

**NRA**  
National Roads Authority  
An Údarás um Bóithre Náisiunta

**N3 Meath Consult**  
Arup | Halcrow Barry | MCOS

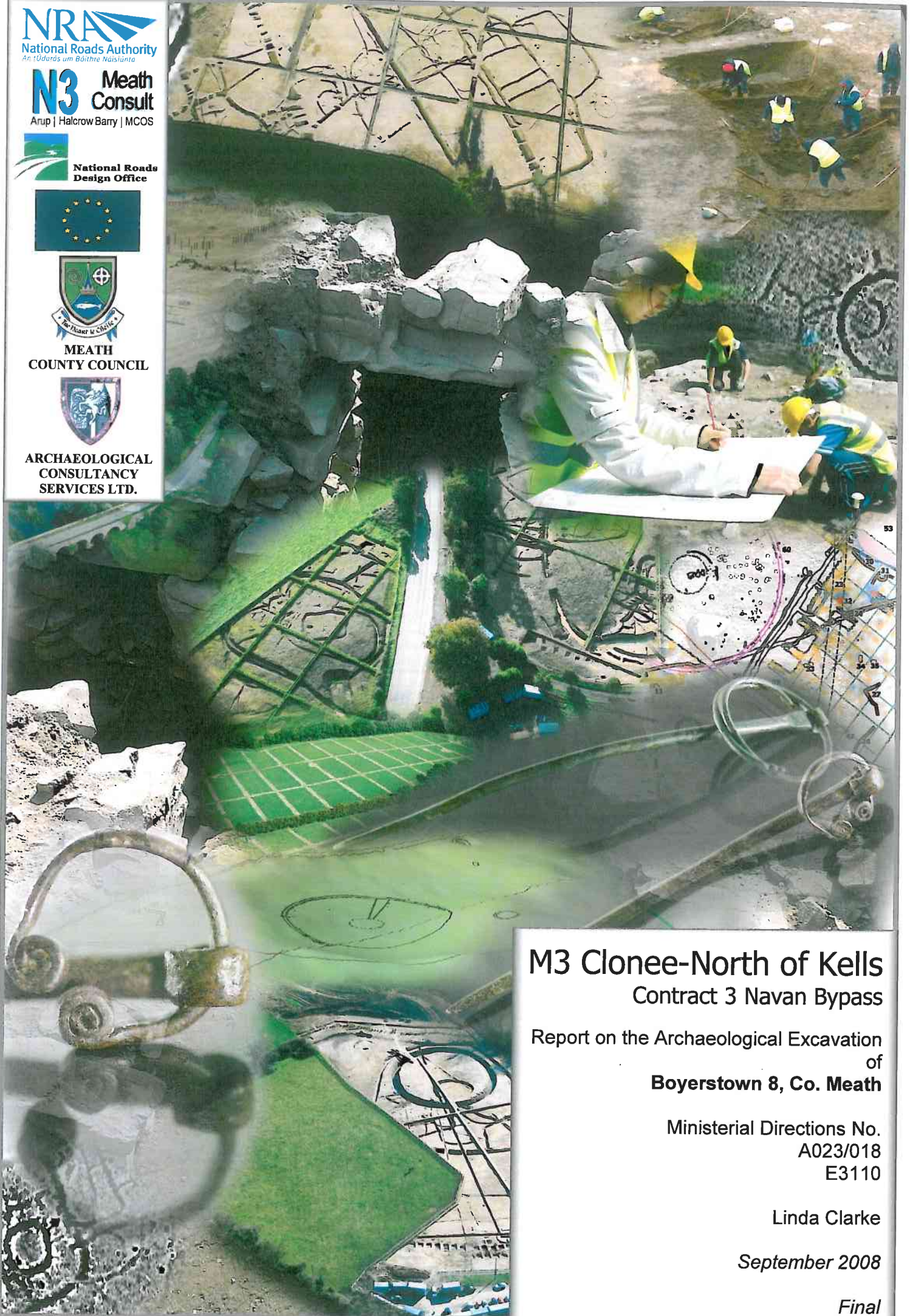
**National Roads Design Office**



**MEATH COUNTY COUNCIL**



**ARCHAEOLOGICAL CONSULTANCY SERVICES LTD.**



# M3 Clonee-North of Kells Contract 3 Navan Bypass

Report on the Archaeological Excavation  
of  
**Boyerstown 8, Co. Meath**

Ministerial Directions No.  
A023/018  
E3110

Linda Clarke

September 2008

Final

## PROJECT DETAILS

<b>Project</b>	M3 Clonee–Kells Motorway
<b>Site Name</b>	Boyerstown 8
<b>Ministerial Direction Number</b>	A023/018
<b>Registration Number</b>	E3110
<b>Senior Archaeological Consultant</b>	Donald Murphy
<b>Site Director</b>	Linda Clarke
<b>Excavated</b>	24 July – 08 August 2006
<b>Client</b>	Meath County Council, National Roads Design Office, Navan Enterprise Centre, Navan, County Meath
<b>Townland</b>	Boyerstown
<b>Parish</b>	Boyerstown
<b>County</b>	Meath
<b>National Grid Reference</b>	283222 266418
<b>Chainage</b>	46700 – 46900m
<b>Height</b>	68.61m OD
<b>Report Type</b>	Final
<b>Report Status</b>	Submitted
<b>Date of Report</b>	September 2008
<b>Report by</b>	Linda Clarke

## **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 Directions 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

Engineer's Representative – Mary O'Rourke

### **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 Boyerstown 8 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 24 July – 08 August 2006 under Ministerial Direction Number A023/018 issued by DOEHLG in consultation with the NMI. The site at Boyerstown 8 was initially identified during the assessment phase of works as a burnt mound spread. During the resolution phase of works no actual burnt mound was identified but features filled with burnt mound material and which were probably associated with a burnt mound were identified. These consisted of one trough, six pits, two deposits, two ditches, and four channels. No finds of archaeological significance were recovered from this site.

## CONTENTS

1 INTRODUCTION.....	1
1.1 Development.....	1
2 EXCAVATION.....	1
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.....	8

### APPENDIX 1 *Context Details*

### APPENDIX 2 *Finds List*

### APPENDIX 3 *Sample List*

### APPENDIX 4 *Radiocarbon Dates - Beta Analytic*

### APPENDIX 5 *Environmental analysis - ASDU*

## FIGURE LIST

Figure 1: Location of Boyerstown 8

Figure 2: Location of Boyerstown 8 on current OS background

Figure 3: Boyerstown 8, extract from 1st edition OS map, Meath sheets 24, 25 & 31

Figure 4: Boyerstown 8, extract from 2nd edition OS map, Meath sheets 24, 25 & 31

Figure 5: Boyerstown 8, extract from 3rd edition OS map, Meath sheets 24, 25 & 31

Figure 6: Detailed location of Boyerstown 8

Figure 7: Post-excavation plan of features at Boyerstown 8

Figure 8: Sections of features at Boyerstown 8

## PLATE LIST

Plate 1: Trough F7 from the north-east

Plate 2: Pit F11 from the south-east

Plate 3: Pit F17 from the east

Plate 4: Pit F34 from the north-east

Plate 5: Section through ditches F38 and F40 from the east

Plate 6: Post-excavation view of the site from the south

## 1 INTRODUCTION

The site at Boyerstown 8 (Figures 1–7) was identified during advance testing carried out by Neil Fairburn during April 2004 under the licence number 04E0580. During testing a possible trough, two pits, three deposits, and linear feature/ditch were identified (Fairburn 2004). Full resolution of the site occurred in 2006 when these features were relocated and a possible second trough and a series of pits and channels were also revealed.

### *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 Carnaross, north of Kells, along with additional road upgrades, realignments and associated ancillary works. For the purposes of the Environmental Impact Assessment and the subsequent archaeological investigations the scheme was subdivided into five separate sections as follows: Clonee to Dunshaughlin (Contract 1), Dunshaughlin–Navan (Contract 2), the Navan Bypass (Contract 3) Navan to Kells (Contract 4) and and Kells to North of Kells (Contract 5). This section of the scheme (Contract 3) represents the Navan By-pass (NGR 287968 263697 to NGR 282063 268835).

The archaeological components of the Environmental Impact Statement published in 2002 where carried out by Valerie J. Keeley Ltd (VJK) and Margaret Gowen and Co. Ltd (MGL) in 2000–2001. This included desk-based studies and field surveys of each section (VJK Sections 1 & 3 and MGL Sections 2, 4 & 5). Additionally on behalf of MGL geophysical survey was undertaken on the Dunshaughlin–Navan section and at Nugentstown on the Navan–Kells section by GSB Prospection (2000 & 2001). These studies carried out as part of the Environmental Impact Assessment were augmented by further geophysical survey conducted by Bartlett-Clark Consultancy on the remainder of the scheme (2002). Archaeological testing was completed by ACS and Irish Archaeological Consultancy Ltd (IAC) in 2004 (ACS Sections 1–3 and IAC Sections 4–5). Excavation of the sites identified during testing was conducted by ACS and IAC between 2005 and 2008 (ACS Sections 1–3 & 5 and IAC Section 4).

## 2 EXCAVATION

Excavation occurred between 24 July and 08 August 2006 under Ministerial Direction Number A023/018 issued to Meath County Council NRDO. The work was carried out by Linda Clarke on behalf of ACS. The topsoil (F4: 0.30m) was stripped using a machine equipped with a grading bucket. The subsoil, F5, comprised natural 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**

Forty seven contexts were identified within the excavation area, all of which were of archaeological interest. Only the principal archaeological features of Boyerstown 8 will be discussed within this report; full details of all these, and further, contexts are located in Appendix 1.

