). Similar pits containing near identical deposits have been excavated recently in Meath (Rathmullan 10 and 12; Bolger 2001), Louth (Hill of Rath, Newtownbalregan; Duffy 2002; Bayley 2005), Kildare (Corbally; Purcell 2002), Wicklow (Templeraíne; Ó'Riordáin 1997), Cork (Barnagore 2, Curraheen 1 and Carrigrohane 4; see Bennett 2003) and Kerry (Cloghers; Kiely, forthcoming). There appears to be no obvious distinction between vessels used in funerary or ritual contexts and those found on habitation sites (Carlin 2006).

Significantly, this is among first site producing early Neolithic pottery in southeast Meath, the nearest sites being Brugh na Bóinne or Feltrim Hill, Co. Dublin (E. Grogan pers. comm.). A single detached lug probably from a middle Neolithic vessel (A017/012:300:3) and a Group VI tuff axe fragment (A017/012:36:1) were excavated at Dunboyne 2 (O'Hara 20008) approximately 400m to the northwest. A second stone axe fragment was found in the area in the 1970s during quarrying works carried out unearthed a stone axe at a quarry along the Old Navan Road, which is now among the collection of the National Museum of Ireland (Topographical Files). The carinated bowl style is the earliest form of pottery found in Ireland, characterised by round bottoms, concave necks and distinctive carinated shoulders. This widely adopted style appeared around 4000 BC and was in use for a number of centuries (Waddell 1998, 42). Beakers and early Neolithic pottery have been found together in pits at Laughanstown, Co Dublin (Seaver & Keeley forthcoming), Hill of Rath, Co. Louth (Duffy 2002), and Charlesland, Co. Wicklow (Molloy 2003). Approximately 1500 years separate the early Neolithic ceramics and Beaker forms at the site, so any association is unlikely to be the result of continued occupation of a particular site throughout the Neolithic period (Carlin 2006). The occurrence of early Neolithic ceramics with Beaker styles at Dunboyne 3 and middle Neolithic pottery and Group VI tuff axe fragment at Dunboyne 2 suggests the presence of prolonged early prehistoric settlement within the locality. No evidence for

settlement was identified within the excavation area although the surrounding area has been significantly altered for sand and gravel extraction during the last century, particularly to the south and northeast and the recovery of a stone axe fragment from the area of this quarrying may indicate the settlement has been significantly disturbed or removed.

### ***3.2 Date and sequence***

The identification and excavation of prehistoric archaeological remains in the Dunboyne area was significant, as prior to the testing phase of the M3, no prehistoric remains had been recorded within the townland of Dunboyne, although a stone axe was listed among the collection of the National Museum (Topographical Files). Dunboyne 3 is also among the first sites in southeast Meath to produce early Neolithic pottery.

There is a lack of understanding regarding the dating and duration of Beaker culture in Ireland, but most experts agree on an introduction date around 2500 BC (Brindley 2005), which concurs with the calibrated radiocarbon date of 2576–2341 BC (Beta 241273) for fragments of ash from the secondary fill F15 of pit F7. The principal complex in Meath appears to have been centred on the Brugh na Bóinne complex, however how outlying areas containing evidence for Beaker culture interacted with this complex is not understood. As further definitive dating and artefactual evidence comes available for the M3 and surrounding areas, it may be possible to more precisely interpret the archaeological evidence from Dunboyne 3 and adjacent and proximate contemporary sites.

#### 4 CONCLUSIONS

Dunboyne 3 (A017/013; E3035), excavated 9–29 August 2007 by Robert O’Hara (ACS) as part of the M3 Clonee–North of Kells Motorway Scheme on behalf of Meath County Council, NRDO, and the NRA. The site produced stratified Late Neolithic/Beaker pottery together with flint and chert artefacts and fragments of Early Neolithic Carinated Bowl. These pottery traditions are quite chronologically disparate and must represent a considerable period of Neolithic occupation at the locality. A calibrated radiocarbon date of 2576–2341 BC (Beta 241273) for the main feature within the site is comfortably within the known range of Beaker material use in eastern Ireland. The nature of the activity at the site was not clear. Ceramics and lithics deposited in association with cremated bone is recorded elsewhere and may reflect some poorly understood ritual activity. The site was located on the edge of the proposed roadtake, so it was possible that associated archaeological features remain at that location, however much of the surrounding landscape has been extensively quarried, so associated features may not have survived.

#### 5 REFERENCES

- Bayley, D 2005 *Stratigraphic report of Excavations at site 112, Newtownbalregan*. Unpublished report, Irish Archaeological Consultancy.
- Bennett, I 2003 *Excavations 2002: Summary accounts of excavations in Ireland*. Wordwell. Dublin.
- Bolger, T 2001 ‘Three Sites on the Northern Motorway at Rathmullan, Co. Meath’, *Riocht Na Midhe*, Vol. VII, 8–17.
- Brindley, AL 2005 ‘The Prehistoric Mine: Specialist Studies’, in W O’Brien, *Ross Island. Mining, Metal and Society in Early Ireland*. Bronze Age Studies 6, 331–338. Dept of Archaeology, NUIG.
- Carlin, N 2005 *A Study of Beaker Settlement in Leinster*. Unpublished Masters Thesis. Queens University of Belfast.
- Carlin, N 2006 *M3 Research Report on The Beaker Complex In Ireland*. Unpublished report prepared by Archaeological Consultancy Services Ltd.
- Clarke, L 2008 *Interim Report on Archaeological Excavations at Ardsallagh 4 (A008/037) Co. Meath, E3090*. Unpublished report prepared for The Department of the Environment, Heritage and Local Government on behalf of Archaeological Consultancy Services Ltd.
- Cleary, R. M. 1983 The Ceramic Assemblage. In O’Kelly, M. J., Cleary, R. M. and Lehané, D. *Newgrange, Co. Meath, Ireland: The Late Neolithic/Beaker Period Settlement*, C. O’Kelly (ed.), 58–117. British Archaeological Reports International Series **190**, Oxford.

- Clutterbuck, R 2004 *Preliminary Report on the Archaeological Excavation at Sites 24 and 25, Cookstown, Co. Meath*. Unpublished report prepared by CRDS.
- Cooney, G & Grogan, E 1994 *Irish Prehistory: A Social Perspective*. Wordwell, Dublin
- Duffy, C 2002 *Excavations in the Townlands of Mell and Hill of Rath*. Unpublished Final Report prepared by Valerie J Keely Ltd.
- Elder, S 2008 *Interim Report on Archaeological Excavations at Johnstown 3 (A017/021) Co. Meath, E3043*. Unpublished report prepared for The Department of the Environment, Heritage and Local Government on behalf of Archaeological Consultancy Services Ltd.
- Eogan, G 1984 *Excavations at Knowth, 1*. Dublin. Royal Irish Academy
- Eogan, G & Roche, H 1997 *Excavations at Knowth, 2*. Dublin. Royal Irish Academy
- Grogan, E 2004 *The prehistoric pottery assemblage from Charlesland, Co. Wicklow. Sites 1B, J, K, R.M.P, and G.C1*. Unpublished report.
- Grogan, E, O'Donnell, L, & Johnston, P, 2007 *The Bronze Age landscapes of the Pipeline to the West, an integrated archaeological and environmental assessment*, Wicklow
- King, H 1999 'Excavations at Fourknocks Ridge, Co. Meath; in *Proceedings of the Royal Irish Academy* 99C, 157–198.
- Monk, MA, 1986 Evidence from macroscopic plant remains for crop husbandry in prehistoric and early historic Ireland, *Journal of Irish Archaeology*, **3**, 31-36
- Hagen, I forthcoming 1 *Excavations at Beaverstown, Co. Dublin*
- Hagen, I forthcoming 2 *Excavations at Kilgobbin, Co. Dublin*.
- Kiely, J forthcoming *Cloghers II: Beaker and Bronze Age Summary*.
- Molloy, B 2003 *Excavations at Charlesland Residential Development, Co. Wickow. Site A*. Unpublished report prepared by Margaret Gowen & Co. Ltd.
- Nelis, D 2002 *Excavations at Site 9, Rathmullan, Co. Louth*. Unpublished Report prepared for Irish Archaeological Consultancy Ltd.
- O'Brien, E 1988 'A Find of Beaker Pottery from Broomfield, Ballyboghil, Co. Dublin', *Journal of the Royal Society of Antiquaries of Ireland*, 118, 118–23.
- O'Carroll, E 2004 *Non-technical Summary Report of Excavations at Carranstown, Co. Meath*. Unpublished Report prepared by The Archaeology Company.
- O'Connor, D 2004 *Preliminary Report on the Archaeological Excavation at Site 19, Harlockstown, Co. Meath*. Unpublished report prepared by CRDS.
- O'Hara R 2004 *Report on Archaeological Assessment at Testing Area 6, Dunboyne, Pace, detached portion of Woodpark, Co. Meath, 04E0490*. Unpublished report prepared by Archaeological Consultancy Services Ltd.
- O'Hara R 2008 *Interim Report on Archaeological Excavations at Dunboyne 2 (A017/012) Co. Meath, E3034*. Unpublished report prepared for The Department of the Environment, Heritage and Local Government on behalf of Archaeological Consultancy Services Ltd.

