



## N11 RATHNEW TO ARKLOW ROAD IMPROVEMENT



**NMSR No.: E3226**

**SITE A022/040**

**NGR: 327979/183756**

**TOWNLAND: BALLYCLOGH SOUTH**

**COUNTY: WICKLOW**

**FINAL REPORT**

**ON BEHALF OF WICKLOW COUNTY COUNCIL  
AND THE NATIONAL ROADS AUTHORITY**

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**JUNE 2009**

**IAC** Irish Archaeological  
Consultancy



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## ABSTRACT

This site was located in the townland of Ballyclogh South, c. 5.5km northeast of Arklow town, Co. Wicklow. The archaeological excavation was carried out by Irish Archaeological Consultancy Ltd. on behalf of Wicklow County Council and the National Roads Authority in advance of the construction of the N11 Rathnew to Arklow Road Improvement.

The site was initially identified during archaeological testing carried out by IAC Ltd. under the same contract during July 2005. The testing revealed two burnt spreads in close proximity to each other. The first was a roughly circular deposit of black sandy soil containing heat-fractured stones and charcoal. It measured c. 11m north-south by 7m east-west and was 0.14m deep. The second was located less than 20m north of the first area and consisted of a small irregular spread of black soil which contained heat-fractured stones and charcoal. It measured c. 4.50m north-south by 3.50m east-west and was 0.10m deep.

Subsequent excavation revealed the remains of a burnt mound (**C3**), a spread (**C6**) and an associated pit [**C8**] which have collectively been interpreted as *fulacht fiadh* activity. The total excavation area measured 30m by 50m, thus totalling 1500m<sup>2</sup>. The site has been provisionally dated to the Bronze Age. Environmental samples taken from context (**C3**) were inadequate for species identification of charcoal or radiocarbon dating analysis. However, two simple flint flakes recovered from burnt mound material (**C3**) were found to be from a lithic production involving a bipolar and simple direct percussion technology. The former is commonly associated with the Bronze Age (Sternke, Appendix 2.1). No other artefacts were recovered from the site.

*Fulachta fiadh*/burnt mounds are an integral part of the prehistoric landscape in Ireland, providing significant evidence of activity with little artefact deposition. *Fulachta fiadh*/burnt mounds also form the highest frequency of a single prehistoric monument in Ireland and over the years have generated much interest and experimentation interpreting their function.

The results of the excavation are not unexpected given the nature of the physical landscape and the archaeological landscape which shows several complexes of typologically similar sites to the north and the south. While the site is undated, analysis of lithics from the burnt mound suggests a Bronze Age date which compliments the surrounding archaeological landscape.

## **ACKNOWLEDGMENTS**

The archaeological excavation at Ballyclogh Co. Wicklow was carried out on behalf of Wicklow County Council and the National Roads Authority in advance of the construction of the N11 Rathnew to Arklow Road Improvement.

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## CONTENTS

<b>Abstract</b>	<b><i>i</i></b>
<b>Acknowledgements</b>	<b><i>ii</i></b>
<b>Contents</b>	<b><i>iii</i></b>
<b>List of Figures</b>	<b><i>v</i></b>
<b>List of Plates</b>	<b><i>v</i></b>
<b>1 Introduction</b>	<b>1</b>
1.1 Site location	1
1.2 The scope of the project	1
1.3 Circumstances and dates of fieldwork	2
<b>2 Archaeological Background</b>	<b>3</b>
2.1 Project Location and Site Topography	3
2.2 Archaeological Landscape	3
2.2.1 Bronze Age Landscape (2500 – 600 BC)	4
2.2.2 Site Specific Archaeological Landscape	8
2.2.3 Typological Background of Burnt Mounds	9
<b>3 Methodology</b>	<b>11</b>
3.1 Introduction	11
3.2 Methodology	11
3.3 Report Production Methodology	11
<b>4 Excavation Results</b>	<b>12</b>
4.1 Group I – Natural Drift Geology	12
4.2 Group II – Prehistoric Activity	12
4.3 Group III – Topsoil	14
<b>5 Discussion</b>	<b>15</b>
5.1 Physical Setting	15
5.2 Summary of the Site Specific Archaeological Landscape	15
5.3 Summary of Excavation Results	15
5.4 Summary of Lithic Analysis	16
5.5 Discussion	16
<b>6 Bibliography</b>	<b>17</b>
<b>Figures</b>	
<b>Plates</b>	
<b>Appendix 1</b>	<b>Catalogue of Primary Data</b>
<b>Appendix 1.1</b>	<b>Context Register</b>
<b>Appendix 1.2</b>	<b>Artefact Catalogue</b>
<b>Appendix 1.3</b>	<b>Archive Index</b>
<b>Appendix 1.1</b>	<b>List of Contexts</b>
<b>Appendix 1.2</b>	<b>Artefact Catalogue</b>
<b>Appendix 1.3</b>	<b>Archive Index</b>
<b>Appendix 2</b>	<b>Specialist Reports</b>