### *Trough*

A single trough was identified (F7; Figures 7 & 8; Plate 1). This feature was sub-rectangular in shape (1.75m x 0.85m x 0.17m) and was filled with a dark-grey-black, sandy silt with frequent inclusions of burnt stones and occasional flecks of charcoal (F6). The fill was characteristic of burnt mound material. Three stakeholes (F7a: 0.10m x 0.09m x 0.13m; F7b: 0.06m x 0.07m x 0.06m; F7c: 0.11m x 0.10m x 0.13m) were visible in the base of the trough F7 and a single stakehole (F7d; 0.09m diameter x 0.09m in depth) was visible immediately southwest of this feature.

### *Spreads/deposits*

Two spreads/deposits (F19: 2.20m x 0.82m x 0.16m and F20: 0.90m x 0.88m x 0.22m; Figure 7) were located in proximity to each other along the northern boundary of the site. F19 and F20 were probably once connected and consisted of a dark-grey/black, silty clay that was flecked with charcoal and fire-cracked stone and probably represented the remains of a disturbed burnt mound. F20 was contained within a shallow cut F21. Charcoal recovered from F20 was identified as alder, ash, oak and hazel with ash being the most predominant (Appendix 5). A sample of ash was dated to Cal BC 2620-2460 (BETA 241323-Cal 4010 +/- 40BP; Appendix 4).

### *Pits*

A total of six pits were located within the site (F9, F11, F15, F17, F30, and F34; Figure 7). The largest of these, F9, was sub-oval in shape (3.40m x 2.20m x 0.40m) and was situated just north of the trough F7. This feature was filled with burnt mound material (F8). Charcoal recovered from this feature was identified as alder, hazel, ash, elm and oak (Appendix 5) with ash being the most predominant. A sample of ash was dated to Cal BC 2840-2480 (BETA

241322-Cal 4050 +/- 40 BP; Appendix 4). The sub-circular feature F17 (3.00m x 1.50m x 0.45m; Plate 3) was also filled with burnt mound material (F16) and may represent a large pit, or a possible trough. The four remaining pits (F11: 1.25m x 1.10m x 0.37m; Plate 2; F15: 2.20m x 1.50m x 0.85m; Figure 8; F30: 0.46m x 0.50m x 0.13m; and F34: 0.88m x 0.84m x 0.18m; Plate 4) were smaller in size, sub-circular in shape and were all filled with burnt mound material (F10 and F22 in F11; F26, F25 and F14 in F11; F29 in F30; and F33 in F34). The charcoal recovered from F14 was identified as cherries and a single fat-hen seed, eleven barley grains-one of which were hulled, two unidentified grains (*Cerealia indeterminate*) and a hemp nettle seed (Appendix 5).

#### *Linear features*

Four linear features within this site have been interpreted as water channels: F24, F28, F32, and F36 (Figure 7). They are narrow (0.23–0.40m), moderately shallow (0.13–0.30m) and it is likely that these channels were used to transport water.

#### *Ditches*

Three ditches were identified (F13, F38, F40). Only one of these (F13) appeared to be archaeological in nature while the other two represented old water courses/remnants of old boundaries (F38 & F40). The curvilinear ditch F13 (20.60m x 1.00m x 0.60m; Figures 7 & 8) enclosed the trough F7, the pit/possible trough F17, the channel F24, and two pits (F9 and F11). It was filled with a grey-brown, silty clay with yellow flecks, occasional stones, moderate burnt stones, and occasional flecks of charcoal (F12). The curvilinear ditch F13 was cut by ditch F38 and channels F28 and F32.

The ditches F38 and F40 were located along the northeastern extent of the site (Figures 7 & 8; Plate 5). A section was excavated across each ditch. The ditch F38 (1.16m width x 0.42m depth) was filled with a sterile, light-brown/grey, silty clay (F37). This feature was cut into the larger ditch F40 and also partially cut the pit F9, the curvilinear ditch F13, the small channel F27, and the pit F15. The ditch F40 (3.45m width x 0.93m depth) was filled with various layers of sterile clay (F39, F41–F47) and contained some burnt mound material (from the pit F9).

## **2.2 Finds**

Two sherds of black-glazed, post-medieval earthenware (A023/018:4:1–2) were recovered from the topsoil. No finds of archaeological significance were recovered. Similarly, the only animal bone recovered was also from the topsoil.

### 3 DISCUSSION

#### ***3.1 Form and function***

The partial remains of two very small, thin spreads, a trough, a possible trough, five pits, four linear features (small water channels), a curvilinear ditch and two linear ditches were exposed within this site. With the exception of the two linear ditches all of the features contained burnt mound material within their fill. Burnt mounds are the most common field monument identified in this country and have dominated the entire route of the proposed M3 Motorway. A total of sixty-one such sites were identified along this project and it is likely that this predominance would have been reflected throughout the entire surrounding landscape. Four of these were excavated by the author in the townland of Boyerstown – Boyerstown 2 (A023/014), 5 (A023/017), 7 (A023/020), and 8 (A023/018). All of these sites were located in relative proximity to each other in a 700m radius. Two additional sites which also displayed evidence of burnt mound activity were identified in the neighbouring townland of Ardbraccan. These sites, Ardbraccan 1 (A023/023) and 2 (A023/024) were located 125–245m and 420m respectively northwest of Boyerstown 8. Thirty-eight of the identified sites actually contained the remains of a burnt mound and associated pits/hearths/troughs. An additional fourteen sites, including that of Boyerstown 8 contained features filled with burnt mound material which would suggest the presence of a burnt mound in the nearby vicinity of the site or that a burnt mound once existed within the site (perhaps sealed the identified features?) and was removed as a result of agricultural practices and other activities throughout antiquity.

Burnt mound sites (Fulacht Fiadh) are frequently interpreted as cooking places, especially for boiling meat. Other theories are that they were used as saunas, for bathing (Buckley 1990a, 9), brewing (Quinn & Moore 2007), boat building, butter production, brine evaporation, pottery filler, leather working and metallurgy (Barfield and Hodder 1987, 371). It is generally accepted however that the general purpose of burnt stone mounds was to heat water and therefore as monuments they may have been multi-functional. Burnt stone mounds are characteristically crescent shaped. Although as mentioned previously, the majority of the features within this site were filled with burnt mound material (charcoal-stained clay, flecks of charcoal and fire-cracked sandstone) there was no evidence of an actual burnt mound. Two small, thin spreads were identified at the northwestern corner of the site and may represent the remnants of the original burnt mound. It is also possible that it exists/existed beyond the roadtake. The extant remains of the burnt mound complex at Boyerstown 8 consisted of the trough F7 which contained burnt mound material in its fill and three stakeholes in its base which may have used to secure a lining or for fixing something into the trough. It is here where the already hot stones would have been used to heat water (O'Neill 2000, 19). When the activity ceased the heat-shattered and fire-cracked stones would have been cleared from

the trough and either placed in pits, such as those surrounding the trough at Boyerstown 8 (e.g. F9), or left to form spreads such as F19 and F21 or burnt stone mounds. A second possible trough (F17) was also identified. At many sites these spreads and mounds were used to fill and cover a decommissioned trough.

Burnt mounds are typically situated in proximity to a water source. An open ditch bordered the site at Boyerstown 8 to the north/northwest. This ditch contained water at the time of the excavation and may have once contained a stream. Two large ditches (F38 & F40) located within the site to the northeast may represent old water courses. The fill of these ditches were completely sterile and silt layers were visible throughout. The channels observed at Boyerstown 8 may represent an attempt to direct water from a nearby stream into the trough or its attendant pits in a convenient manner. The channels F24 and F36 extended below the baulk and it is likely that they extended as far as the open ditch that bordered the site to the northwest (mentioned above) and the small narrow channels F28 and F32 extended into the curvilinear ditch F13. The curvilinear ditch (F13), which was cut by some of the water channels, is an enigmatic feature not typically associated with burnt mound sites. It may have been used for channelling water within the site as it extended from the ditch F38, curved by the trough and curved around the site before extending beneath the baulk to the northwest. It could either represent an enclosing element used to contain the features as it enclosed the trough, the possible trough, a channel and two of the pits, or its association with the extant archaeology is entirely fortuitous.

The analysis of the selection of the charcoal recovered and seeds from this site allows us to formulate a picture of the surrounding environment at this location in the late Neolithic. All charcoal recovered was in poor condition which was probably as a result of exposure of the site to extensive waterlogging. This is not surprising as, even though the site was excavated in the summer months it was prone to flooding following any rainfall. As mentioned previously an open ditch that bordered the site to the north may have once contained a stream. The site was also extremely marly which would suggest that it was waterlogged throughout antiquity. The charcoal recovered included oak, ash, hazel, cherries, elm and alder with ash being the most predominant. These species would suggest the presence of a mixed deciduous woodland near the site which would have contained the oak and ash species with hazel and cherries growing in the understorey or along the woodland margins (Appendix 5). Alder would suggest the presence of wet terrain nearby. This environment within this area appeared to remain largely unchanged right through to at least the early Bronze Age as the same species were identified at the nearby burnt mound at Boyerstown 5 (A023/017) with ash remaining the most dominant species. The only new species identified at Boyerstown 5 was that of

maloideae. All wood species identified at Boyerstown 8 represent fuel that was used in activities associated with a burnt mound and the predominance of ash, oak, hazel and alder is consistent with the species noted by Grogan and used on similar such sites (dated to the Bronze Age) in central and western Ireland (Appendix 5). Grogan has suggested that the types of trees used, highlights the positioning of these monuments on the margins of dry and wet lands (Appendix 5).