- O'Neill T 2008 *Interim Report on Archaeological Excavations at Skreen 3 (A008/020) Co. Meath, E3073*. Unpublished report prepared for The Department of the Environment, Heritage and Local Government on behalf of Archaeological Consultancy Services Ltd.
- Ó Ríordáin, B 1997 *Archaeological Excavations, Arklow Bypass, Co. Wicklow (97E0083)*. Unpublished Report prepared by Valerie J Keely Ltd.
- Purcell, A 2002 'Excavation of Three Neolithic houses at Corbally, Kilcullen, Co. Kildare', *The Journal of Irish Archaeology*, 11, 31–75.
- Roche, H 2004 *The Prehistoric Pottery Assemblage from Lusk, Co. Dublin*. Unpublished Report prepared for Arch-Tech Ltd.
- Seaver, M & Keeley, VJ forthcoming. *Final Report on the Archaeological Excavation of an Archaeological Complex, Laughanstown Townland, Co. Dublin*. South Eastern Motorway.
- Sweetman, PD 1976 'An earthen enclosure at Monknewtown, Slane, Co. Meath', *Proceedings of the Royal Irish Academy*, 76C, 25–72.
- Waddell, J 1998 *The Prehistoric Archaeology of Ireland*. Dublin, Wordwell.

Signed:



---

Robert O'Hara

October 2008



**APPENDIX 1** *Context Details*

<b>Dunboyne 3: A017:013</b>											
No	Type	Fill of/ Filled with	Strat above	Strat below	Description	Interpretation	Group	Artefacts	Animal bone	Cremated bone	Samples
1-3					used previously during topsoil assessment						
4	fill	8	8	14	firm, light-greyish-brown clay with occasional pebbles and burnt bone flecks and frequent charcoal inclusions. 0.25m diameter x 0.13m depth	fill of posthole 8					
5	fill	9	9	14	firm, light-greyish-brown clay with occasional charcoal flecks and pebbles and moderate stones. 0.37-0.39m diameter x 0.04m depth	fill of posthole 9					
6	fill	10	10	14	firm, light-greyish-brown clay with occasional charcoal inclusions and pebbles. 0.24-0.33m diameter x 0.04m depth	fill of posthole 10		flint, pottery			
7	cut	11, 15	13	15	sub-oval, northeast-southwest cut (0.80-2.00m x 1.00-2.00m x 0.30m) with a gradual break of slope, concave sides and a gradual break of slope leading to a rounded base	pit					
8	cut	4	13	4	circular cut (0.25m diameter x 0.13m depth) with a gradual break of slope, concave sides and a gradual break of slope leading to a rounded base	posthole					
9	cut	5	13	5	sub-circular cut (0.37-0.39m diameter x 0.04m depth) with a sharp break of slope, vertical sides and a sharp break of slope leading to a flat base	posthole					
10	cut	6	13	6	sub-circular cut (0.24-0.33m diameter x 0.04m depth) with a sharp break of slope, vertical sides and a sharp break of slope leading to a flat base	posthole					
11	fill	7	7	15	firm, light-greyish-brown clay with occasional burnt bone flecks and frequent charcoal inclusions. 0.10m depth	fill of pit 7					
12	not assigned										

13	subsoil										
14	topsoil										
15	fill	7	7	11	firm, dark-greyish-brown clay with occasional pebbles and frequent charcoal inclusions and burnt bone flecks. 0.80-2.00m x 1.00-2.00m x 0.30m	fill of pit 7		flint, pottery, chert		yes	#1 bulk, #2 charcoal

**APPENDIX 2 Finds List**

<b>Find no</b>	<b>Description</b>
A017:013:6:1	Flint, possible debitage
A017:013:6:2	Decorated fine Beaker body sherd
A017:013:6:3	Decorated fine Beaker body sherd
A017:013:15:1	Flint flake
A017:013:15:2-3	Flint debitage (burnt)
A017:013:15:4	Decorated fine Beaker rim sherd
A017:013:15:5	Decorated fine Beaker neck sherd
A017:013:15:6	Fine Beaker rim sherd with comb applied decoration on internal and external surface
A017:013:15:7	Fine Beaker base angle sherd
A017:013:15:8	Early Neolithic Carinated Bowl body sherd
A017:013:15:9	Fine Beaker body sherd
A017:013:15:10	Fine Beaker base angle sherd
A017:013:15:11	Fine Beaker body sherd
A017:013:15:12	Fine Beaker body sherd
A017:013:15:13	Fine Beaker base sherds of unfooted vessel
A017:013:15:14	Fine Beaker body sherd
A017:013:15:15:a-c	Fine Beaker body sherd
A017:013:15:16 a, b	Domestic beaker base disc sherd in 2 pieces
A017:013:15:17	Fine Beaker body sherd
A017:013:15:18	Fine Beaker body sherd
A017:013:15:19	Fine Beaker body sherd
A017:013:15:20	Grey chert flake

Included below are the artefacts retrieved during testing (04E0490; O'Hara 2004)

04E0490: 9:1	Grey flint plano-convex knife
04E0490:9:2–7	Early Neolithic Carinated Bowl and fine Beaker sherds

**APPENDIX 3** *Sample List*

<b>Sample No</b>	<b>Context No</b>	<b>Description</b>	<b>Results</b>
1	15	bulk	22g cremated bone
2	15	charcoal	12g charcoal

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

<b>Project</b>	Metal Detection: M3 Clonee to North of Kells, Contract 1
<b>Archaeologists</b>	Maria Lear & Stuart Rathbone
<b>Project Start</b>	13 June 2005
<b>Report Date</b>	June 2005

**List of Figures**

Figure 1      Metal Detection (Phase 1) Distribution Map

**1. INTRODUCTION**

The proposals for archaeological resolution included an assessment of the potential for finds retrieval from topsoil at archaeological sites. This assessment was achieved by a program of metal detecting at ploughed and pasture fields. As per the *Method Statement for Topsoil Assessment Including Metal Detection*, metal detection of the topsoil began within Contract 2 on June 13, 2005. However, additional topsoil assessments were deemed necessary after the finalization of the *Method Statement*, therefore some areas in Contract 1 were assessed. This report details the results of the one phase of metal detection, the field walking survey and the test pit phase of Dunboyne 3.

**2. ARCHAEOLOGICAL ASSESSMENT****2.1 Metal Detection Methodology**

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

## 2.2 Field Walking Survey Methodology

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

## 2.3 Test Pit Methodology

When deemed necessary, a number of pre-designated test pits were dug at various locations within the site. The test pits measured 1m<sup>2</sup> and their precise position was surveyed. Each test pit was dug by hand to the depth of subsoil with the resulting loose topsoil sifted on site for the recovery of finds. All finds were bagged and numbered citing DOE record number, context and individual number. Their location was recorded with reference to the specific test pit from where it was collected.

## 2.4 Results

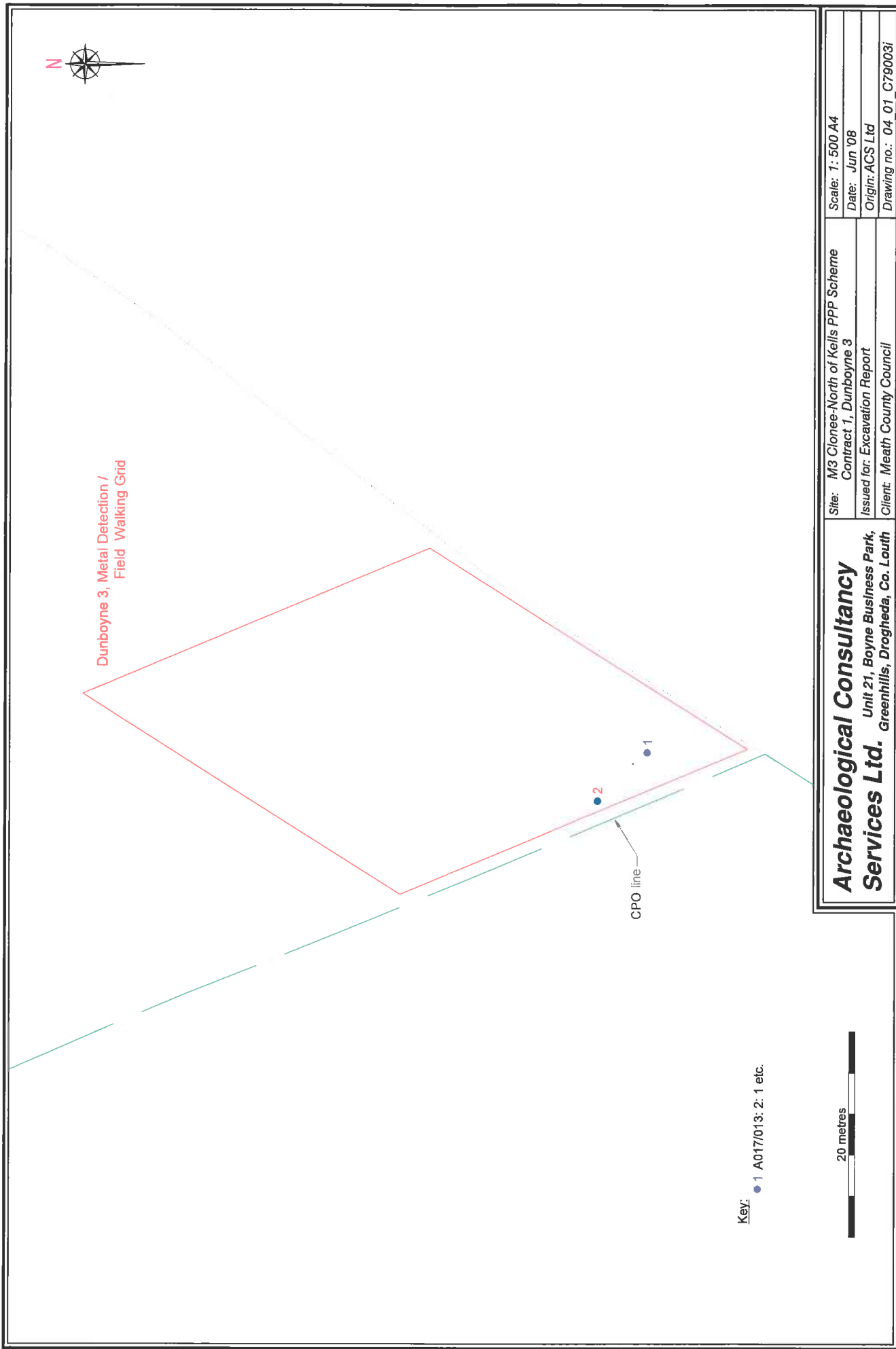
Usually, the first phase of metal detection dealt with the sod layer only and finds recovered were labelled as being from context 1. However, this was not the case in the assessment of Dunboyne 3 as the sod was not metal detected and was removed before assessment began. Initial metal detection of the Dunboyne 3 site produced a small number of 'hits'. A total of 2 'hits' were recorded with two finds recovered. In order to keep all recording methods cohesive, finds from this phase of assessment were labelled as being from context 2 (i.e. the topsoil). Field walking of Dunboyne 3 produced no further collection of finds. All of the finds recovered were of modern date and consisted of items associated with a modern timeframe (a nail and an iron stake). A total of eight test pits were completed with one find collected, a coin.