**Appendix 2.1**  
**Appendix 3**

**Lithic Report - Dr. Farina Sternke**  
**List of N11 Rathnew to Arklow Road Improvement Site**  
**Names**

### List of Figures

- |          |  |
|----------|--|
| Figure 1 | Site A022/040 E3226, Site location on OS Discovery Series Background |
| Figure 2 | Site A022/040 E3226, Showing RMP and OS background                   |
| Figure 3 | Site A022/040 E3226, Showing detail of site within development       |
| Figure 4 | Site A022/040 E3226, Plan  |
| Figure 5 | Site A022/040 E3226, Sections through [C8] and (C3)                  |
| Figure 6 | Site A022/040 E3226, Site Matrix                                     |

### List of Plates

- |         |   |
|---------|---|
| Plate 1 | Burnt mound spread (C3) pre-excavation, facing west       |
| Plate 2 | West-southwest facing section of burnt mound spread (C3)  |
| Plate 3 | North-northwest facing section of burnt mound spread (C3) |
| Plate 4 | Pit [C8] post-excavation from above, facing north         |
| Plate 5 | Burnt Spread (C6) pre-excavation from above, facing south |
| Plate 6 | Site E3226 post-excavation, facing southeast              |

# 1 INTRODUCTION

This final report provides comment and analysis on the excavation carried out in the townland of Ballyclogh, Co. Wicklow (Figures 1 and 2) as part of an archaeological mitigation program associated with the N11 Rathnew to Arklow Road Improvement. Archaeological fieldwork was directed by Yvonne Whitty of Irish Archaeological Consultancy Ltd. (IAC Ltd.) and was funded by Wicklow County Council and the National Roads Authority.

## 1.1 Site location

This site was located in Ballyclogh South townland, Dunganstown parish and the barony of Arklow to the immediate east of the current N11, c. 5.50km northeast of Arklow (Wicklow OS sheet 36). The site details are:

- Site Ballyclogh South, Ministerial Direction No.: A022/040, NMS Registration No: E3226, route chainage (Ch) 6680-6710, NGR 327979/183756

The site was identified in low-lying ground as a result of a test trenching exercise undertaken by IAC Ltd. under the same contract in July 2005 (Ministerial Direction No.: A022/006, Gill McLoughlin). The route was divided into 14 different test areas for the initial ground testing / assessment phase. Testing revealed two burnt spreads in close proximity to each other. The first was a roughly circular deposit of black sandy soil containing heat fractured stones and charcoal. It measured c. 11.0m north-south by 7.0m east-west and was 0.14m deep. The second was located less than 20m north of the first area and consisted of a small irregular spread of black soil which contained heat-fractured stones and charcoal. It measured c. 4.50m north-south by 3.50m east-west and was 0.10m deep. This was interpreted as a possible *fulacht fiadh*/burnt mound site.

Subsequent excavations at site revealed the remains of a burnt mound, a spread and an associated pit. This site type typically dates to the Bronze Age.

The total excavation area measured 30m by 50m, totalling 1500m<sup>2</sup>.

## 1.2 The scope of the project

The proposed N11 Rathnew to Arklow Road Improvement is located between the northern limit of the N11 Arklow By-pass dual carriageway in the townland of Ballinaskea and the southern limit of the N11 Newtownmountkennedy to Ballynabarney Road Improvement in the townland of Ballinaclogh, County Wicklow. It consists of approximately 16.3km of new dual carriageway, approximately 19km of new single carriageway local, regional and accommodation access roads, two grade separated interchanges, and several bridge/culvert river crossings. There are also a significant number of minor road realignments/modifications included in the scheme.

The route commences at the north end of the full width dual carriageway section of the N11 Arklow By-pass. It involves the widening of the existing N11 corridor on its east side as far as Scratenagh Cross Roads where it crosses the proposed mainline to run generally on-line with widening to the west side of the existing carriageway.

An overbridge is proposed immediately north of Scratenagh to allow local traffic from adjacent county roads to cross over the dual carriageway. Access to existing communities and properties adjacent to the existing N11 will be maintained by the provision of an all-purpose local access road which will run parallel to the proposed dual carriageway. This all purpose road (to be called the R772) will utilise significant

lengths of existing N11 carriageway, with new single carriageway constructed where required to complete the route.

The proposed dual carriageway alignment passes west of Jack White's Cross Roads and a grade-separated interchange is proposed at this location to provide local access from the all purpose road. Continuing north the alignment follows the line of the existing N11 to Kilmurry North where the preferred route then runs off-line to the east before crossing over the existing N11 at Ballinameesda Upper adjacent to Lil Doyle's Public House. It then swings to the northwest, off the line of the existing N11, passing between the townlands of Ballinameesda Upper and Ballinameesda Lower before sweeping northeast. Access will be maintained by the construction of three new underbridges where the proposed mainline crosses the existing side roads on the L5664 to Kilbride, the L5158 to Kilboy and the L1157 to Ballinameesda Upper.