A very small quantity of charred grain and seeds were recovered from one context within this site, a single pit (F11) filled with burnt mound material (F14). A single fat-hen seed, eleven grains of barley, one of which was hulled two grains which could not be identified and a single hemp-nettle seed were recovered (Appendix 5). All the material was badly degraded and the hulled barley grain could not be identified as 6-row or 2-row variety and the charred seed of fat-hen, hemp nettle and sedge may represent weeds where growing with the cereal crop or plants which occupied nearby areas of disturbed, damp ground (Appendix 5).

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

Burnt mounds are commonly dated to the Bronze Age (Brindley & Lanting 1990, 55–6). Recently, aided by the increased use of radiocarbon analysis, it has become apparent that burnt mounds have a much longer life span and can be dated from the early Neolithic (Russell 2001) to the medieval period (Walsh 1990). The frequent lack of associated artefacts makes a burnt mound site often reliant on either dendrochronology or radiocarbon dating. A radiocarbon date was obtained from two of the features identified within this site—from the trough (F7) which was dated to Cal BC 2840-2480 (BETA 241322) and from one of the thin spreads of burnt mound material (F20) that was dated to Cal BC 2620-2460 (BETA 241323). This would place activity within this site within the late Neolithic and make this site one of the earlier sites noted to date to display burnt mound technology. It is likely that all of the identified features particularly those filled with burnt mound material, are more or less contemporary, therefore dating to the late Neolithic period. The precise relationship between the enclosing ditch (F13) and the features it contained remains, at this stage, indiscernible.

At present and in addition to Boyerstown 8, a further three sites along this project have returned dates that provide evidence of burnt mound activity within the Neolithic period. The burnt mounds at Clowanstown 1 are perhaps the most impressive and returned dates as far back as the early Neolithic period - Cal BC 3940-3660 (see report A008/031). These dates were similar to those recovered by Russell (2001) at Moorechurch, Co. Meath (Cal BC 3980-3660). The remaining two sites along the M3 which displayed evidence of Neolithic burnt mound activity returned dates similar to those recovered from the features at Boyerstown 8- a

pit sealed by a burnt mound at Clowanstown 2 returned a date of Cal BC 2570-2340 (BETA 241288; see report A008/012) and a pit filled with burnt stone material (no associated burnt mound) at Ballinter 2 returned a radiocarbon date of Cal BC 2880-2490 (BETA 237583; see report A008/031). Analysis of all sites along the proposed M3 is ongoing and it is likely that in time more sites will be attributed to this period.

There would appear to be a long tradition of burnt mound activity in the vicinity of Boyerstown 8. As mentioned previously a number of such sites were located in the surrounding hinterland and it was initially assumed that some of these would have been broadly contemporary with that of Boyerstown 8. Radiocarbon dating has proved otherwise and what we see is perhaps a tradition of re visiting this area to carry out activities associated with hot stone technology from the late Neolithic right throughout the Bronze Age–Ardraccan 1 was dated to Cal BC 2460-2200 (see report A023/023; Appendix 4), Boyerstown 7 was dated to Cal BC 2290-2030 (see report A023/020; Appendix 4), Boyerstown 5 was dated to Cal BC 2010-1760 (BETA 241319-Cal BP 3550 +/-40; Appendix 4), Ardraccan 2 was dated to Cal BC 1590-1410 (see report A023/024; Appendix 4) and Boyerstown 2 (A023/014) was dated to Cal BC 1220-930 (see report A023/014; Appendix 4). No evidence of a contemporary settlement site was identified as a result of all archaeological investigations carried out along the proposed motorway. A Bronze Age house was identified at Boyerstown 3, which was located adjacent to Boyerstown 8, but this proved to be significantly earlier in date and was dated to the middle Bronze Age (BETA 247110-Cal BC 1730-1510; see report A023/015). None of the identified burnt mounds in the vicinity of Boyerstown 3 provided a radiocarbon date that was contemporary with this structure. It is possible however that settlement evidence exists, as of yet undiscovered beyond the roadtake.

#### **4 CONCLUSIONS**

Boyerstown 8 (A023/018) was excavated from 24 July – 08 August 2006 by Linda Clarke (ACS) as part of the M3 Clonee–North of Kells Motorway Scheme on behalf of Meath County Council NRDO and the NRA and represented the remains of a burnt mound complex. Numerous features filled with burnt mound material (although no such mound was identified) were present which were probably associated with a burnt mound and consisted of one trough, one possible trough, five pits, two deposits, a curvilinear ditch, two linear ditches and four (water?) channels. It is likely that a burnt mound spread was once present on this site or in the immediate vicinity. No finds of archaeological significance were recovered.

## 5 REFERENCES

Barfield, L & Hodder, M 1987 'Burnt mounds as saunas & the prehistory of bathing', *Antiquity* Vol. 61, 370-371

Brindley, AL & Lanting, J 1990 'The dating of fulachta fiadha' in Buckley, V (ed.), *Burnt Offerings: International Contributions to Burnt Mound Archaeology*, 55–56. Dublin, Wordwell.

Buckley, V 1990a 'Preface' in Buckley, V (ed.), *Burnt Offerings: International Contributions to Burnt Mound Archaeology*, 9. Dublin, Wordwell.

Buckley, V 1990b (ed.), *Burnt Offerings: International Contributions to Burnt Mound Archaeology*, 9. Dublin, Wordwell.

Fairburn, N 2004 *Report on Archaeological Assessment at Testing Area 7, Boyerstown Co. Meath, 04E0580*. Unpublished report prepared for Archaeological Consultancy Services Ltd.

O'Neill, J 2000 'Just another fulachta fiadha story', *Archaeology Ireland* 52, 19.

Quinn, B & Moore, D 2007 'Ale, brewing and *fulachta fiadh*', *Archaeology Ireland*, Volume 21 No.3 Issue No. 81.

Russell, I 2001 *Archaeological excavation at Moorechurch 1, Co. Meath*. Unpublished report prepared fro ACS Ltd.

Walsh, C 1990 'A Medieval Cooking Trough from Peter Street, Waterford' in Buckley, V (ed.), *Burnt Offerings: International Contributions to Burnt Mound Archaeology*, 47–48. Dublin, Wordwell.

Signed:

Linda Clarke

---

Linda Clarke

September 2008

## APPENDIX 1 Context Details

Boyerstown 8: A023/018											
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	topsoil	N/A	5	N/A	0.30m depth grey/brown loam	topsoil		pottery	yes		
5	subsoil	N/A	N/A	4	Natural grey boulder clay with stone inclusions	subsoil					
6	fill	7	7	4	soft, dark-grey-black, sandy silt with frequent burnt stones (0.02-0.12m) and occasional charcoal flecks. 1.75m x 0.85m x 0.17m	fill of trough 7					#4 nothing
7	cut	6	5	6	sub-rectangular, northwest-southeast cut (1.75m x 0.85m x 0.17m) with a gradual break of slope, concave sides and a gradual break of slope leading to a flat base. Three stakeholes (07a=0.09m diameter x 0.10m depth, 07b=0.05m x 0.10m depth and 07c=0.09m diameter x 0.09m depth) were cut into the base	trough					
8	fill	9	9	4, 38	soft, dark-grey-black, silty sand with frequent burnt stones and moderate charcoal flecks. 3.40m x 2.20m x 0.40m. Cut by ditch 38	fill of pit 9					#10, #11 16g charcoal
9	cut	8	5	8, 38	sub-oval, northwest-southeast cut (3.40m x 2.20m x 0.40m) with rounded corners, a gradual break of slope, concave sides and a gradual break of slope leading to uneven base. Cut by ditch 38	pit					
10	fill	11	22	4	soft, dark-grey-black, sandy silt with frequent burnt stones (0.02-0.12m) and moderate charcoal flecks. 1.25m x 1.10m x 0.17m	secondary fill of pit 11					#3 15g charcoal
11	cut	10 22	5	22	oval, northeast-southwest cut (1.25m x 1.10m x 0.37m) with rounded corners, a sharp break of slope, concave sides and a sharp break of slope leading to a concave base	pit					

12	fill	13	13, 19	4, 28, 32, 38	firm, grey-brown, silty clay with yellow flecks, occasional stones (0.02-0.10m), moderate burnt stones and occasional charcoal flecks. 20.60m x 1.00m x 0.60m. Cut by the channels 28 and 32, the irregular cut 19 and the ditch 38	fill of ditch 13					#5 5g charcoal
13	cut	12	5, 19	12, 28, 32, 38	curvilinear cut (20.60m x 1.00m x 0.60m) with a gradual break of slope, concave sides, and a gradual break of slope leading to uneven base. Cut by ditch 38 and channels 28, 32 and cut 19	enclosure ditch					
14	fill	15	25	4, 38	firm, mid-brown-grey, clayey silt with occasional burnt stones and charcoal flecks. 2.20m x 1.50m x 0.20m. Cut by the ditch 38	upper fill of pit 15					#7 seeds
15	cut	14, 25, 26	5	26, 38	sub-oval, north-south cut (2.20m x 1.50m x 0.85m) with rounded corners, a gradual break of slope, concave sides and a gradual break of slope leading to a concave base. Cut by ditch 38	pit					
16	fill	17	17	4	soft, dark-grey with black hue, sandy silt with frequent burnt stones (0.02-0.12m) and occasional charcoal flecks of charcoal. 3.00m x 1.50m x 0.45m. Similar to fill 23	fill of pit/trough 17					#1 6g charcoal
17	cut	16	5	16	sub-circular, north-south cut (3.00m x 1.50m x 0.45m) with a sharp break of slope, vertical sides and a gradual break of slope leading to a flat base. Same as cut 24	pit/trough					
18	fill	19	19	4, 13	soft, dark-grey with black hue, sandy silt with moderate burnt stones and occasional charcoal flecks. 2.20m x 0.82m x 0.16m. Same as fill 20. Cut by ditch 13	fill of cut 19					
19	cut	18	5	18, 13	irregular cut (2.20m x 0.82m x 0.16m). Cut by ditch 13. Same as cut 21	cut containing burnt stone spread					
20	fill	21	21	4	soft, dark-grey with black hue, sandy silt with frequent burnt stones (0.02-0.12m) and occasional charcoal flecks. 0.90m x 0.88m x 0.22m. Same as fill 18	fill of cut 21					#6 22g charcoal