### 2.4 List of Finds

Find Number	Description
A017/013:2:1	Nail
A017/013:2:2	Nail
A017/013:3:1	Coin







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

**Appendix 5: Prehistoric Pottery: Dr. Eoin Grogan & Dr. Helen Roche****The prehistoric pottery assemblage from Dunboyne 3  
M3 Clonee – North of Kells, Co. Meath**

Eoin Grogan and Helen Roche

Both early Neolithic carinated bowls and at least five Beakers came from the site. The latter include vessels with comb-impressed designs arranged in well-defined horizontal bands. A more unusual technique was represented on No. 3, which has shell-impressed lines possibly representing all-over-ornament.

**CATALOGUE**

Where the pottery is listed in the catalogue the context numbers are in bold: *e.g.* bodysherds: **195.1**. Numbers in square brackets (*e.g.* **128**,[1-4]) indicate that the sherds are conjoined. The thickness refers to an average dimension; where relevant a thickness range is indicated. Vessel numbers have been allocated to pottery where some estimation of the form of the pot is possible, or where the detailed evidence of featured sherds (*e.g.* rims, shoulders), fabric or decorative treatment indicates separate vessels.

**DUNBOYNE 3 (A017/013)**

The excavation number A017/013 is omitted throughout; only the context number, followed by the find number, is included.

The site produced a single early Neolithic carinated bowl sherd and 24 sherds of fine Beaker representing at least 5 separate vessels (Nos 2-6) (total weight 120g). The small quantity of sherds representing each vessel and the worn condition of the pottery suggests that this is derived from a domestic context. Sherds from another Neolithic vessel and a Beaker came from testing (see below).

*Vessel 1.* This is represented by a single necksherd (**15.8**) from the neck of a medium sized early Neolithic carinated bowl. The buff exterior is worn but the grey-brown inner is smooth and well-preserved. The compact fabric contains a low content of uncrushed quartzite and occasional sandstone inclusions ( $\leq 2\text{mm}$ ). Neck thickness: 8.2mm.

*Vessel 2.* This is represented by a single worn rimsherd (**15.4**) and a bodysherd (**15.14**) from a fine Beaker with a round topped rim, a sharply curved neck and rounded body profile. The fabric is cream-buff throughout and has a low content of finely crushed quartzite and sandstone inclusions ( $\leq 1\text{mm}$ , occasionally up to 3.5 x 2.5mm). Neck thickness: 6.2mm; body: 7.4mm.

Decoration consists of slightly unevenly applied comb impressed lines. There are 3 closely spaced horizontal lines immediately beneath the rim with, below, a 12mm high panel filed with a lattice of oblique lines. The lines within the panel were executed with a fine implement (15 x 1.8mm) with closely spaced rectangular teeth. Below there are 2/4 horizontal lines above a narrow blank zone (8–11.5mm high) bordered below by at least 2 horizontal lines.

*Vessel 3.* This is represented by 3 sherds (1 necksherd: **15.5**; 2 bodysherd: **6.2**, [3a-b]) from a fine Beaker with a very gently curved neck and gently rounded body profile. The fabric is cream-buff throughout and has a low content of finely crushed quartzite and sandstone inclusions ( $\leq 1\text{mm}$ ). Neck thickness: 6.2mm; body: 5.5mm.

Decoration This consists of closely spaced (6mm apart) horizontal shell impressed lines: this may represent all-over-ornament (AOO). Shell impressed decoration is a rare occurrence on Irish Beakers but is represented at Newgrange (Clearly 1983) and on a domestic Beaker at Knowth concentration A, Co. Meath (Eogan 1984, 256-9, fig. 90), and on a fine vessel from Mell, Co. Louth (McQuade 2005, fig. 11: vessel 2; Roche and Grogan 2005a). There are a limited number of Irish Beakers with AOO but these include comb decorated pots from Newgrange, and Dalkey Island, Co. Dublin (Cleary 1983, 66-7; Liversage 1968, fig. 9, p61).

*Vessel 4.* This is represented by a single rounded rimsherd (**15.6**) with an outward thickening and a sharply curved neck. The fabric is cream-buff throughout and has a low content of finely crushed quartzite and sandstone inclusions ( $\leq 1\text{mm}$ ). Neck thickness: 4.6mm.

External decoration This is much worn but consists of 5 closely spaced horizontal lined of comb immediately beneath the rim with a fringe of short oblique scores.

Internal There are 3 closely spaced horizontal lines (2.2mm apart) of very fine comb applied with an implement with closely spaced square teeth.

*Vessel 5.* This is represented by 3 sherds (**15.**[13a-c]) from the base of a very fine Beaker with an unfooted and slightly concave base. The much worn fabric is buff with a grey-buff core that has been partly exposed through weathering on the outer surface. There is a low content of finely crushed quartzite and sandstone inclusions ( $\leq 1\text{mm}$ , occasionally up to 3 x 2mm). Body thickness: 4.3mm; base: 4mm. This part of the vessel preserves the lowermost coil (35mm high) of the construction and there is a much worn ‘false rim’ along the surviving top edge where the next coil would have been attached. There is no decoration on the surviving portion of the vessel.

Maximum external base diameter: 6.8cm

Weight: 35g

**15.10** is a fragment from the base-angle, and **15.15a-c** and **19** are small bodysherds, from this or a similar vessel.

*Vessel 6.* This is represented by 4 sherds (1 base-anglesherd **15.1**; 3 small bodysherds: **15.11**, 17-18) of smooth buff fabric with a grey-buff core. There is a very low content of very finely crushed inclusions. The flat base is unfooted. Body thickness: 5mm.

#### **Other sherds**

**15.**[16a-b] are from the disc base of a heavy vessel possibly a domestic Beaker. The buff to grey-buff fabric has a grey core and a medium content of crushed quartzite ( $\leq 1\text{mm}$ ) and uncrushed sandstone pebbles (up to 6.5 x 6.5mm). Thickness: 13.2mm

**15.9** and **12** are small bodysherds from fine vessels.

#### **BIBLIOGRAPHY**

- Cleary, R. M. 1983 The Ceramic Assemblage. In O'Kelly, M. J., Cleary, R. M. and Lehane, D. *Newgrange, Co. Meath, Ireland: The Late Neolithic/Beaker Period Settlement*, C. O'Kelly (ed.), 58-117. British Archaeological Reports International Series **190**, Oxford.
- Eogan, G. 1984 *Excavations at Knowth 1*. Royal Irish Academy Monographs in Archaeology, Dublin.
- Grogan, E. and Roche, H. 2005a The prehistoric pottery from Newtownbalregan 6, Co. Louth. Unpublished Report, Irish Archaeological Consultancy Ltd.
- Liversage, G.D. 1968 Excavations at Dalkey Island, Co. Dublin, 1956-1959, *Proceedings of the Royal Irish Academy* **66C**, 53-233.
- McQuade, M. 2005 Archaeological Excavation of a Multi-Period Prehistoric Settlement at Waterunder, Mell, Co. Louth, *County Louth Archaeological and Historical Journal* **26**, 31-66.

<i>Site</i>	<i>Vessel</i>	<i>Context/feature</i>	<i>No. of sherds</i>	<i>Rim</i>	<i>Base-, baseangle, shoulder</i>	<i>Neck</i>	<i>Body</i>	<i>Frgs</i>	<i>Inclusions</i>	<i>Vessel size</i>	<i>Decorated</i>	<i>Pottery type</i>
Ardsallagh 1	1	195	1	0	1	0	0	0	Q	-	-	LBA
Ardsallagh 1	2	195	1	0	0	0	1	0	Q	-	-	Prehistoric
Ardsallagh 2	1	128	4	2	0	2	0	0	Sh	29	✓	Collared
		148	1	0	0	0	1	0	-	-	-	Collared
Ardsallagh 2	2	105	M	✓	0	✓	0	0	Sh D	19	✓	Cordoned
Ardsallagh 2	3	105	7	3	0	2	0	2	Q	14	✓	Vase FV
Ardsallagh 2	4	9	M	V	0	✓	0	0	Sh	18	✓	Cordoned
Ardsallagh 4	1	13	1	0	0	1	0	0	Q	-	✓	Beaker
Johnstown 3	1	135	2	0	0	1	1	0	Q	-	✓	Beaker
	2	131	2	2	0	0	0	0	Q S	-	✓	Beaker
	3	135	1	0	0	1	0	0	Q	-	✓	Beaker
		134	1	0	0	0	1	0	-	-	-	Beaker
	4	133	1	0	0	1	0	0	S	-	✓	VfV
		135	1	0	0	0	1	0	-	-	✓	VfV
	5	131-6	27	0	3	0	24	1	D Sh Q	22.5	✓	Vase Urn
		133	1	0	0	0	1	0	-	-	✓	Vase Urn
	6	72	8	0	0	8	0	0	D Sh Q	-	✓	Vase Urn
	7	136	1	0	0	0	1	0	D	-	✓	Vase Urn
	8	134	1	1	0	0	0	0	D Q	28	✓	Cordoned
	9	72	3	0	0	3	0	0	-	-	✓	Cordoned?
		131-2	0	0	0	0	0	2	-	-	-	
Dunboyne 2		300	1	0	0	1	0	0	Q S	-	-	MN?
Dunboyne 3	1	15	1	0	0	1	0	0	Q S	-	-	ENCB
Dunboyne 3	2	15	2	1	0	0	1	0	Q S	-	✓	Beaker
Dunboyne 3	3	15/6	3	0	0	1	2	0	Q S	-	✓	Beaker
Dunboyne 3	4	15	1	1	0	0	0	0	Q S	-	✓	Beaker
Dunboyne 3	5	15	3	0	3	0	0	0	Q S	B 6.8	-	Beaker
Dunboyne 3	6	15	4	0	1	0	3	0	S?	-	-	Beaker
	Other	15	11	0	3	0	8	0	-	-	-	Beaker
Total (Beaker)			24	2	7	1	14	0				
Total (all)			25	2	7	2	14	0				
Dunboyne 3 (testing)	1	9	6	0	0	6	0	0	Q	L	-	ENCB
	2	9	1	0	0	1	0	0	Q S Sh	S	✓	Beaker
Dunboyne 3 Total												
Dunboyne 4		190	2	0	0	0	2	0	D	-	-	M-LBA
			58	5	3	17	33	3				
Pace 1		168										LBA mould