To the north of Ballinameesda Upper the alignment runs parallel and to the west of the existing carriageway swinging from a northwest line at Ballinameesda Upper to a northeast direction at Roscath. This alignment avoids crossing the line of the existing N11 at the Tap which enables the existing N11 to be used as an all purpose road for local traffic between the Beehive and Jack White's.

North of Coolacork and Roscath the preferred route will run parallel with the west side of the N11 until it reaches the R751 and the 'The Beehive' junction. A second grade-separated interchange is proposed just to the west of 'The Beehive' junction. Thereafter the preferred route converges on the tie-in point with the south end of the N11 Newtownmountkenedy to Ballynabarney Road Improvement near Ballinaclogh.

### **1.3 Circumstances and dates of fieldwork**

The excavations were undertaken to offset the adverse impact of road construction on known and potential subsoil archaeological remains in order to preserve these sites by record.

Topsoil stripping of the area commenced on 10/05/2006. The order and date of the excavation is as follows:

- Cleaning back and pre-excavation planning commenced on 12/06/2006 with a team of 1 field director, 1 Supervisor, 3 assistant archaeologists and 5 general operatives.
- All features were subsequently fully excavated and recorded by hand, using the single context recording system with plans and sections being produced at a scale of 1:50 or 1:20 (sections were recorded generally at 1:10) and photographs where necessary. All works were carried out in agreement with the Project Archaeologist, the National Monuments Section of the Department of the Environment, Heritage and Local Government. Samples were taken of any environmental and dateable material.
- Excavation and recording of all features were completed by 15/06/2006.

The archive is currently stored in IAC's facility in Lismore, Co Waterford and will ultimately be deposited with the National Museum of Ireland. All excavation and post excavation works were carried out in consultation and agreement with the Project Archaeologist, the National Monuments Section of the DOEHLG and the National Museum of Ireland.

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## 2 ARCHAEOLOGICAL BACKGROUND

### 2.1 Project Location and Site Topography

Wicklow is a coastal county in the southeast corner of Ireland. It has an area of 2025 square kilometres of diverse topography and 40km of coastline along the Irish Sea. The physical characteristics of the county have created two dramatically different environments, divided by a ridge of granite known as the Wicklow Mountains that extend south from Dublin Bay as far as Mount Brandon in Co Kilkenny. The soils of the county have developed on glacial materials deposited by successive glaciations. Generally, the soils in the county are fertile except for the peaty podzols, notable in the central upland areas (Stout 1994). The lowland coastal plains with fertile glacial soils are on the east whilst the peaty podzols in the upland mountainous region of the northwest and southwest pose a more isolated terrain. The Ballinaskea to Ballinaclogh section of the N11 Rathnew to Arklow Road Improvement travels approximately south to north through relatively flat countryside in the southeast of County Wicklow. There are gentle hills in the area, for example, Ballymurrin and Ballinameesda Upper and Lower – but generally the landscape is below 120m. Drainage is provided by small rivers, such as Potter's River, Three Mile Water River, Redcross River and the many streams and tributaries feeding into them. Much of the land through which the proposed route passes are grazing fields, and there are boggy areas in several places, such as Roscath, Ballinameesda Upper, Togher, Ballyclogh North, Scratenagh and Cranagh. Plantation forestry exists in the townland of Ballinameesda Upper, mainly overlying the poorer land and pockets of mature woodland occur in Ballard Upper and Lower and Ballyrogan Lower.

Traditionally this is an area consisting of good farmland and through the practices of farming the enclosed landscape has changed very little from 1838 (the 1st edition Ordnance Survey map). The majority of the land is under pasture with little tillage. A survey of the townland names of the region has revealed that they clearly reflect the topography and land use of this small area, particularly before the advent of intensive farming and land drainage schemes. The townland names echo a landscape of scrubby thickets, pasture, perhaps cultivated hazel and willow groves and one or two ploughed fields, punctuated with a few small churches and houses; a landscape that alternates between small rock-strewn hills and low marshy basins (Halcrow Barry Ltd 2004). It was determined that none of the names of the thirty townlands through which this stretch of road passes relates directly to pre-Christian monuments.

This site was located in Ballyclogh South townland, Dunganstown parish and the barony of Arklow to the west of the current N11, c. 5.5km northeast of Arklow town. The site was in a low lying area sheltered at the south and west by elevated rock outcrops and overlooking a low wetland (turlough) to the north.

### 2.2 Archaeological Landscape

As part of the general research along the scheme and the particular research focussed on this site, the known archaeology from the surrounding environment was assessed. This involved the review of information from the EIS (Margeret Gowen Ltd., 2004), SMR records, previous excavations and developments, as well as any other relevant documentary sources including mapping, and the results of other excavations carried out as part of the N11 Rathnew to Arklow Road Improvement. It also involved typological research based on the nature and date of the excavated archaeology. The excavation at this site revealed burnt mound activity. This site type generally dates to the Bronze Age.