21	cut	20	5	20	sub-circular cut (0.90m x 0.88m x 0.22m) with a sharp break of slope, concave sides and a gradual break of slope leading to a flat base. Same as cut 19	Irregular cut that contained burnt mound material						
22	fill	11	11	10	soft, light-grey, silty clay with occasional charcoal flecks. 1.25m x 1.10m x 0.27m	primary fill of pit 11						#2 nothing
23	fill	24	24	4	soft, dark-grey with black hue, sandy silt with frequent burnt stones (0.02-0.12m). 0.40m width x 0.30m depth. Same as fill 16	fill of channel 24						
24	cut	23	5	23	linear, north-south cut (0.40m width x 0.30m depth) with a gradual break of slope, concave sides, and a gradual break of slope leading to a flat base. Same as 17	small channel associated with pit 17						
25	fill	15	26	14	firm, black-grey, clayey silt with occasional charcoal flecks and burnt stones. 1.46m x 1.00m x 0.40m	secondary fill of pit 15						#8 nothing
26	fill	15	15	25	soft, dark-grey, clayey silt with occasional charcoal flecks. 0.80m x 0.60m x 0.25m	primary fill of pit 15						
27	fill	28	28, 13	4, 38	soft, dark-grey, silty sand with moderate burnt stones (0.02-0.12m) and occasional charcoal flecks. 3.14m x 0.24m x 0.13m. Cut by ditch 38	fill of channel 28						
28	cut	27	5, 13	27, 38	linear, north-south cut (3.14m x 0.24m x 0.13m) with a gradual break of slope, concave sides and a gradual break of slope leading to uneven base. Cuts curvilinear ditch 13 and cut by ditch 38	channel						
29	fill	30	30	4	soft, grey, silty clay with moderate burnt stones (0.02-0.10m) and occasional charcoal flecks. 0.46m x 0.50m x 0.13m	fill of pit 30						
30	cut	29	5	29	sub-circular cut (0.46m x 0.50m x 0.13m) with a gradual break of slope, concave sides and a gradual break of slope leading to uneven base	pit						
31	fill	32	32, 13	4	soft, dark-grey, silty sand with moderate burnt stones (0.02-0.10m) and occasional charcoal flecks. 2.10m x 0.28m x 0.14m	fill of channel 32						

32	cut	31	12, 4	31	linear, west-east cut (2.10m x 0.28m x 0.14m) with a gradual break of slope, concave sides and a gradual break of slope leading to an uneven base	channel						
33	fill	34	34	4	firm, dark-grey clay with frequent (80%) burnt stones and occasional charcoal flecks of charcoal. 0.88m x 0.84m x 0.18m	fill of pit 34						#12, #13 <1g charcoal
34	cut	33	5	33	sub-circular cut (0.88m x 0.84m x 0.18m) with a gradual break of slope, concave sides and a gradual break of slope leading to an uneven base	pit						
35	fill	36	36	4	soft, dark-brown with dark-grey hue, silty clay with frequent burnt stones. 3.44m x 0.40m x 0.16m	fill of channel 36						#14 nothing
36	cut	35	5	35	linear, north-south cut (3.44m x 0.40m x 0.16m) with a gradual break of slope, concave sides and a gradual break of slope leading to a flat base. Cut by modern ditch 38	channel						
37	fill	38	38, 13, 15, 9, 28, 40	4	firm, light-brown with grey hue, silty clay with occasional burnt stones and charcoal flecks. 1.16m width x 0.42m depth. Cut curvilinear ditch 13, ditch 40, pits 15 and 9 and channel 28	fill of ditch 38						
38	cut	37	40, 13, 15, 9, 28	37	linear, NWW-SEE cut (1.16m width x 0.42m depth) with a gradual break of slope, concave sides and a gradual break of slope leading to rounded base. Cut curvilinear ditch 13, ditch 40, pits 15 and 9 and channel 28	ditch						
39	fill	40	41	38, 4	firm, mid-brown-grey, silty clay with occasional burnt stones and charcoal flecks. 2.50m width x 0.18m depth. Cut by ditch 38	fill of ditch 40						
40	cut	39, 41-47	5	44, 44, 47	linear, NWW-SEE cut (3.45m width x 0.93m depth) with a gradual break of slope, concave sides and a gradual break of slope leading to a flat base. Cut by ditch 38	ditch						
41	fill	40	42	39	firm, mid-grey clay with yellow patches. 1.10m width x 0.28m depth	fill of ditch 40						

42	fill	40	43, 46	41	soft, yellow with brown hue, silty clay. 2.85m width x 0.40m depth	fill of ditch 40					
43	fill	40	44	42	soft, grey-mid-brown, silty clay. 2.20m width x 0.50m depth	fill of ditch 40					
44	fill	40	46	43	soft, dark-brown, silty clay. 0.82m width x 0.23m depth	fill of ditch 40					
45	fill	40	40	46	soft, light-grey-black, silty sand with moderate burnt stones (0.02-0.10m) and moderate charcoal flecks. 0.90m width x 0.21m depth.	primary fill of ditch 40					
46	fill	40	45	42	soft, grey, silty sand with yellow patches. 0.48m width x 0.14m depth	fill of ditch 40					
47	fill	40	40	42	soft, mid-grey, sandy silt with brown-yellow patches and occasional stones (0.02-0.10m). 1.82m width x 0.59m depth	primary fill of ditch 40					

**APPENDIX 2** *Finds List*

<b>Finds No</b>	<b>Description</b>
A023:018:004:1–2	Black glazed earthenware

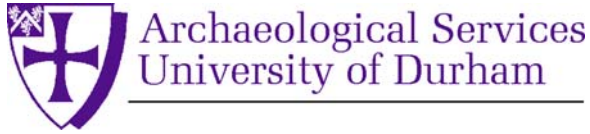
**APPENDIX 3** *Sample List*

<b>Sample No</b>	<b>Context No</b>	<b>Results</b>
4	6	nothing
10, 11	8	16g charcoal
3	10	15g charcoal
5	12	5g charcoal
7	14	seeds
1	16	6g charcoal
6	20	22g charcoal
2	22	nothing
8	25	nothing
12, 13	33	<1g charcoal
14	35	nothing

**APPENDIX 4 Radiocarbon dates**

<b>Context</b>	<b>Sample No</b>	<b>Material</b>	<b>Species id/Weight</b>	<b>Lab</b>	<b>Lab Code</b>	<b>Date Type</b>	<b>Calibrated Date</b>	<b>Conventional Date (BP)</b>	<b>13C/12C Ratio ‰</b>
C8: fill of irregular pit with burnt material	11	Charcoal	Ash (65mg)	Beta	241322	AMS (Std)	Cal BC 2840-2810 & Cal BC 2670-2480	4050 +/- 40 BP	-24
C20: fill of circular pit C21	6	Charcoal	Ash (299mg)	Beta	241323	AMS (Std)	Cal BC 2620-2460	4010 +/- 40BP	-23.7

**APPENDIX 5** *Environmental Analysis*



**Boyerstown 8, M3 Motorway Project, Co  
Meath, Ireland**

**plant macrofossil and charcoal analysis**

*on behalf of*

**Archaeological Consultancy Services Ltd**

**Report 1940**  
September 2008

---

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

archaeological.services@durham.ac.uk  
[www.durham.ac.uk/archaeological.services](http://www.durham.ac.uk/archaeological.services)

---

# **Boyerstown 8, M3 Motorway Project, Co Meath, Ireland**

## **plant macrofossil and charcoal analysis**

***Report 1940***

September 2008

*Archaeological Services Durham University*

on behalf of

***Archaeological Consultancy Services Ltd***

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

---

### **Contents**

1. Summary . . . . .	1
2. Project background . . . . .	2
3. Methods . . . . .	2
4. Results . . . . .	3
5. Discussion . . . . .	4
6. Sources . . . . .	5

## **1. Summary**

### ***The project***

- 1.1 A burnt mound was excavated at Boyerstown 8, Co Meath, Ireland by Archaeological Consultancy Services Ltd. This report presents the results of environmental analysis of the fills of 2 pits and an irregular feature.

### ***Results***

- 1.2 Hulled barley was used on the site, but the limited plant macrofossil evidence provided little additional information about the diet and palaeoenvironment. The charcoal analysis suggested that ash, oak, hazel and alder were the main species used for fuel for activities associated with the burnt mound. Charcoal from elm and cherries was also identified.

## 2. Project background

### *Location and background*

- 2.1 A burnt mound was excavated by Archaeological Consultancy Services Ltd at Boyerstown 8, Co Meath, Ireland (NGR 283222 266418). Features on the site included pits, ditches and a sub-rectangular trough. Radiocarbon dates indicate a late Neolithic / early Bronze Age date for the features. This report presents the results of plant macrofossil and charcoal analysis of pit fills (contexts 8 and 20) and the fill (context 14) of an irregular feature (C15).