Table 1. Vessels and sherds from Dunboyne 3 and other M3 sites.



## **Appendix 6: Lithics report: Joanna Nolan**

### **A017/13 Dunboyne 3**

This site, excavated on the route of the M3 in Co. Meath, is described as a small group of shallow post-holes flanking a kidney shaped pit containing cremated/burnt bone. A small group of five lithic items was recovered consisting of four flakes, two of which were burnt, and a piece of struck debitage. The items were found in association with features making up the site. This group of material is too small to accurately represent its associated activities on site but can reflect the techniques which formed them.

It is probable that all of these items are waste. Two of them are burnt which is probably a result of them being dumped, but they bear the hallmarks of waste flakes anyway. A017/013:15:03 is an extremely irregular hinged flake and A017/013:15:02 is a platform rejuvenation flake. The two unburnt flakes; A017/013:15:01 and A017/013:15:20 were, respectively, a cortical flake and a core trimming/waste flake. The single piece of debitage, A017/013:06:01, may be waste from retouching, none of these pieces were retouched.

The unburnt flints display similar levels of patination and dulling, the chert flake is also dulled. They appear to have suffered similar levels of post depositional weathering. It is a known feature of Neolithic sites to dispose of domestic waste in pits, post holes and foundation trenches, possibly as ritual deposits. All but one of these items was recovered from a single pit, C17. This cache may represent an example of this activity.

### **Raw material**

Flint was the dominant raw material used; there was only one chert flake. This preponderance of flint is to be expected in this Eastern area of Ireland where it is available as transported nodules deposited by the ice sheets of the Irish Sea glaciation. On the one cortical flake this cortex is extremely worn, which is consistent with fluvio-glacial rolling. The two unburnt flakes are similar in colour (opaque grey), possibly reflecting a common source, however this sample is too small to derive such conclusions.

The single piece of chert is rather poor quality grey black and is of the midlands banded variety. Chert is probably easily available in the limestone derived till of Co. Meath. Although this is a small group of material it probably does demonstrate selection for flint as the preferred raw material. The single piece of chert is poor quality and probably not the product of deliberate sourcing.

### **Primary technology**

This assemblage is made up of flakes, they range in size from 21.4mm to 43.6mm, this range includes the two burnt pieces that have shrunk as a result of burning. The largest flint is the cortical flake and the second large flake is the chert flake. Therefore these dimensions are not meaningful in gauging a size range for the assemblage.

These items were struck using both direct and indirect percussion techniques. They seem to display some correlation between the use of a soft hammer for indirect striking and a hard hammer for direct percussion, except on the single chert flake. All of these items appear to be the product of lithic reduction. The single piece of debitage is retouching waste. Of the four flakes one is cortical, one is a core-trimming flake and a third is a platform rejuvenation flake.

### **Discussion**

This sample is too small to reflect the lithic-based activities on the site; most of it seems to derive from a single deposition episode. The fact that they're not all burnt indicates that this cache was gathered up from more than one rubbish source. The items seem to be the product of knapping activities. The techniques used to produce these flakes would be in keeping with a Neolithic date.

### **Addendum: Lithics recovered from testing phase (04E0490): Eimear Nelis**

*From Nelis, E. 2006 'M3 Testing Chipped & Worked Stone Assemblage'. Unpublished report prepared for Archaeological Consultancy Services Ltd.*

A single chipped stone artefact was recovered from Dunboyne 3 (04E0490:9:1), where a cluster of shallow cut features were found, containing a small number of Neolithic artefacts. One of these, a kidney-shaped pit yielded undecorated pottery and a single flint artefact (Table 1).

This is a flint knife, formed on a broad blade, with a plunging termination (which is broken); It was struck from a core of fine quality flint, which was largely decorticated, but still retained its cortex at its base (resulting in distal cortex on the blade), which might suggest that the flake was struck when the core was reasonably mature (Fig. 1). The nature of its platform is unknown, since the proximal end has been retouched into the tip of the knife, obliterating the platform area. With its proximal having been modified, the knife would therefore have been held or hafted at the distal end, around the area of cortex, with the left edge being the main cutting edge. The retouch is finely executed, regular pressure flaking, continuing along most of the left lateral edge and stopping at the point of cortex, with some lesser retouch along the

right edge; most of the retouch is semi-invasive, with only the retouch at the tip area fully invading the dorsal face, and crossing the dorsal ridge.

To the analyst, plano-convex knives are particularly difficult to define, since their name simply defines the morphology of their section (that is, one surface being flat, the other convex); beyond this singular attribute, their form, extent of modification and even function can be quite variable. One of the inherent difficulties in the analysis of plano-convex knives lies in the frequency with which they are resharpened and remodelled during their use-life, which results in great variability of their form and extent of working; as such, then, they are a tool type which appears to be particularly subject to complex curation, and are often found in isolation, showing evidence of discard or loss.



Fig. 1: Dunboyne 3 (04E0490:9:1).

Factors such as complex curation and use-life patterns often result in a body of tools which, although formally recognised as a particular ‘type’, can be difficult to date, although they are found throughout the Neolithic and Bronze Age periods. Beyond these broad ranges, the dating of plano-convex knives in Ireland is, in fact, poorly understood, and while most are found in Neolithic contexts, they also seem to be quite common in Early Bronze Age assemblages. Such formally produced knives are, in fact, reasonably uncommonly found within Neolithic tool assemblages in Ireland, and while most assemblages will include a small number of these tools, they tend to be outnumbered by much more opportunistically produced, informal cutting tools which tend to be minimally retouched or simply utilised flakes and blades. There is some evidence that formal plano-convex knives tend to be more commonly found in Early Neolithic contexts than in Middle/Late Neolithic contexts (in the

north-west of the island, at sites such as Thornhill, Co. Derry, and Ballynagilly, Co. Tyrone, for example: *ibid*), where their skilled production, using pressure flaking techniques, frequently echoes that found in the production of arrowheads.

This particular piece (04E0490:9:1) has been minimally retouched, and does not exhibit multiple phases of use. The quality of flint is very fine, which is a typical feature of plano-convex knives. Since such quality flint would not readily have been available locally, it may have been curated as either a blank or finished tool, with the material (and possibly also the craftsmanship) originating beyond the Meath area, and possibly further to the north of the country where the island's more abundant flint supplies were found.

Unique No	Context	Material	Condition	Cortex	Character	Classification	Platform	Termination	Length (mm)	Breadth (mm)	Thickness (mm)	Mass (g)
04E0490:9:1	1	Flint	Fresh	Secondary	Blade: ?platform	Knife: minimally retouched	Retouched: obliterated	Plunging	54	25	8	10.43

Table 1: Dunboyne 3 (04E0490): showing basic attributes of the flint artefact.

**Appendix 7: Plant macrofossil, charcoal and cremated bone analysis: Durham University****1. Summary*****The project***

- 1.1 An excavation was undertaken by Archaeological Consultancy Services Ltd on a prehistoric site at Dunboyne 3, Co Meath, Ireland. This report presents the results of plant macrofossil, charcoal and cremated bone analysis of pit fill context (15).

***Results***

- 1.2 The few charred plant remains indicate the use of wheat, which was the most commonly cultivated cereal of the Neolithic and early Bronze Age in Ireland. The charcoal assemblage was dominated by ash, with lesser proportions of elm, oak, Maloideae (hawthorn, whitebeams, apple and pear) and hazel present.
- 1.3 A moderate amount of cremated bone, weighing 34.8g, was recovered from the fill of the kidney-shaped pit (context 15). Fragmentation was moderate, and the largest fragment measured 33.5mm. Despite this, most of the fragments could not be identified, or even differentiated between human or animal bone. The only positive identification was of a sheep/goat calcaneum. The white colour of the bone suggested the material had been exposed to a high temperature in excess of c. 600°C (McKinley 2004).

**2. Project background*****Location and background***

- 2.1 An excavation was undertaken by Archaeological Consultancy Services Ltd at Dunboyne 3, Co Meath, Ireland (NGR 302066 243243). Excavation revealed a small group of shallow postholes flanking a kidney-shaped pit containing cremated/burnt bone, flint and chert debitage and a number of sherds of prehistoric pottery (a mixed assemblage of late Neolithic and Beaker styles). These features were apparently isolated, however, they were located immediately north of an extensive quarry and at the edge of the proposed landtake. Radiocarbon dating of a piece of ash charcoal from pit fill context (15), provided an early Bronze Age date. This report presents the results of plant macrofossil, charcoal and cremated bone analysis of pit fill context (15).