### **2.2.1 Bronze Age Landscape (2400 – 500 BC)**

It is in the Bronze Age that substantial evidence for settlement in this area emerges. According to Stout (1994), there are several groupings or foci of known Bronze Age activity within Wicklow; four of which she identifies west of the Wicklow mountains. The evidence for at least three areas of activity along the east in the area under discussion were also outlined, but not in as much detail. Most notably there is a focus of sites, such as standing stones, burials and rock art, along the Avoca valley.

The discovery of a fragmented gold torc also gives credence to Bronze Age activity in this region as twisted gold torcs normally date to c. 1200 - 900 BC (the later Bronze Age). The fragment appears to have traces of an original hooked terminal, thought to be a specifically Irish form, while the other end has been broken and hammered flat, possibly in modern times (NMI: 1980:111). Further evidence of activity in the area during this period of prehistory is reflected in a small bronze axe found during ploughing in 1982, in Coolbeg. The blade end of a socketed bronze axe dating to the later Bronze Age was discovered in the spoil of a site at Ballynapark (Site A022/035) near Jack Whites cross roads. The blade end appears to have broken in antiquity, possibly after being embedded in timber or possibly in the moulding process. This site was near to several others with Bronze Age activity, including one possible industrial site, featuring pits and fire reddened clay (Site A022/034) which produced a date range of 2290 – 1960 BC and 2140 – 1910 BC.

#### **Ritual**

Only two of the ten known areas of rock art dating to this period are located in the west, with the majority being clustered in the southeast near standing stones west of the Avoca valley (Stout 1994, 13). The frequency and distribution of ritual sites around the southeast of Wicklow is not reflected in the archaeological record of recent excavations in the region. A Bronze Age enclosure in Johnstown South (WI041-005), 4km north of Arklow town. This large sub-circular banked enclosure revealed extensive activity throughout the site (96E0156: Bennett 1997). Several furnaces and hearths indicate that this site was a centre of industry, also involved in producing flint artefacts (hollow-based arrowheads, scrapers, blades, a barbed and tanged arrowhead and a leaf-shaped arrowhead) and pottery. A number of ring ditches on the N11 Newtownmountkennedy to Ballynabarney Road Improvement may indicate ritual activity, but generally consist of burial monuments with cremation pits. However, Site 27 (02E1434; Bennett 2003) Mount Usher consisted of a single, large, ring ditch enclosing an internal structure marked by post-holes. Within the structure, there was evidence of a possible cremation pyre. Evidence for at least three cremation burials was also found. The structural elements and associated possible cremation pyre suggest a ritual activity at this site.

#### **Burial**

During the late Neolithic and Bronze Age periods, a simple earthen mound known as a tumulus was used to cover burials. One of the only recorded prehistoric monuments in proximity to this lower section of the N11 is a tumulus at Coolmore (WI 036:021), which lies to the northeast of a complex of burnt mounds at Scratenagh. Other monuments associated with burial in the Bronze Age are barrows. These are earthen burial monuments, which consist of a circular area surrounded by a fosse often with an external bank. Barrows are often grouped together in cemeteries, but in the Archaeological Inventory of Co. Wicklow, all known examples are isolated (Grogan and Kilfeather 1997, 15). Grogan found that burial sites (i.e. cremation cemeteries) were often located along floodplains and rivers in areas of poor soils, whereas associated settlement sites would have been preferably located upon the

higher river terraces. Therefore, many of these burials may have been destroyed or removed through intensive farming concentrated in the east lowlands.

The term ring-ditch is applied to barrows with a flat centre, several of which were excavated on the N11 Newtownmountkenedy to Ballynabarney Road Improvement to the north, such as at Killadreenan (02E0735: Bennett 2003). These sites are also thought to date to the Bronze Age (c.2400 – 500 BC) and early Iron Age (500 BC - AD 400). They were initially thought to be isolated phenomena in the landscape, such as the ring ditch recorded in Rosanna Upper (WI025–036) to the northwest of Rathnew. However, an extensive ring ditch cemetery is listed at Kilpoole Upper c. 400m from the coast (Stephenson 2004, 27). Cairns – stone covered burials, are known from the summits of the Great Sugar Loaf in north Wicklow (near Ballyremon Commons). However, the most frequent type of recorded burial along the east lowlands appears to comprise of cists – earthen or stone lined pits. Examples of known cist burials in southeast Wicklow are found at Glenteige (WI040-036, 7), at Ballynerrin near Wicklow town (WI025-014) and at Knockanree Lower (WI035-041) (Stout 1994, 38); with a Bronze Age cemetery excavated in Ballinagore (94E175: Bennett 1995). Unfortunately, these are usually found by chance during ploughing or gravel quarrying, as they are generally unmarked on the surface.