### *Objective*

- 2.2 The objective was to analyse the plant macrofossils and charcoal from the fills in order to provide information about activities on the site, and to identify material suitable for radiocarbon dating.

### *Dates*

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

### *Personnel*

- 2.4 Sample processing was undertaken by Archaeological Consultancy Services Ltd. The environmental analysis and report preparation was carried out by Dr Charlotte O'Brien and Mr Lorne Elliott. Residues were sorted by Mr Lorne Elliott.

### *Archive*

- 2.5 The licence number is A023/018 (E0581). The charred seeds, flots and charcoal are currently at the Environmental Laboratory at Archaeological Services Durham University awaiting collection or return.

## 3. Methods

- 3.1 The residues were examined for plant remains, shells, bones, pottery sherds and metalworking debris. The charred remains were scanned at up to x60 magnification using a Leica MZ6 stereomicroscope and charred seeds were identified by comparison with modern reference material held in the Environmental Laboratory at Archaeological Services Durham University. Plant taxonomic nomenclature follows Stace (1997).
- 3.2 Charcoal was collected from the residues and flots and added to pre-sorted material. Following Boardman (1995), identifications were made on all fragments >4mm. The transverse, radial and tangential sections were examined at up to x600 magnification using a Leica DMLM microscope. Identifications were assisted by the descriptions of Hather (2000), and modern reference material held in the Environmental Laboratory at Archaeological Services Durham University. A single entity of ash charcoal from each of contexts (8) and (20), weighing 65mg and 299mg respectively, were provided for radiocarbon dating.

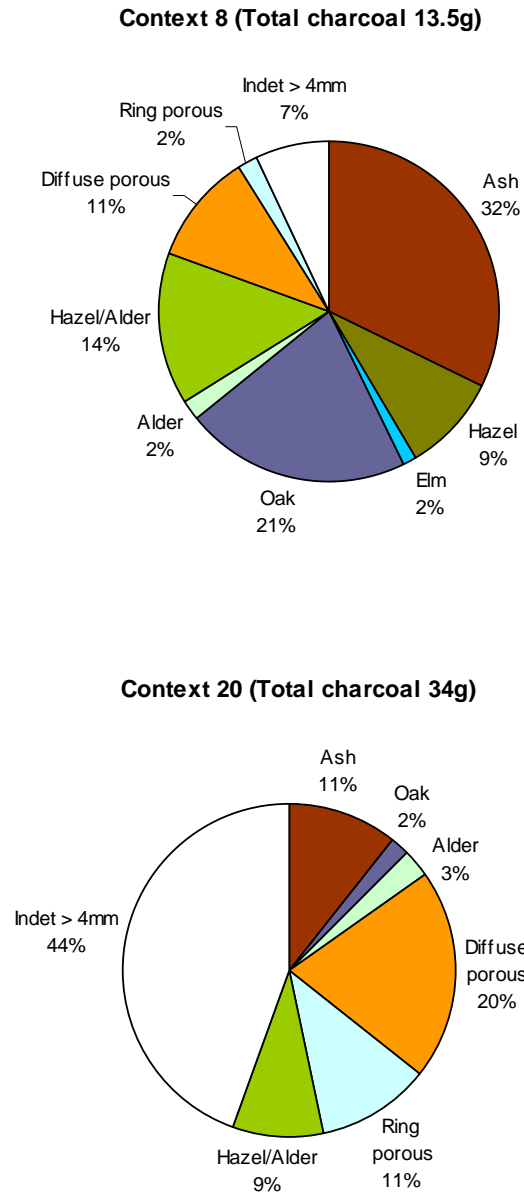
## 4. Results

4.1 Charcoal was present in all 3 contexts and possible fire-cracked stones were noted in the residue of context (20). A few charred barley grains and weed seeds were present in the flots of context (14). The charcoal was in a poor condition, which prevented identification of many of the fragments, particularly in context (20). Ash, oak and hazel were the main species identified in context (8), with lesser amounts of alder and elm. The fragments which could be specifically identified in context (20) comprised ash, oak and alder. Context (14) contained only a small amount of charcoal, and the only identifiable fragment was *Prunus* sp (Cherries). Native members of this genus in Ireland include wild cherry, bird cherry and blackthorn. The results of the environmental analysis are presented in Table 4.1. The proportions of charcoal species are presented in Figure 4.1.

**Table 4.1:** Plant macrofossils and charcoal from Boyerstown 8

Context	8	14	20	
Sample	10, 11	7	6	
Feature	Pit	Irregular feature	Pit	
<i>Material available for radiocarbon dating</i>	✓	✓	✓	
<i>Volume of flots (ml)</i>	25	5	15	
<i>Residue matrix (relative abundance)</i>				
Charcoal	-	1	3	
Cracked/angular stones	-	-	1	
<i>Flots matrix (relative abundance)</i>				
Charcoal	-	1	1	
Roots (modern)	-	1	1	
<i>Charcoal (mg/number of fragments)</i>				
Percentage of sample analysed	100	100	100	
Total charcoal analysed (mg)	6648	804	24092	
Number of identifiable fragments >4mm	85	3	179	
<i>Alnus glutinosa</i> (Alder)	135 (2F)	-	635 (3F)	
<i>Corylus avellana</i> (Hazel)	607 (8F)	-	-	
<i>Fraxinus excelsior</i> (Ash)	2136 (31F)	-	2541 (17F)	
<i>Ulmus</i> sp (Elm)	103 (1F)	-	-	
<i>Prunus</i> sp (Cherries)	-	244 (1F)	-	
<i>Quercus</i> sp (Oak)	1415 (10F)	-	481 (1F)	
<i>Corylus/Alnus</i> (Hazel/Alder)	963 (13F)	-	2143 (14F)	
Diffuse porous	707 (13F)	560 (2F)	4886 (30F)	
Ring porous	121 (3F)	-	2728 (20F)	
Unidentified >4mm fraction	461 (4F)	-	10678 (94F)	
Unidentified <4mm fraction	6733	-	9965	
<i>Charred remains (total counts)</i>				
(a) <i>Chenopodium album</i> (Fat-hen)	seed	-	1	-
(c) <i>Hordeum</i> spp (Hulled Barley)	grain	-	1	-
(c) <i>Hordeum</i> spp (Barley species)	grain	-	10	-
(c) Cerealia indeterminate	grain	-	2	-
(r) <i>Galeopsis</i> spp (Hemp-nettle)	seed	-	1	-
(w) <i>Carex</i> spp (Sedges)	trigonal nutlet	-	1	-

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



**Figure 3.1:** Proportions of identified charcoal from Boyerstown 8

## 5. Discussion

- 5.1 Context (14), the fill of an irregular feature, was the only context which contained charred seeds. These included a few barley grains, most of which were badly degraded, but one could be identified as hulled. The grains lacked the characteristic features necessary to distinguish whether the barley was from the 6-row or 2-row variety. Barley has been cultivated in Ireland throughout prehistory, but studies indicate that it was more widely used in the Bronze Age than the Neolithic (Grogan *et al* 2007, Monk 1986). The charred seed of fat-hen, hemp-nettle and sedge may represent weeds which were

growing with the cereal crop, or plants which occupied nearby areas of disturbed, damp ground.

- 5.2 The charcoal in all of the contexts was in a poor condition, with numerous fragments exhibiting degradation of the cell structures and orange mineral staining. This is likely to be the result of adverse preservational conditions, for example exposure to extended periods of waterlogging. The identifiable fragments suggest the presence of mixed deciduous woodland near the site, which comprised oak and ash, with hazel and cherries either growing in the understorey or by the woodland margins. Elm was also a minor woodland component, and alder would have grown on areas of wetland, either forming a carr or as individual stands.
- 5.3 The charcoal is likely to represent fuel used for activities associated with the burnt mound. The predominance of ash, oak, hazel and alder is in line with a recent study of charcoal from Bronze Age sites in central and western Ireland, which has provided evidence that these were the main trees selected for fuel on burnt mound sites (Grogan *et al* 2007). It has been suggested that this choice of fuel reflects the marginal situation of most burnt mounds, between wet and dryland areas (Grogan *et al* 2007).