***Objective***

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

***Dates***

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

***Personnel***

- 2.4 Sample processing was undertaken by Archaeological Consultancy Services Ltd. Charcoal and charred seed identifications were carried out by Dr Charlotte O'Brien. Cremated bone analysis was by Dr Anwen Caffell, with faunal identifications by Ms Louisa Gidney. Residues were sorted by Mr Lorne Elliott.

***Archive***

- 2.5 The licence number is A017/013 (E3035). The charcoal, flots and bone samples are currently held at the Environmental Laboratory at Archaeological Services Durham University awaiting collection or return.

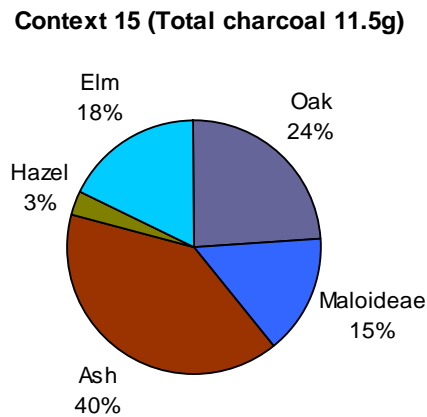
**3. Plant macrofossil and charcoal analysis*****Methods***

- 3.1 The residue was examined for plant remains, shells, bones, pottery sherds and metalworking debris. The dry flots were scanned at up to x60 magnification using a Leica MZ6 stereomicroscope for charred and waterlogged plant remains. Identification of these was undertaken by comparison with modern reference material held in the Environmental Laboratory at Archaeological Services Durham University. Plant taxonomic nomenclature follows Stace (1997).
- 3.2 Charcoal was collected from the residue and flot and added to pre-sorted material. Following Boardman (1995), identifications were made on all fragments >4mm. The transverse, radial and tangential sections were examined at up to x600 magnification using a Leica DMLM microscope. Identifications were assisted by the descriptions of Hather (2000), and modern reference material held in the Environmental Laboratory at Archaeological Services Durham University. The different species were weighed separately. A piece of ash charcoal, weighing 264mg, was provided for radiocarbon dating.



### Results

- 3.3 Charcoal, calcined bone and cracked stones were recorded in the residue. The flots were dominated by charcoal, and the few charred plant macrofossils present were 2 wheat grains and 3 fat-hen seeds. A few insect remains, roots and uncharred seeds were present in the flot, but the non-waterlogged nature of the site suggests that these are later intrusive material.
- 3.4 The charcoal was dominated by ash, with lesser proportions of elm, oak, Maloideae (hawthorn, whitebeams, apple and pear) and hazel present. The proportions of identified charcoal species are presented in Figure 3.1. The results of the plant macrofossil and charcoal analyses are listed in Table 3.1.



**Figure 3.1:** Proportions of identified charcoal from Dunboyne 3

### Discussion

- 3.5 The few charred plant remains indicate the use of wheat at the site, however the poor condition of the grains and the absence of chaff prevents determination of their species. Their occurrence is in line with previous studies which suggest that wheat was the most important cereal crop in Ireland during the Neolithic and early Bronze Age, while barley increased in use from the Middle Bronze Age (Grogan *et al* 2007; Monk 1986). Fat-hen is a weed of disturbed, nutrient-rich soils (Preston *et al* 2002), and therefore may have been growing as an arable weed amongst the crop, or on areas of waste ground. There is evidence that fat-hen was formerly collected as a food source (Helbaek 1954), and may even have been cultivated (Stokes & Rowley-Conwy 2002).

**Table 3.1:** Plant macrofossils and charcoal from Dunboyne 3

Context	15
Sample	1
Feature	Pit
Material available for radiocarbon dating	✓
Volume of flot (ml)	240
<i>Residue matrix (relative abundance)</i>	
Bone (calcined)	2
Charcoal	2
Cracked/angular stones	1
<i>Flot matrix (relative abundance)</i>	
Bone (calcined)	1
Charcoal	3
Insect (egg case)	1
Insect	1
Roots (modern)	2
<i>Charcoal (mg/number of fragments)</i>	
Total charcoal analysed (mg)	7903
Number of identifiable fragments >4mm	112
<i>Corylus avellana</i> (Hazel)	255 (6F)
<i>Fraxinus excelsior</i> (Ash)	3153 (55F)
Maloideae (Hawthorn, whitebeams, apple, pear)	1190 (9F)
<i>Quercus</i> sp (Oak)	1907 (23F)
<i>Ulmus</i> sp (Elm)	1398 (19F)
Unidentified <4mm fraction	3570
<i>Charred remains (total counts)</i>	
(a) <i>Chenopodium album</i> (Fat-hen) seed	3
(c) <i>Triticum</i> spp (Wheat species) grain	2
<i>Uncharred remains (relative abundance)</i>	
(a) <i>Fallopia convolvulus</i> (Black Bindweed) nutlet	1
(x) <i>Ranunculus</i> subgenus <i>Ranunculus</i> (Buttercup) achene	1

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

- 3.6 If the charcoal was sourced from near the site, the results suggest the local landscape was made up of a high canopy, mixed deciduous woodland which mainly comprised ash, elm and oak. Hazel and Maloideae are likely to have formed the understorey layer, or grown at the woodland margins. The ash, elm and oak charcoal were predominantly fragments of timber rather than roundwood, suggesting that mature trees were felled, possibly for use as structural timbers. By contrast, the hazel fragments were roundwood, deriving from branches or young trees, and would have been more suitable for use as wattling or firewood. While the Maloideae fragments were mainly timber, it is more likely that these were used for firewood rather than structural timbers, due to the relatively small size of these trees.

#### 4. Cremated bone analysis

##### *Methods*

- 4.1 One sample from pit fill (15) was presented for analysis, and the bone was passed through a nest of sieves, with mesh sizes of 10mm, 5mm, and 2mm (McKinley 2004). Each fraction was weighed and the largest fragment of bone was measured.

##### *Results and interpretation*

- 4.2 Summary data for each context is presented in Table 4.1, and the fraction weights and fragment size data are given in Table 4.2.
- 4.3 Context (15) contained a moderate amount of cremated bone, weighing 34.8g. The fragment size was also moderate, with a maximum fragment size of 33.5mm and most of the bone located in the middle sieved fraction (Table 4.2).

**Table 4.1:** Summary of cremated remains

Context	Context Detail	Bone Colour	Species	Weight (g)
15	Fill of pit C7	White	Animal?	34.8

- 4.4 The bone was white in colour suggesting exposure to temperatures in excess of *c.* 600°C (McKinley 2004).
- 4.5 The fragments were examined with a view to identification. One fragment was sheep/goat calcaneum, and a further two fragments were possibly also animal bone. None of the remaining fragments could be identified, and no human bone was positively identified.

**Table 4.2:** Fraction weights and fragment size

Context	Total Weight	Fraction Weights						Max. Frag Size
		>10mm		5-10mm		2-5mm		
	g	g	%	g	%	g	%	mm
15	34.8	8.7	25.0%	16.8	48.3%	9.3	26.7%	33.5

## 5. Sources

Boardman, S J, 1995 Charcoal and charred macrofossils, in K, Branigan & P, Foster (eds) *Barra: archaeological research on Ben Tangaval, Sheffield*: SEARCH Volume 1, 149-157

Grogan, E, O'Donnell, L, & Johnston, P, 2007 *The Bronze Age landscapes of the Pipeline to the West, an integrated archaeological and environmental assessment*, Wicklow

Hather, J G, 2000 *The identification of the Northern European Woods: a guide for archaeologists and conservators*, London

Helbæk, H, 1954 Prehistoric food plants and weeds in Denmark, A survey of archaeobotanical research 1923-1954, *Danmarks Geologisk Undersøgelse* **2(80)**, 250-61

McKinley, J I, 2004 Compiling a Skeletal Inventory: Cremated Human Bone, in M Brickley & J I McKinley (eds) *Guidelines to the Standards for Recording Human Remains*, 9-13, Southampton and Reading

Monk, MA, 1986 Evidence from macroscopic plant remains for crop husbandry in prehistoric and early historic Ireland, *Journal of Irish Archaeology*, **3**, 31-36

Preston, C D, Pearman, D A, & Dines, T D, 2002 *New Atlas of the British and Irish Flora*, Oxford

Stace, C, 1997 *New Flora of the British Isles*, 2<sup>nd</sup> Edition, Cambridge

Stokes, P, & Rowley-Conwy, P, 2002, Iron Age Cultigen? Experimental return rates for Fat-Hen (*Chenopodium album* L.), *Environmental Archaeology*, **7**: 95-99

**Appendix 8: Radiocarbon date: Beta analytic**

<b>Context</b>	<b>Sample No.</b>	<b>Material</b>	<b>Species I.D.</b>	<b>Lab</b>	<b>Number</b>	<b>Date Type</b>	<b>Lab Calibrated Date</b>	<b>Conventional Date (BP)</b>	<b>Oxcal Calibrated Date</b>	<b><math>^{13}\text{C}/^{12}\text{C}</math> Ratio ‰</b>
15	1	Charcoal	Ash	Beta	241273	AMS (Std)	Cal BC 2570-2390 & Cal BC 2390-2340	3960 +/- 40BP	2576-2341 BC	-24.2