### **Settlement**

The distribution of Bronze Age settlement left the east lowlands of Co Wicklow relatively lacking in substantial settlement or ritual activity, when compared to the northwest and southwest regions. A major excavation on the N11 Newtownmountkenedy to Ballynabarney Road Improvement revealed a large prehistoric enclosure at Rathmore. Several pits in the interior were discovered, one of which produced a cremation urn. However, no structures were apparent. This high ridged area has been interpreted as a focus of intense Neolithic and Bronze Age ritual activity. Most interestingly a large complex of burnt mounds was discovered here adding to the economic and secular importance of the area. These will be further discussed later. The visual link of the Rathmore enclosure to features across the ravine in the adjacent townland of Kilmartin suggests related activity. Sites at Kilmartin produced large quantities of both lithics and pottery dating to this period proving these sites to be of importance during the late Neolithic and Bronze Age.

A Bronze Age settlement site was recently discovered at Kilbride near the banks of the Potters River comprising of an oval foundation trench, diameter 7.5m, with several postholes thought to delineate an entrance (97E324: Bennett 1998). On a much larger scale in the northeast of the county, south of Kilmacanoge, a round house of the double-ringed form, with an outer wall slot and internal ring of roofing posts was discovered on a multi-period settlement site (01E0572: Bennett 2002). A number of well established settlement sites are known in the northern half of Wicklow. In recent excavations, a large scale settlement site was discovered in Ballynamuddagh (00E0696: Bennett 2001). Another was found at Cooladangan (A003/053) near the southern boundary of Co. Wicklow in the course of the construction of the N11 Arklow By-pass.

Excavations at Charlesland, located in the northeast of the county to the south of Greystones, Co. Wicklow and to the east of the N11 have revealed an area of high status Bronze Age settlement and ritual activity. In addition to the settlement sites (03E0018 and 03E1028: Bennett 2004) and ring ditch enclosures associated with cremations, several large burnt mounds were also discovered. One site in particular, a large burnt mound with a wood and wattle lined pit, revealed a set of wooden musical instruments at the base of the trough during excavation (03E0592: Bennett



2004). Within this vicinity several similar sites were uncovered at Killincarrig (93E0001 & 93E0001ext.: Bennett 1994).

### **Burnt Mounds**

*Fulachta fiadh* are an integral part of the prehistoric landscape in Ireland, providing significant evidence of activity with little artefact deposition. Surprisingly, they also form the highest frequency of a single prehistoric monument in Ireland and over the years have generated much interest and interpretation of their function. Current available dates suggest that the tradition of building and using burnt mounds spans most of the early, middle and late Bronze Age (although there would appear to be a concentration of use in the middle Bronze Age). In Ireland, early literary accounts of the use of troughs for cooking purposes have been cited as evidence that burnt mounds were common as late as the 16th century AD (O' Drisceoil, 1988). There are seventeen recorded *fulachta fiadh* in the Co. Wicklow inventory (Grogan & Kilfeather 1997). Between 1980 and 2003 seventy three licensed excavations have been undertaken on burnt mounds, spreads and *fulachta fiadh* in Wicklow (Bennett, 1987-2005).

The distribution of burnt mounds in Co. Wicklow tends to be concentrated in the east, a narrow plain based on Paleozoic rocks and adjacent to streams or lakes. The glacial drift of sandstones and flagstones are favoured by those in the construction of *fulachta fiadh*, however, gley soils contribute to poor drainage, providing a possible explanation for the lack of other Bronze Age sites (Condit, 1990, 20). Of the sixteen *fulachta fiadh* detailed in the Archaeological Inventory of Co. Wicklow, three groups are located at the foot of Djouce Mountain in proximity to the Vartry River or other streams running into the Vartry Reservoir (Grogan and Kilfeather, 1997). These represent the farthest known inland sites in Wicklow. Unfortunately the majority of excavated evidence for *fulachta fiadh* is derived from N11 improvement schemes which have, unavoidably, produced a bias for the overall distribution of this monument in the landscape. However, the recorded *fulachta fiadh* in Co. Wicklow are located in the east lowlands of the county with a few outliers, such as at Ballyremon Commons, lining the base of the mountains. Approximately thirty two out of seventy three excavations occurred within proximity and clear sight of a river/stream and were evidently waterlogged, whilst the majority of sites are located within 5km of the coast (along the N11 corridor).

In the townlands of Ballyremon Commons (WI007:047, 048; WI012:005, 006; licence ref. 0219122) and Sraghmore (WI012:062:2, 3, 4) *fulachta fiadh* are grouped in close vicinity, while at Glasnamullan (WI012:054, 055, 056) a trio of sites may also represent a small complex. This might suggest that when one *fulacht* became unusable, another was simply dug nearby. It might also indicate that the locations were specifically chosen and visited over many years or even over several generations. Salvage excavation and surveying was undertaken by Victor Buckley in 1983 (licence ref. 0219122) at Ballyremon Commons in north Co. Wicklow, producing a date of c. 1400 BC. Ballyremon Commons is surrounded by raised bog (Calary Bog to the east). Excavation revealed a sub-rectangular clay lined pit, in which a large quartzite slab and a trio of stakes (perhaps forming a tripod construction within the pit) were found. One of the stakes yielded a middle Bronze Age date for the use of the pit.