## 6. Sources

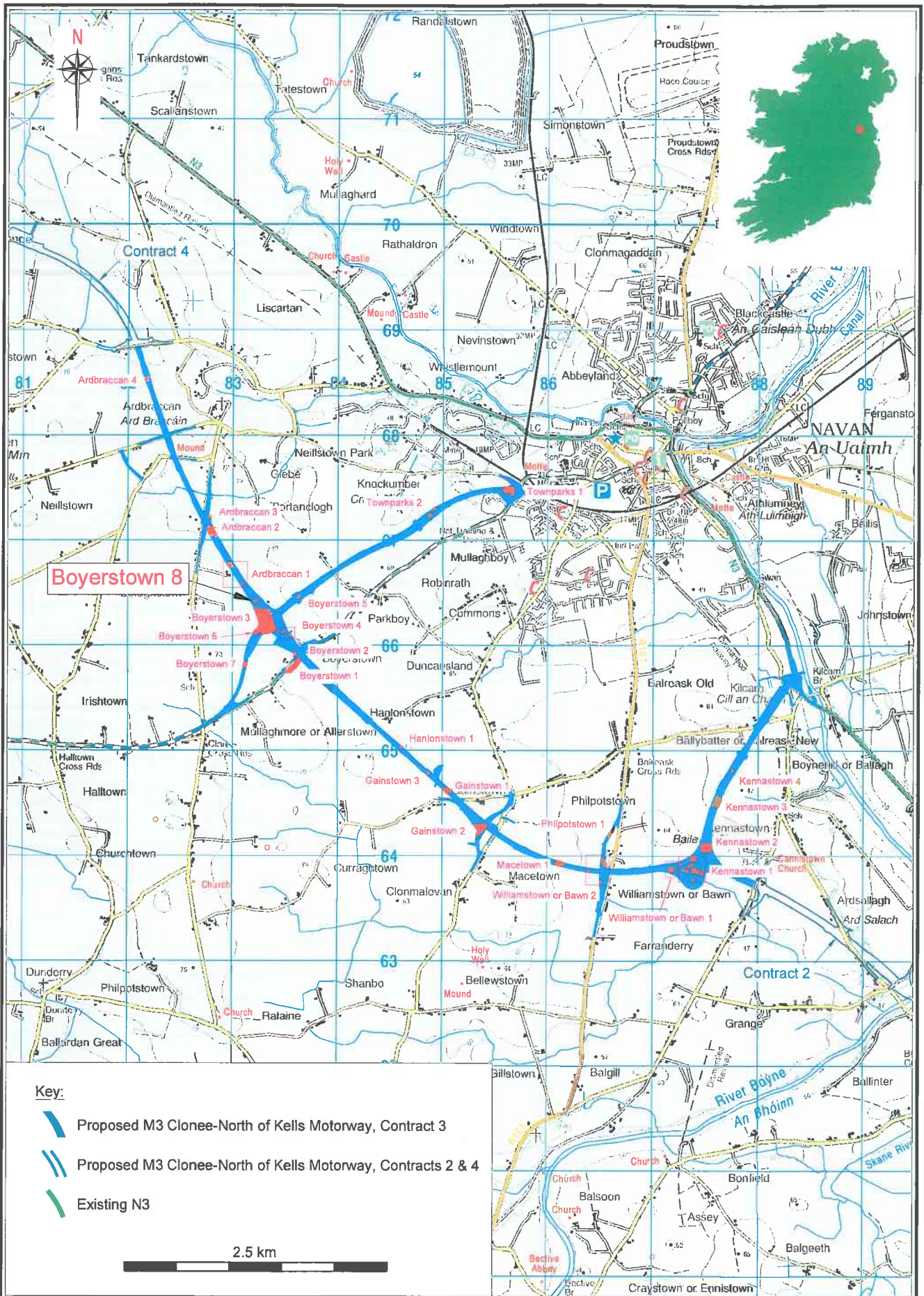
Boardman, S J, 1995 Charcoal and charred macrofossils, in K, Branigan & P, Foster (eds) *Barra: archaeological research on Ben Tangaval, Sheffield: SEARCH Volume 1*, 149-157

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

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

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

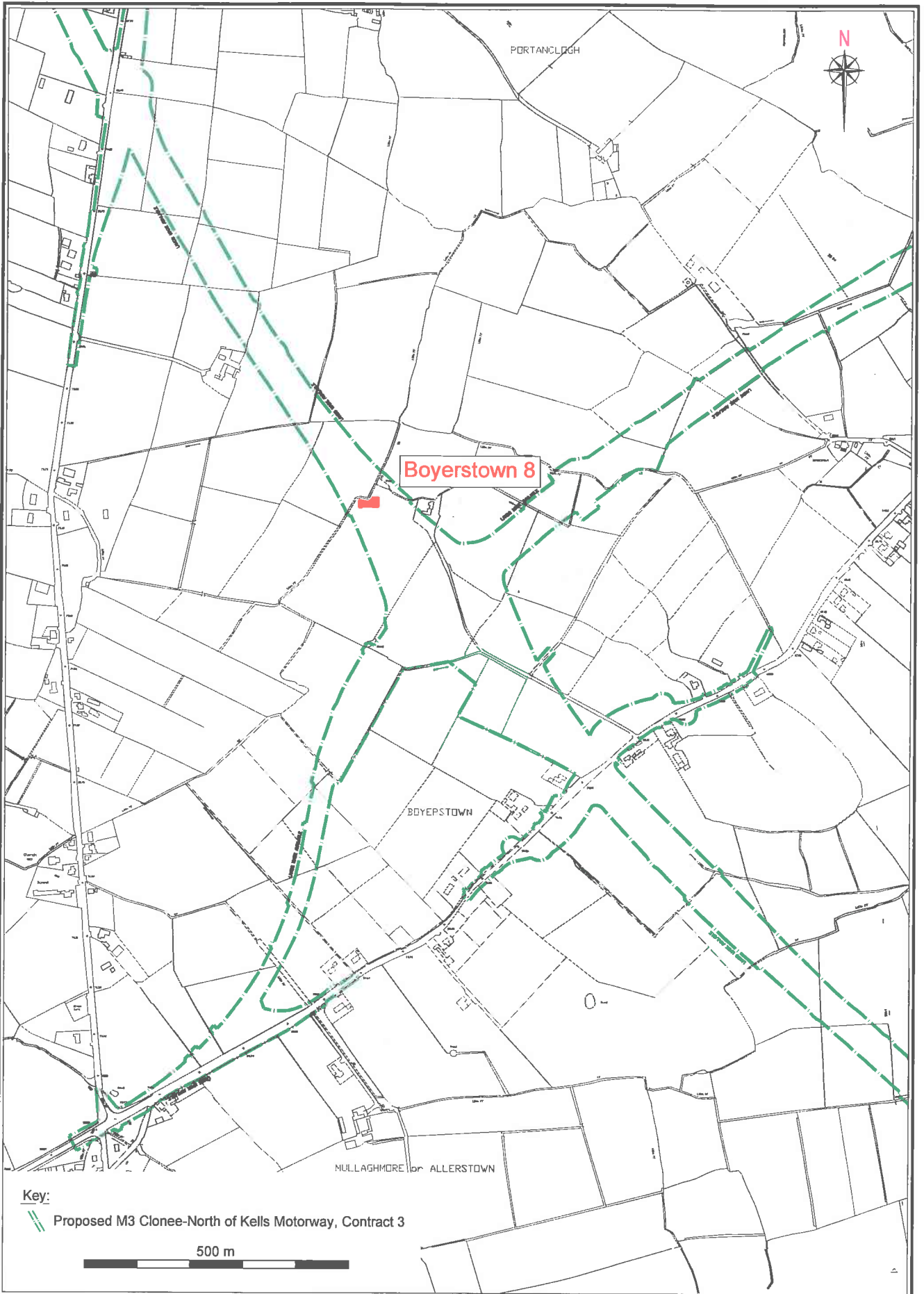



**Archaeological Consultancy Services Ltd.** Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth

Site: M3 Clonee-North of Kells PPP Scheme  
 Contract 3, Boyerstown 8  
 Issued for: Excavation Report  
 Client: Meath County Council

Scale: 1:50,000 A4  
 Date: Jul '08  
 Origin: OSi Discovery Series  
 Drawing no.: 04\_01\_C2081i

Figure 1: Location of Boyerstown 8



Key:  
 Proposed M3 Clonee-North of Kells Motorway, Contract 3

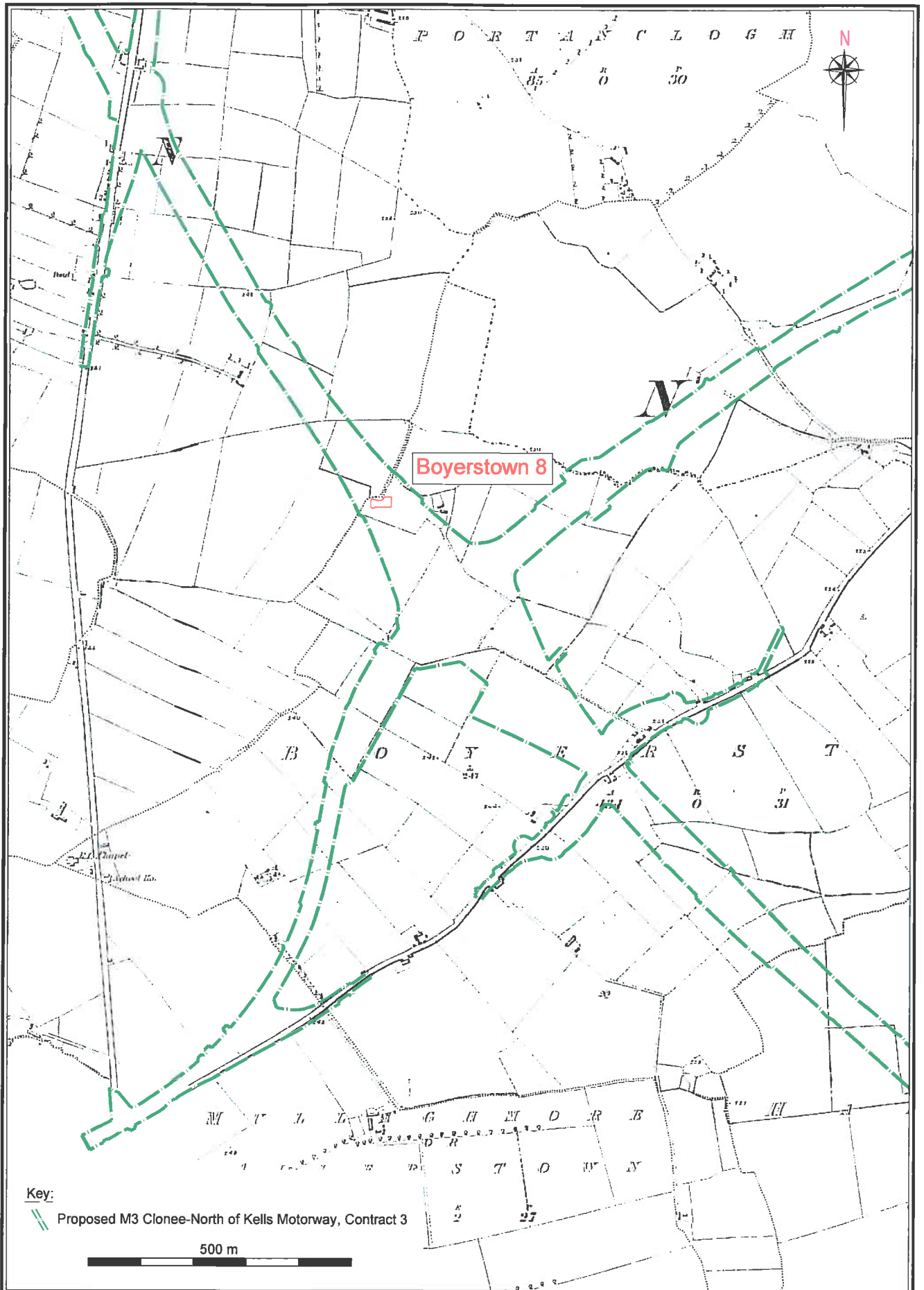
500 m

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

Site: M3 Clonee-North of Kells PPP Scheme Contract 3, Boyerstown 8  
 Issued for: Excavation Report  
 Client: Meath County Council