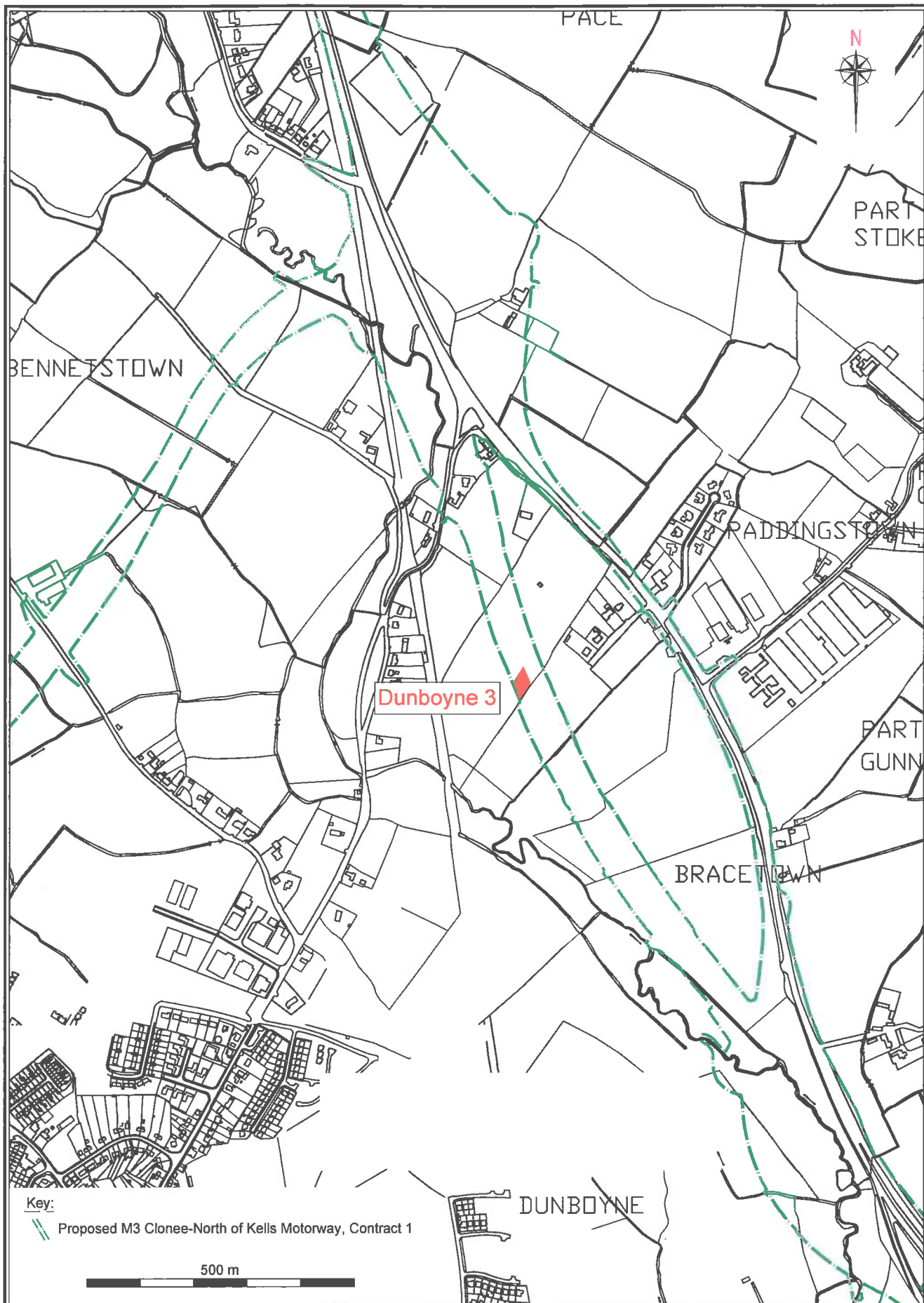
**Archaeological Consultancy Services Ltd.** Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth

Site: M3 Clonée-North of Kells PPP Scheme  
Contract 1, Dunboyne 3  
Issued for: Excavation Report  
Client: Meath County Council

Scale: 1:60,000 A4  
Date: Jun '08  
Origin: OSI Discovery Series  
Drawing no.: 04\_01\_C7050i

Figure 1: Location of Dunboyne 3



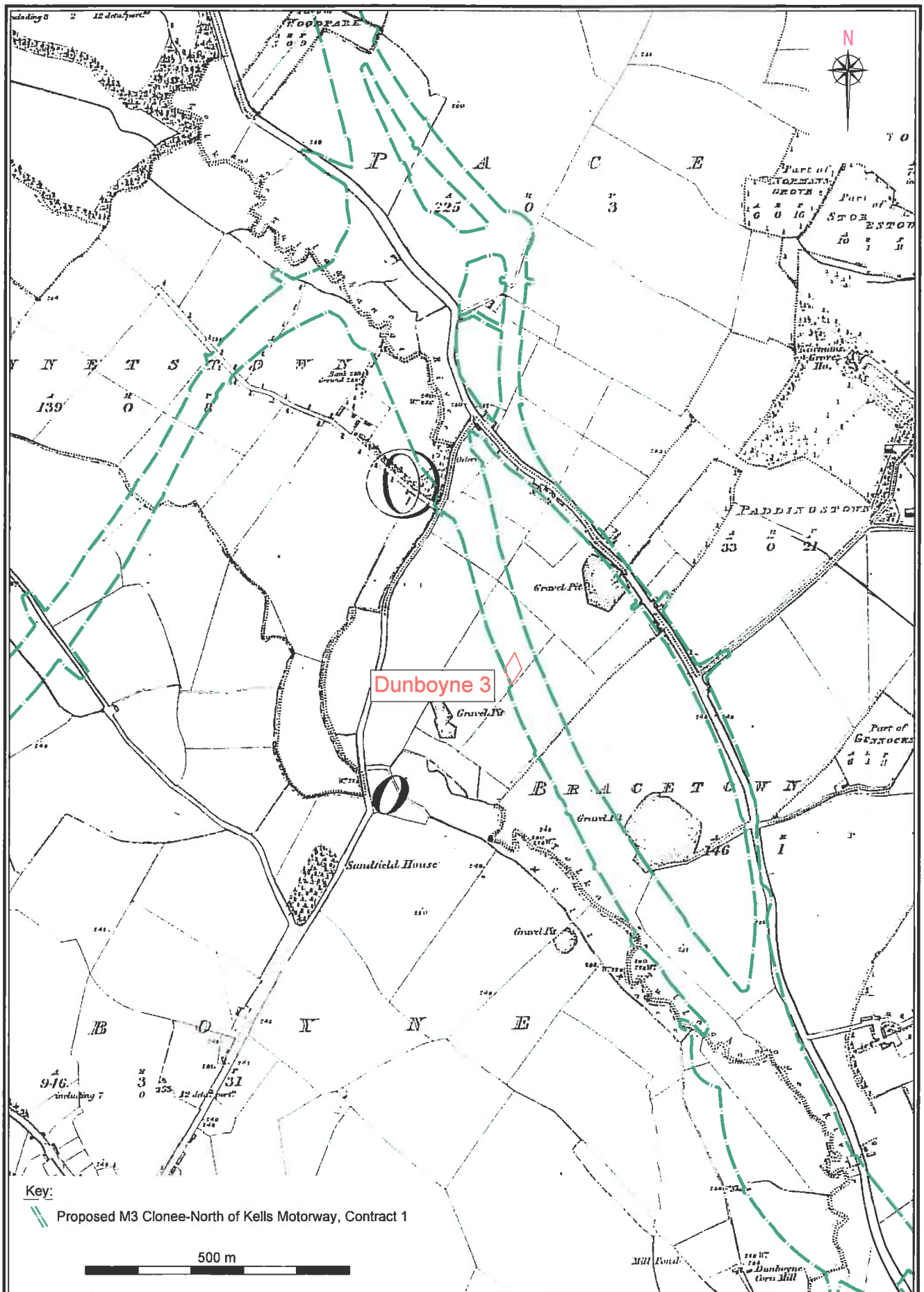


**Archaeological Consultancy  
Services Ltd.** Unit 21, Boyne Business Park,  
Greenhills, Drogheda, Co. Louth

Site: M3 Clonee-North of Kells PPP Scheme  
Contract 1, Dunboyne 3  
Issued for: Excavation Report  
Client: Meath County Council

Scale: 1:10,000 A4  
Date: Jun '08  
Origin: Client/ACS Ltd.  
Drawing no.: 04\_01\_C7051i