Lying 15 – 17 km to the northwest of this scheme, this area has been interpreted as encapsulating a complete Bronze Age settlement pattern (habitation on the higher, better drained bog island and *fulachta fiadh* at the wetland margin and burial monuments in a prominent, but isolated position). Furthermore Buckley suggested that the use of quartzite during the heating process resulted in higher resistance and

less cracking, and as a result less shattered debris would be created. This may explain the previously low numbers of known *fulachta fiadh* in Co. Wicklow (Buckley 1998, 112).

Two burnt mounds and one large *fulacht fiadh* were revealed in 1993 in the townland of Killincarrig (93E0001 and ext.: Bennett 1994) c. 1km northwest of Charlesland, where a series of similar sites were exposed. Unusually Charlesland 1 (03E0592: Bennett 2004), a burnt mound with four troughs, unearthed wooden pipes, which were interpreted as a musical instrument, at the base of a wood and wattle lined trough. This group of sites is located less than 1km inland from the coast. A large number of *fulachta fiadh* has been revealed along a section of the realigned N11 in the area south of Cullenmore townland and north of Ashford village. The most notable complex was revealed in the townland of Rathmore (01E0471: Bennett 2002) between Kilmartin and Inchanappa, where twenty four burnt mounds were excavated as part of the N11 Newtownmountkennedy to Ballynabarney Road Improvement, over a stretch of landscape running c. 800m. The majority of the mounds found at Rathmore were each associated with a single rectangular trough, returning dates from the Bronze Age c.2000 – 500 BC. There was a collection of high status finds from these sites, including flint scrapers, flint flakes, a flint knife and a possible fragment of Bronze Age gold ring money. Three burnt mounds and one small spread of burnt mound material were excavated at the site at Inchanappa South (04E1717: Bennett 2005). The sites were located in the small valley of a tributary of the Vartry River, an area prone to being quite wet.

Newly discovered archaeological sites, uncovered as a result of the construction of the N11 Newtownmountkennedy to Ballynabarney Road Improvement included a number of burnt mounds, or *fulachta fiadh* (e.g. in Ballyhenry and Inchanappa).

Sixty three sites were identified and excavated along the route of the N11 Rathnew to Arklow Road Improvement, of which thirty two have been interpreted as representing the remains of burnt mounds, *fulachta fiadh* and/or shallow burnt spreads. Five sites produced dates from the Neolithic Period – Sites A022/021, 050, 053, 057 and 064. Three sites produced dates representing late Neolithic-early Bronze Age activity – Site A022/024, 050 and 063. The majority of the sites, however, produced dates from the early and middle Bronze Age. The early Bronze Age activity was recorded at Sites A022/017, 027, 032, 034, 035, 041, 044, 050, 054, 060, 061, 063, 071, 073 and 074. Three sites returned dates from the cusp of the early / middle Bronze Age: Sites A022/022, A022/038 and A022/053. Middle Bronze Age activity was identified at Sites A022/017, 020, 026, 043, 044, 045, 046, 052, 053 and 063.

Five burnt mound sites showed evidence of activity across a number of periods. Site A022/017 in Ballinaskea, Site A022/044 in Ballyclogh North and Site A022/063 in Roscath show evidence for both early Bronze Age and middle Bronze Age activity. Site A022/050 in Kilmurry North produced Neolithic and late Neolithic-early Bronze Age dates, while Site A022/053 Ballyvaltron had a Neolithic and middle Bronze Age date. The complex of mounds and spreads at Coolacork (Sites A022/061 and A022/062) and Roscath (Site A022/063) had the most significant date range with dates from the late Neolithic, early and middle Bronze Age and late Bronze Age. This was the only burnt mound site to produce a late Bronze Age date 1210 – 930 BC and the range of dates clearly shows a continuation of settlement in this area. Nine sites from the scheme were undated.

There are six distinct groups or complexes of burnt mounds along the N11 Rathnew to Arklow Road Improvement comprising 26 sites in total, whereas the rest of the six burnt mounds excavated remain in our knowledge as isolated phenomena. The

range of dating for these sites indicates a sequence and continuation of activity from the Neolithic through to the Bronze Age.

The first complex was identified in Ballinaskea where Site A022/017 returned dates between 1430 – 1120 BC and 2210 – 1970 BC. This is associated with four nearby examples, two of which were previously excavated in association with the N11 Arklow By-pass and two RMP sites. These were located less than 300m away in Johnston North (97E207, 97E0252, WI041-004, WI041-007,).

Five sites ranging in date from the late Neolithic to the middle Bronze Age were identified in Scratenagh – Sites A022/021, 022, 023, 024 and 026. These range in date from 2630 – 2350 BC and 1381 – 1001 BC, with Site A022/023 dating to the Iron Age (390 – 200 BC). While Site A022/023 produced an Iron Age date, it is interpreted that the burnt mound is Bronze Age and that the dated feature was not associated.

In Ballynapark there were three sites – Sites A022/035, 037 and 038 – with a further two sites nearby in Cloghoge – Sites A022/039 and A022/081 and one nearby in Cranagh Site A022/032. This complex of sites is dated to the early and middle Bronze Age ranging in date from 2130 – 1880 BC and 1520 – 1390 BC.