Scale: 1:10,000 A4  
 Date: Jul '08  
 Origin: Client/ACS Ltd.  
 Drawing no.: 04\_01\_C2082i

Figure 2: Location of Boyerstown 8 on current OS background

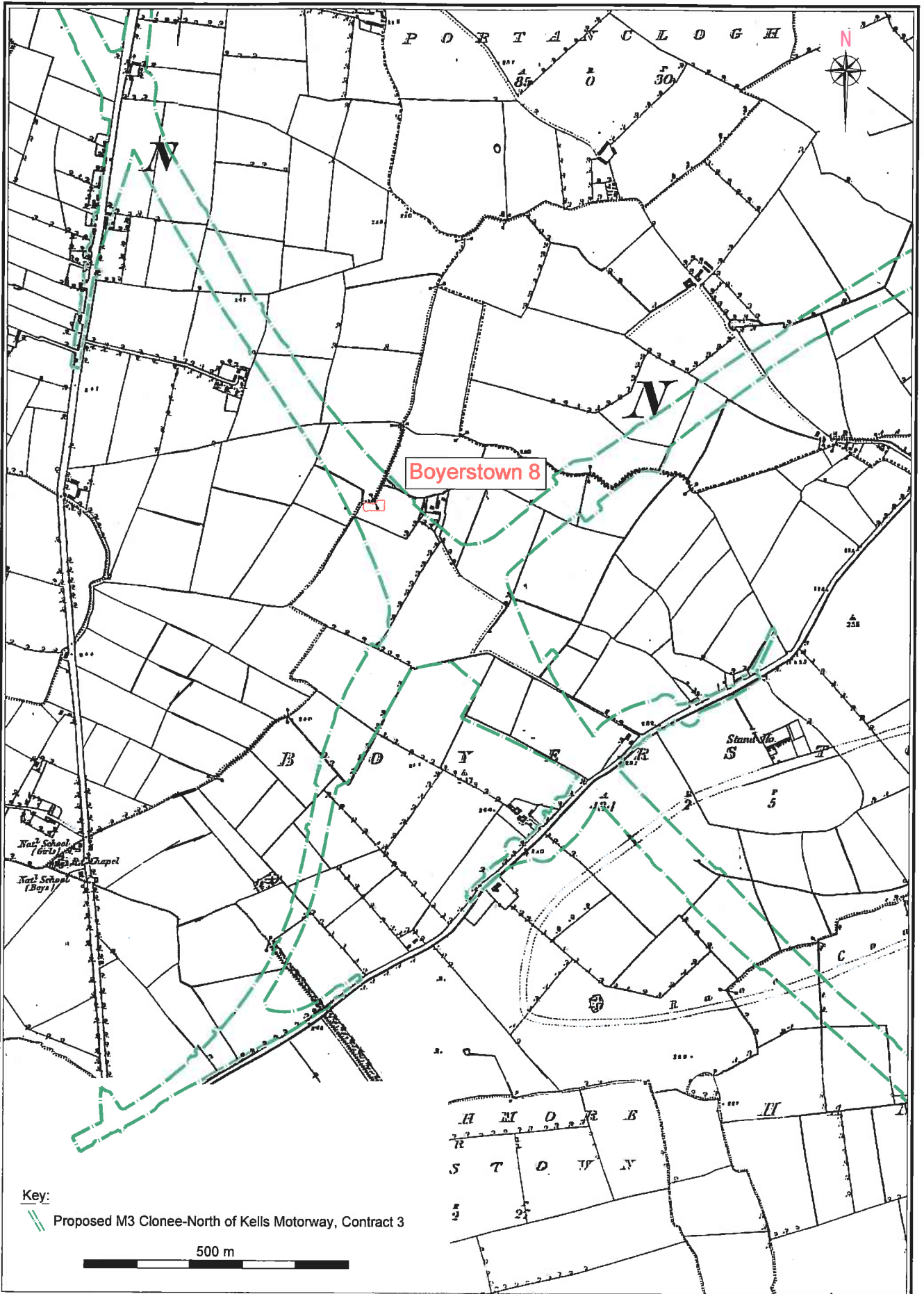


**Archaeological Consultancy Services Ltd.** Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth

Site: M3 Clonee-North of Kells PPP Scheme Contract 3, Boyerstown 8  
 Issued for: Excavation Report  
 Client: Meath County Council

Scale: 1:10,000 A4  
 Date: Jul '08  
 Origin: OSi (1836)  
 Drawing no.: 04\_01\_C2083i

Figure 3: Boyerstown 8, extract from 1st edition OS map, Meath sheets 24, 25 & 31

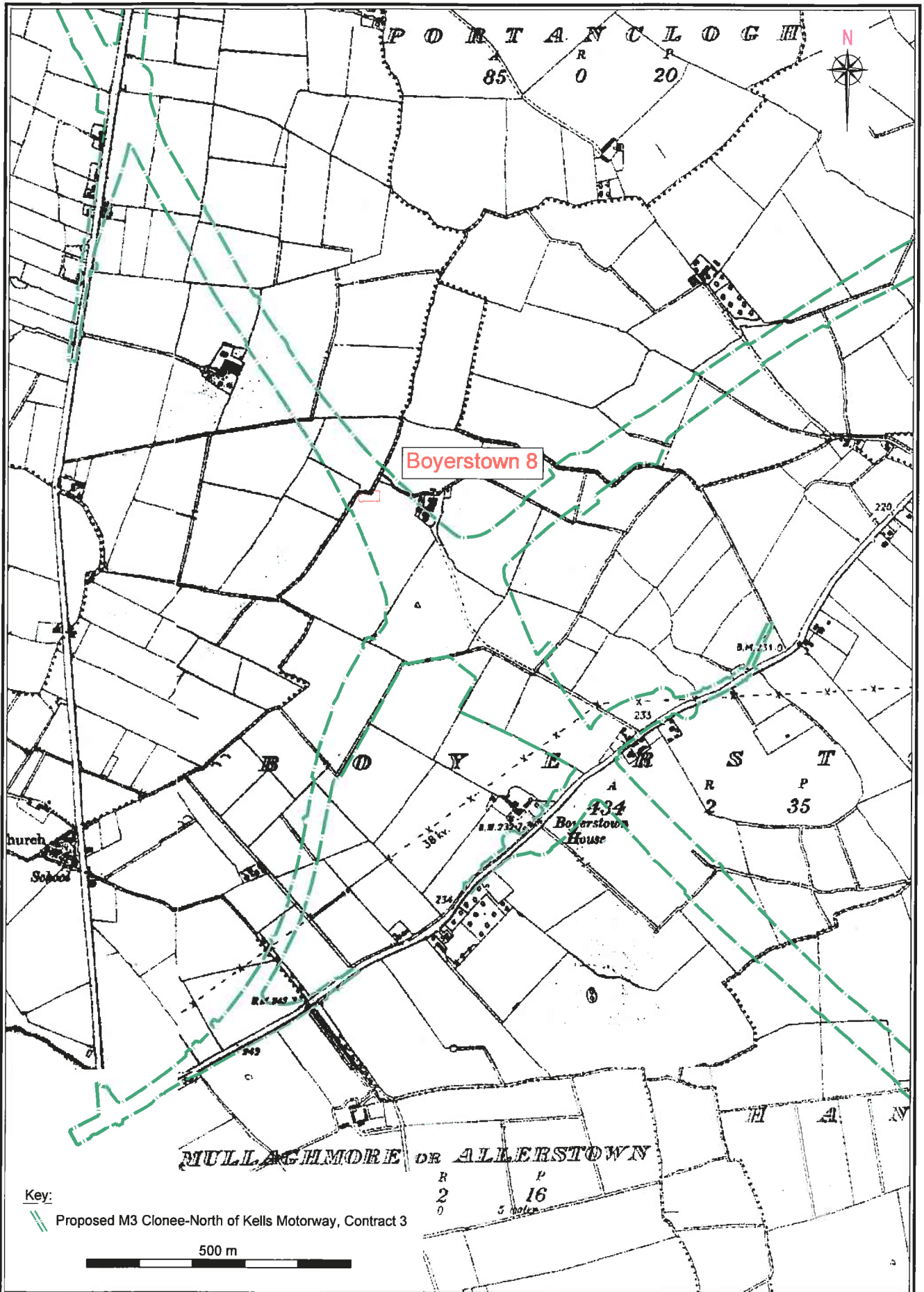


**Archaeological Consultancy Services Ltd.** Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth

Site: M3 Clonee-North of Kells PPP Scheme Contract 3, Boyerstown 8  
 Issued for: Excavation Report  
 Client: Meath County Council