Figure 2: Location of Dunboyne 3 on current OS background



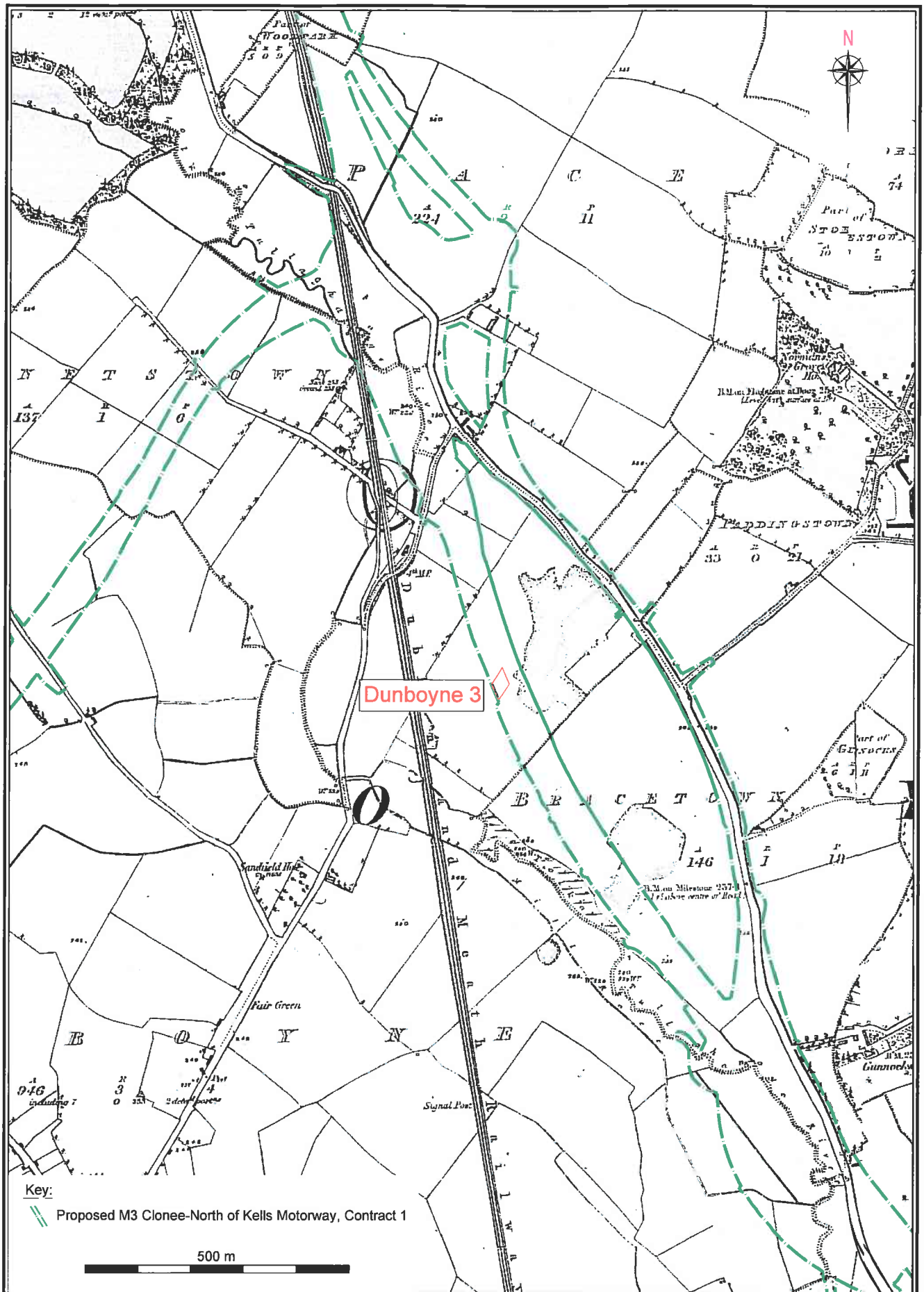
**Archaeological Consultancy  
Services Ltd.** Unit 21, Boyne Business Park,  
Greenhills, Drogheda, Co. Louth

Site: M3 Clonee-North of Kells PPP Scheme  
Contract 1, Dunboyne 3  
Issued for: Excavation Report  
Client: Meath County Council

Scale: 1:10,000 A4  
Date: Jun '08  
Origin: OSI (1836)  
Drawing no.: 04\_01\_C7052i

Figure 3: Dunboyne 3, extract from 1st edition OS map, Meath sheets 50 & 51



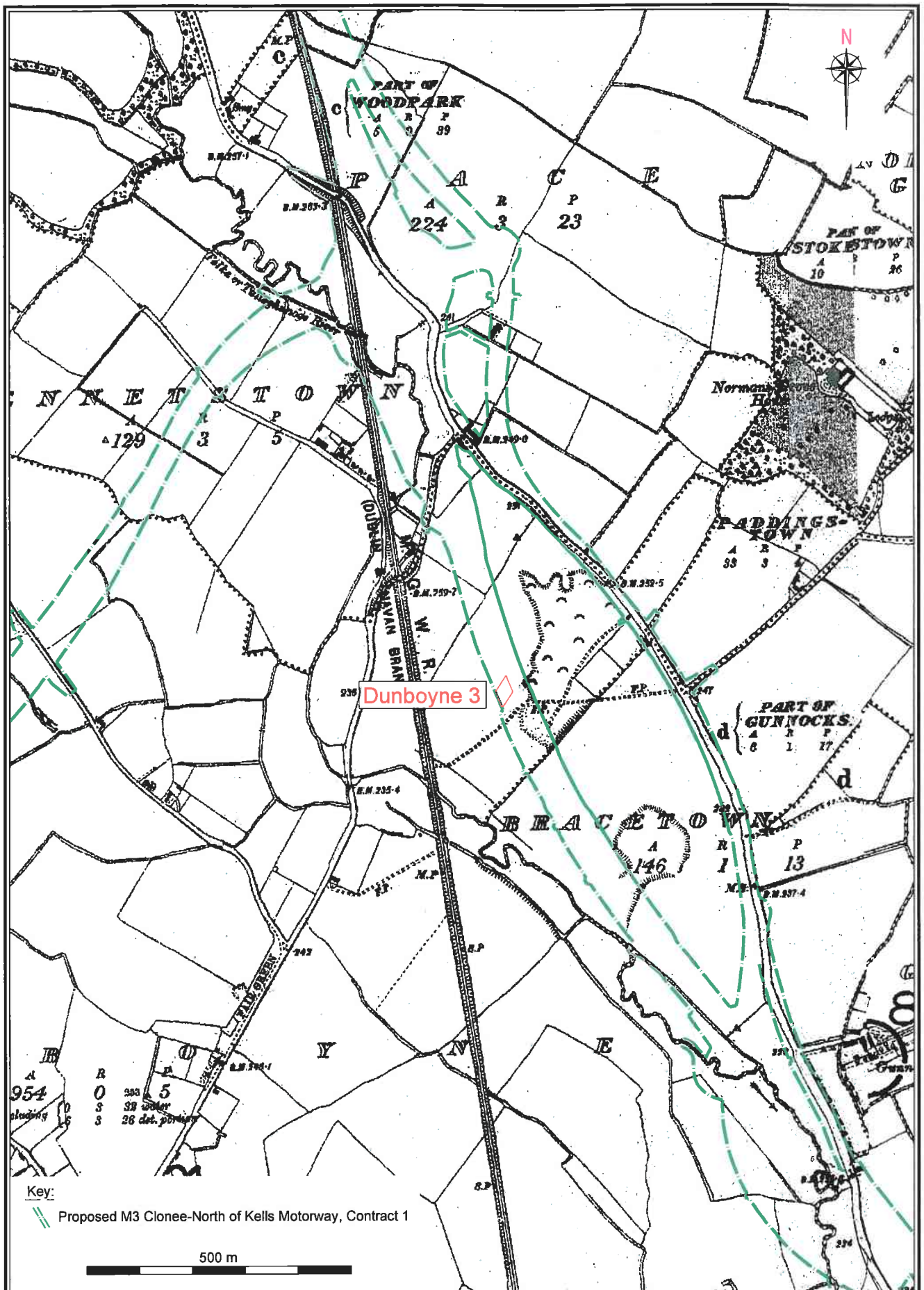


**Archaeological Consultancy Services Ltd.** Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth

Site: M3 Clonée-North of Kells PPP Scheme  
 Contract 1, Dunboyne 3  
 Issued for: Excavation Report  
 Client: Meath County Council

Scale: 1:10,000 A4  
 Date: Jun '08  
 Origin: OSI Sheets 50(1884) & 51(1883)  
 Drawing no.: 04\_01\_C7053i