Similar date ranges were recorded for six sites in Ballyclogh North and South – Sites A022/040, 041, 043, 044, 045 and 046 ranging in date from 2020 – 1770 BC and 1320 – 1000 BC.

Five sites were identified in Kilmurry South (Sites A022/047 and 048), Kilmurry North (Site A022/050) and Ballyvarton (Sites A022/052 and 053). This complex contained some of the earliest dated burnt mounds on the scheme ranging from the Neolithic to the middle Bronze Age with dates from 3959 – 3695 BC and 1270 – 1010 BC.

The final complex was centred on the townlands of Coolacork (Sites A022/061 and A022/062) and Roscath (Site A022/063) which have already been referred to above. These ranged in date from 2460 – 2040 BC and 1210 – 930 BC.

The burnt mound sites from the N11 Rathnew to Arklow Road Improvement provide evidence of continuity of settlement from the Neolithic through the Bronze Age with a clear peak of activity in the early and middle Bronze Age. This continuity of settlement is also evidenced by the number of complexes or groups of sites across the scheme, all of which have produced a range of dates.

### **2.2.2 Site Specific Archaeological Landscape**

This site has been provisionally dated to the Bronze Age. Environmental samples were inadequate for radiocarbon dating analysis however two simple flint flakes recovered from burnt mound material (C3) are typologically commonly associated with the Bronze Age (Sternke, Appendix 2.1). The site was situated in low lying area where burnt mound sites may be expected.

To the immediate south of Ballyclogh South in Cloghoge, 0.4km to the south of this site was Site A022/081, a burnt mound. Further south in Cloghoge and adjacent townlands Ballynapark and Cranagh, there was a complex of five burnt mounds. Sites A022/039 and A022/037 were both undated but lithics associated with the Bronze Age were found at the former. Between these sites was Site A022/038 which also contained a burnt mound and several pits and was dated to the early/middle Bronze Age. Approximately 1km to the south lithic analysis at burnt mound Site A022/035 dated one phase of activity to the Neolithic, probably the middle Neolithic.

Radiocarbon dating indicted an early Bronze Age date for the remainder of the activity on site. Site A022/032, 1.1km to the south consisted of a burnt mound dated to the early Bronze Age. Two possible pit burials dated to the middle Bronze Age were recorded at Sites A022/033 and A022/034, also in Cranagh.

To the north of Site A022/040 seven further burnt mound sites were excavated in Ballyclogh North and South. No suitable material for dating was recovered from Site A022/042 but five of the remaining sites – A022/041, 043, 044, 045, and 046 ranged in date from 2020–1770 BC and 1320–1000 BC, indicating early to middle Bronze Age activity.

Further north two undated burnt mounds were excavated at Kilmurry South. These were Site A022/047 and A022/048, which has been dated to the late Neolithic/early Bronze Age through analysis of lithics.

Only one known RMP site was located in the vicinity of the site; WI036:016, which is the site of an enclosure in Ballinaclea townland. A mill stone and a possible mace head were found by a landowner in the vicinity of Site A022/035.

### 2.2.3 Typological Background of Burnt Mounds

This site revealed archaeology related to burnt mound activity. Burnt mound sites (also commonly referred to as *fulacht fiadh*) are one of the most common field monuments found in the Irish landscape. The last published survey (Power et al. 1997), carried out over a decade ago, recorded over 7,000 burnt mound sites and in excess of 1,000 sites have been excavated in recent years through development led archaeological investigations. In spite of this no clear understanding of the precise function of these sites has been forthcoming.

Burnt mound sites are typically located in areas where there is a readily available water source, often in proximity to a river or stream or in places with a high water table. In the field burnt mounds may be identified as charcoal-rich mounds or spreads of heat shattered stones, however, in many cases the sites have been disturbed by later agricultural activity and are no longer visible on the field surface. Nevertheless even disturbed spreads of burnt mound material often preserves the underlying associated features, such as troughs, pits and gullies, intact.

Ó Néill (2003–2004, 82) has aptly identified these sites as the apparatus and by-product of pyrolithic technology. This technology involved the heating or boiling of water by placing fire-heated stones into troughs of water. Small shallow round-bottomed pits, generally referred to as pot boiler pits or roasting pits, are often associated with burnt mound sites. The purpose of these pits remains unclear. Occasionally large pits are also identified and may have acted as wells or cisterns. Linear gullies may extend across the site, often linked to troughs and pits, and demonstrate a concern with onsite water management. Post and stakeholes are often found on burnt mound sites and these may represent the remains of small structures or wind breakers.

Burnt mound sites are principally Bronze Age monuments and reach their pinnacle of use in the middle/late Bronze Age (Brindley *et al.* 1989–90; Corlett 1997). Earlier sites, such as Enniscoffey Co. Westmeath (Grogan *et al.* 2007, 96), have been dated to the Neolithic and later sites, such as Peter Street, Co. Waterford (Walsh, 1990, 47), have been dated to the medieval period. Thus although burnt mound sites generally form a components of the Bronze Age landscape, the use of pyrolithic technology has a long history in Ireland.