Scale: 1:10,000 A4  
 Date: Jul '08  
 Origin: OSi (1882)  
 Drawing no.: 04 01 C2084i

Figure 4: Boyerstown 8, extract from 2nd edition OS map, Meath sheets 24, 25 & 31



<b>Archaeological Consultancy Services Ltd.</b> Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 3, Boyerstown 8	Scale: 1:10,000 A4
	Issued for: Excavation Report	Date: Jul '08
	Client: Meath County Council	Origin: OSI 24(1910), 25(1955), 31(1909)
		Drawing no.: 04 01 C2085i

Figure 5: Boyerstown 8, extract from 3rd edition OS map, Meath sheets 24, 25 & 31



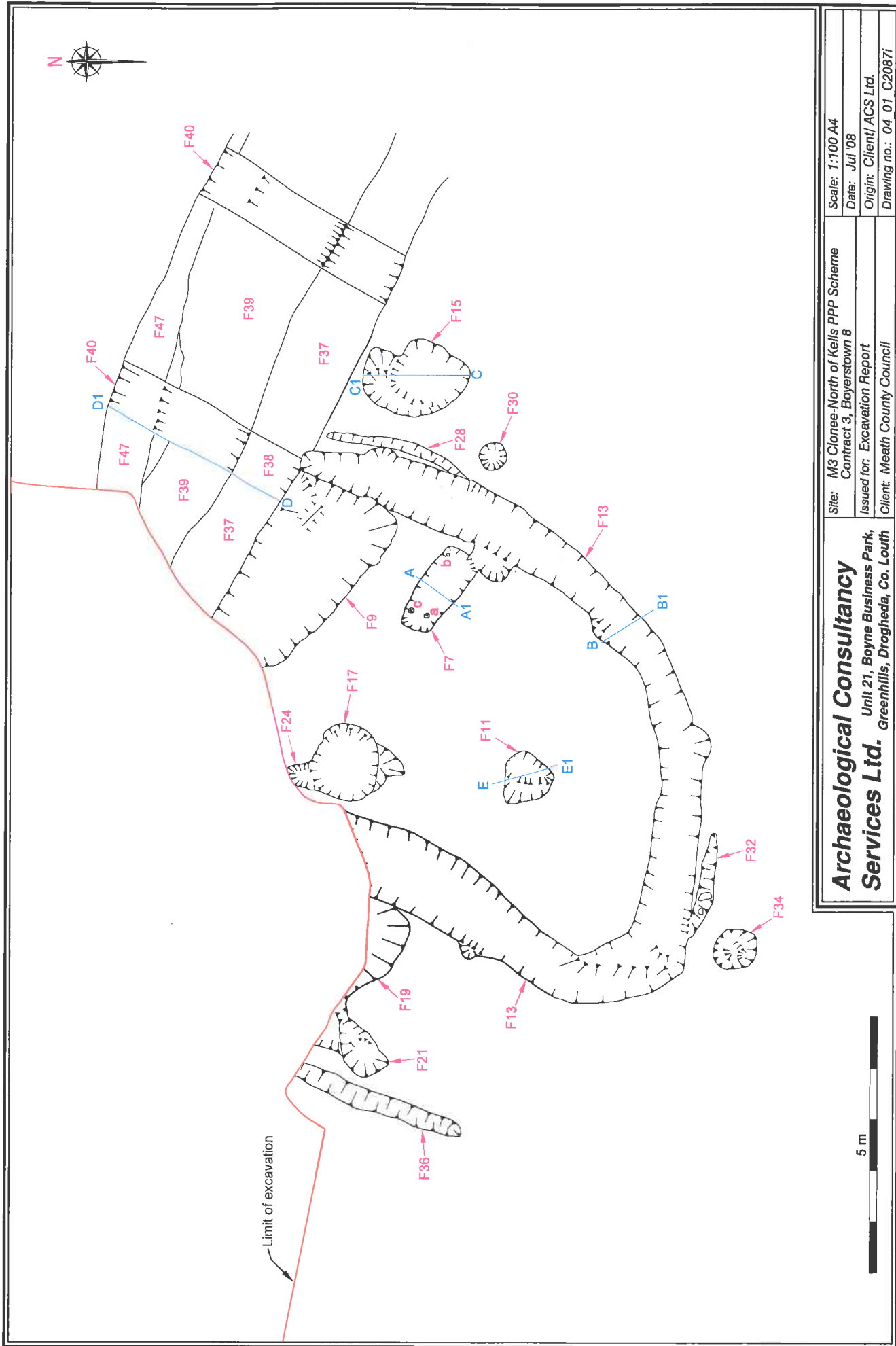
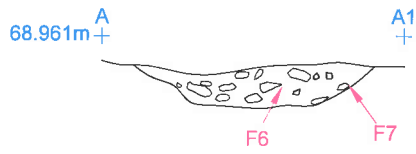
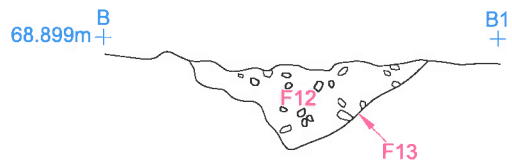


Figure 7: Post-excavation plan of features at Boyerstown 8

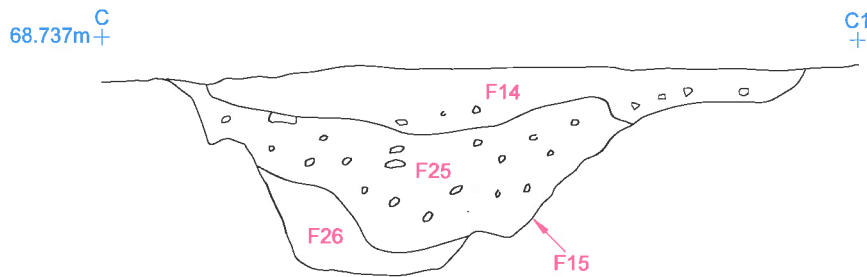
SECTION THROUGH F7



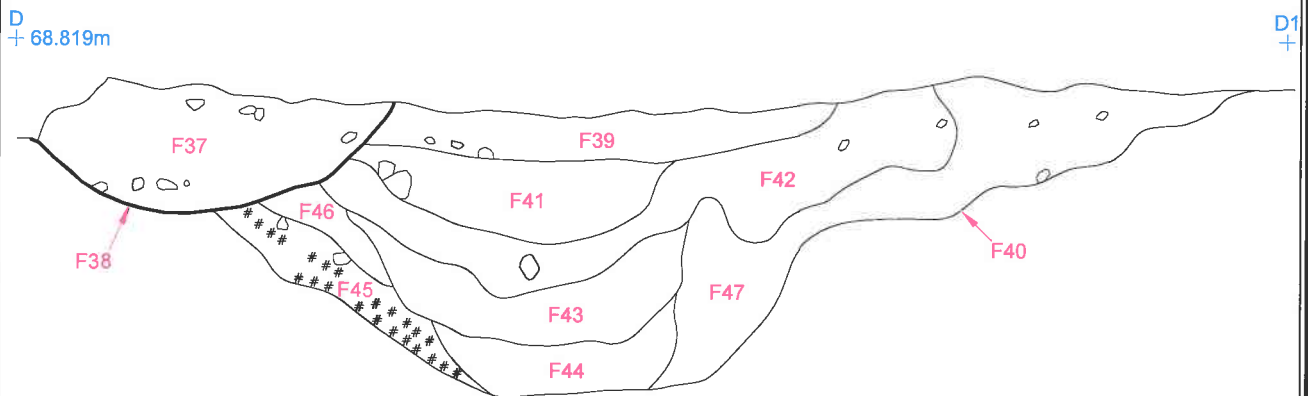
SECTION THROUGH F13



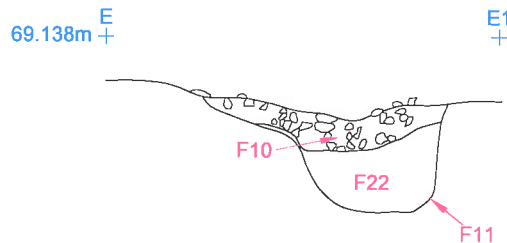
SECTION THROUGH F15



SECTION THROUGH F38 & F40



SECTION THROUGH F11



Key:

- Stone
- Charcoal

1 m

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

Site: M3 Clonee-North of Kells PPP Scheme Contract 3, Boyerstown 8  
 Issued for: Excavation Report  
 Client: Meath County Council

Scale: 1:25 A4  
 Date: Jul '08  
 Origin: Client/ACS Ltd.  
 Drawing no.: 04\_01\_C2088i

Figure 8: Sections of features at Boyerstown 8



Plate 1: Trough F7 from the north-east (04\_01\_Boyerstown 8\_CP1047\_14)



Plate 2: Pit F11 from the south-east (04\_01\_Boyerstown 8\_CP1046\_3)



Plate 3: Pit F17 from the east (04\_01\_Boyerstown 8\_CP1047\_23)



Plate 4: Pit F34 from the north-east (04\_01\_Boyerstown 8\_CP1049\_16)



Plate 5: Section through ditches F38 and F40 from the east (04\_01\_Boyerstown 8\_CP1051\_20)



Plate 6: Post-excavation view of the site from the south (04\_01\_Boyerstown 8\_CP1050\_12)