Figure 4: Dunboyne 3, extract from 2nd edition OS map, Meath sheets 50 & 51



**Archaeological Consultancy  
Services Ltd.**

Unit 21, Boyne Business Park,  
Greenhills, Drogheda, Co. Louth

Site: M3 Clonee-North of Kells PPP Scheme  
Contract 1, Dunboyne 3

Issued for: Excavation Report

Client: Meath County Council

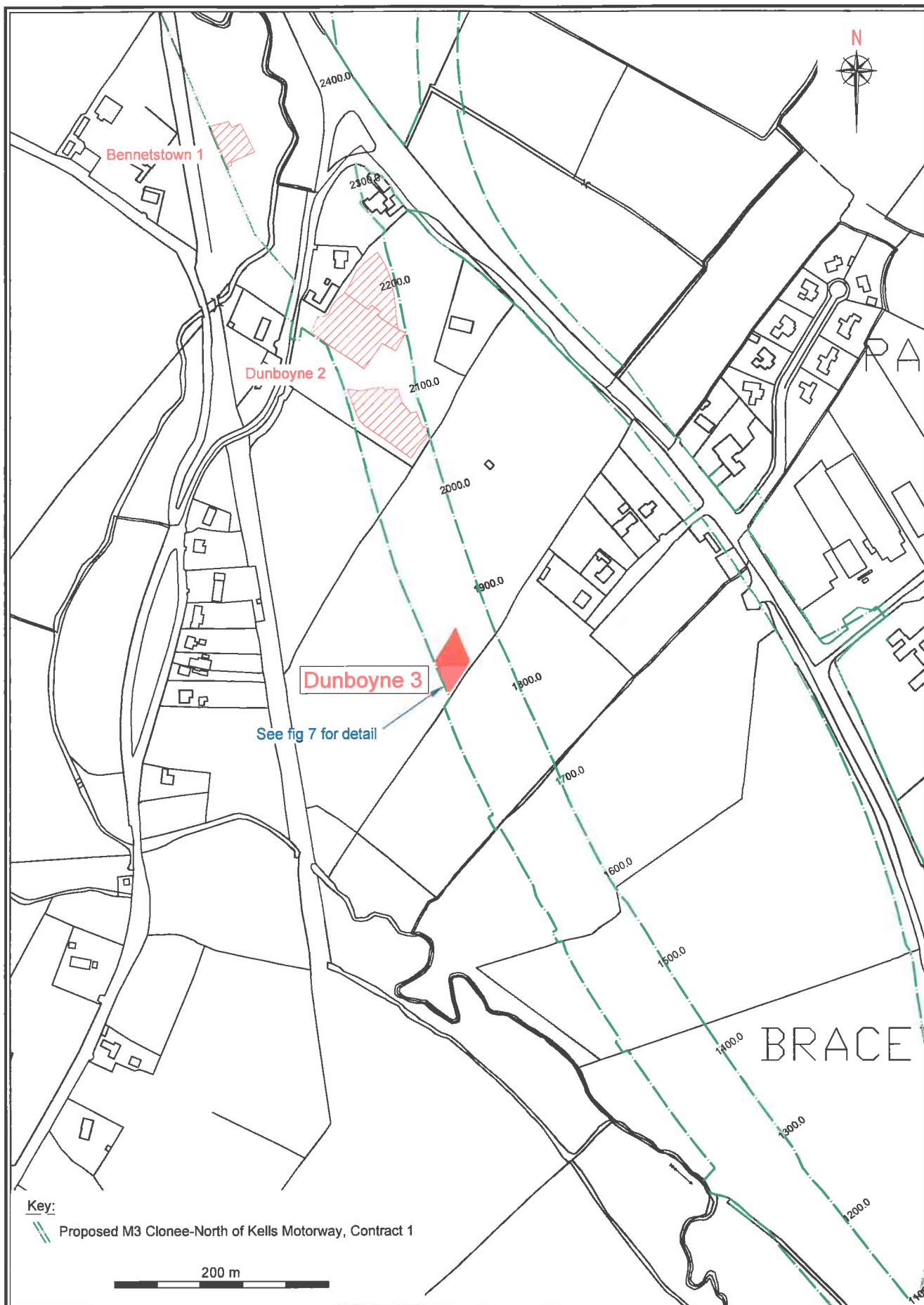
Scale: 1:10,000 A4

Date: Jun '08

Origin: OSI Sheets 50(1909) & 51(1908)

Drawing no.: 04\_01\_C7054i

Figure 5: Dunboyne 3, extract from 3rd edition OS map, Meath sheets 50 & 51

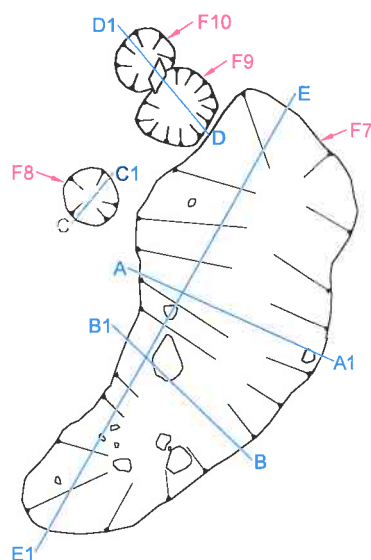


**Archaeological Consultancy  
Services Ltd.** Unit 21, Boyne Business Park,  
Greenhills, Drogheda, Co. Louth

Site: M3 Clonee-North of Kells PPP Scheme  
Contract 1, Dunboyne 3  
Issued for: Excavation Report  
Client: Meath County Council

Scale: 1:5,000 A4  
Date: Jun '08  
Origin: Client/ACS Ltd.  
Drawing no.: 04\_01\_C7055i

Figure 6: Detailed location of Dunboyne 3



Limit of excavation

Key:  Stone

2 m

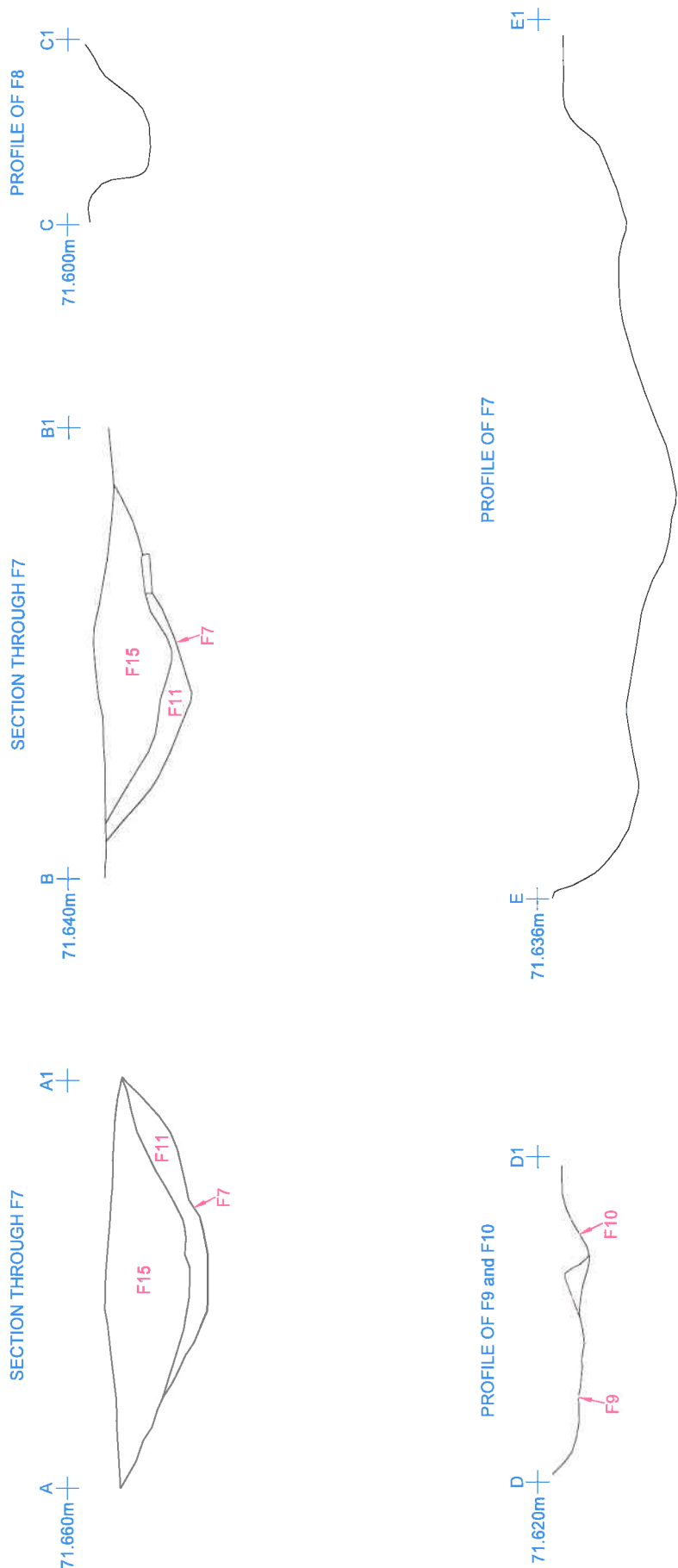
**Archaeological Consultancy  
Services Ltd.** Unit 21, Boyne Business Park,  
Greenhills, Drogheda, Co. Louth

Site: M3 Clonee-North of Kells PPP Scheme  
Contract 1, Dunboyne 3  
Issued For: Excavation Report  
Client: Meath County Council

Scale: 1:40 A4  
Date: Jun '08  
Origin: Client/ACS Ltd.  
Drawing no.: 04\_01\_C7056i

Figure 7: Post-excavation plan of Dunboyne 3





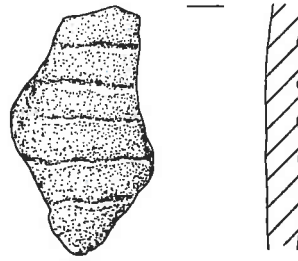
Key: Stone



<b>Archaeological Consultancy</b>		Site: M3 Clonee-North of Kells PPP Scheme	Scale: 1:15 A4
Services Ltd.		Contract 1, Dunboyne 3	Date: Jun '08
Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth		Issued for: Excavation Report	Origin: ACS Ltd.
		Client: Meath County Council	Drawing no.: 04_01_C70571

Figure 8: Sections and profiles of Dunboyne 3

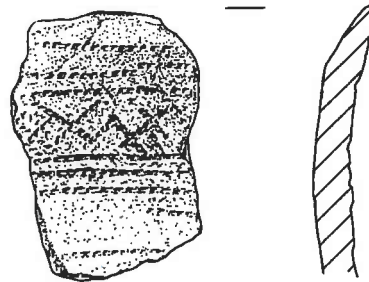
A017/013:15:5



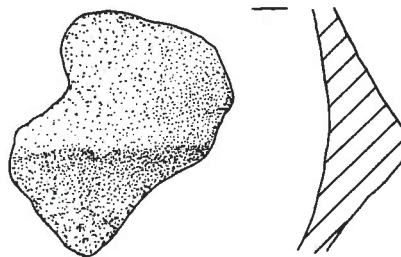
A017/013:15:6



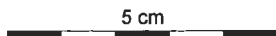
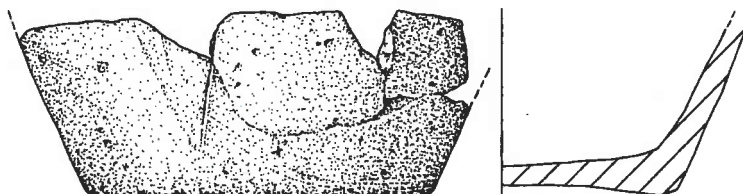
A017/013:15:4



A017/013:15:7



A017/013:15:13



**Archaeological Consultancy  
Services Ltd.** Unit 21, Boyne Business Park,  
Greenhills, Drogheda, Co. Louth

Site: M3 Clonee-North of Kells PPP Scheme  
Contract 1, Dunboyne 3  
Issued for: Excavation Report  
Client: Meath County Council

Scale: As scalebar  
Date: Jun '08  
Origin: ACS Ltd.  
Drawing no.: 04\_01\_C7058

Illustration 1: Selected Beaker sherds



Plate 1: Pre-excavation view of features at Dunboyne 3 (04\_01\_Dunboyne 3\_CP111\_09)



Plate 2: Post-excavation view of features at Dunboyne 3 (04\_01\_Dunboyne 3\_CP111\_01)