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Although there is a general consensus that burnt mound sites are the result of pyrolithic technology for the heating or boiling of water, the precise function of these sites has, to date, not been agreed upon. Several theories have been proposed but no single theory has received unanimous support. The most enduring theory is that burnt mounds sites were used as cooking sites. O'Kelly (1954) and Lawless (1990) have demonstrated how joints of meat could be efficiently cooked in trough of boiling water. The use of burnt mound sites for bathing or as saunas has been suggested as an alternative function (Lucas 1965, Barfield and Hodder 1987, O' Drisceoil 1988). This proposal is largely influenced by references in the early Irish literature to sites of a similar character and is very difficult to prove, or disprove. Others, such as Jeffrey (1991), argue that they may have been centres of textile production for the fulling or dyeing of cloth. More recent demonstrations by Quinn and Moore (2007) have shown that troughs could have been used for brewing, however, this theory has been criticised by leading Irish environmentalists due to the absence of cereal remains from most burnt mound sites (McClatchie et al. 2007).

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## 3 METHODOLOGY

### 3.1 Introduction

The excavation at Site A022/040, Ballyclogh South was undertaken as part of archaeological mitigation for the N11 Rathnew to Arklow Road Improvement in the townland of Ballinaskea.

### 3.2 Methodology

The topsoil was reduced to the interface between natural and topsoil using a 20 tonne excavator machine equipped with a flat toothless bucket under strict archaeological supervision. The remaining topsoil was removed by the archaeological team with the use of shovels, hoes and trowels in order to expose and identify the archaeological remains. A site grid was set up at 10m intervals and was subsequently calibrated to the national grid using GPS survey equipment.

All features were subsequently fully excavated by hand and recorded using the single context recording system with plans and sections being produced at a scale of 1:50, 1:20 or 1:10 as appropriate.

A complete photographic record was maintained throughout the excavation. Digital photographs were taken of all features and of work in progress.

The lithics uncovered on site were dealt with in accordance with the guidelines as issued by the NMI. The archive are currently stored in IAC's facility in Lismore, Co Waterford and will ultimately be deposited with the National Museum of Ireland

The only form of dating of the site involved lithic analysis through typological study.

### 3.3 Report Production Methodology

#### *Groups and subgroups*

For the purpose of this report the archaeological remains are described by way of sub-groups (stratigraphically connected contexts, generally derived from a defined and stratigraphically independent archaeological action or sequence of actions). Groups define related sub-groups. Phasing of the site is based on the grouping of the groups, and this is described in the discussion (Section 5).

In the following text, the author has used three types of brackets:

{ } = These enclose Subgroup numbers.

( ) = These enclose Deposit/Fill numbers

[ ] = These enclose both Cut and Masonry Structure numbers

The author has allocated Subgroup numbers starting from {1000} to avoid confusion with existing context numbers.

Example:

- Subgroup {1400} consists of Cut [x] and fills (y) and (z)
- Subgroup {1456} consists of Cut [a] and fill (b), Cut [c] and fill (d), Cut [e] and fill (f). Cuts [a], [c], and [e] have been shown to be related and can therefore be placed in one collective Subgroup.

All sites on the scheme have been referenced in the text with their site code and townland. A full list of sites from the scheme is available in Appendix 3.

## 4 EXCAVATION RESULTS

### 4.1 GROUP I: Natural Drift Geology

#### Contexts:

C	Type	Fill of	Filled by	Depth (m)	Length (m)	Width (m)	Description	Interpretation	Area
C2	Subsoil	-	-	-	-	-	Compact yellow, grey, clay which contained a moderate amount of sub-rounded stone inclusions.	Subsoil	Site

#### Finds:

None

#### Interpretation:

The subsoil was cut or covered by all archaeological features

### GROUP I Discussion: Natural Drift Geology

Group	Subgroup	Subgroup Type	Period by Finds/Stratigraphy	Period by Interpretation	Group Interpretation
1	1001	Subsoil	N/A	N/A	Subsoil

Subgroup {1001} comprised natural subsoil which was consistent across the site. The subsoil consisted of compact yellow/grey clay which contained a moderate amount of sub-rounded stone inclusions.

### 4.2 GROUP II: Prehistoric Activity

#### 4.2.1 Subgroup {1002} Burnt Mound

##### Contexts

C	Type	Fill of	Filled by	Depth (m)	Length (m)	Width (m)	Description	Interpretation
C3	Spread			0.26	10.75	10.5	Circular in shape. Loose, grey/black, sandy silt. It contained frequent small sub-angular stones and frequent flecks of charcoal.	Burnt mound

#### Finds:

Find #	Context #	Material	Period	Description
E3226/A022/040:C3:1-2	C3	Flint	Bronze Age	Flint flakes

#### Interpretation:

This subgroup consisted of the remains of burnt mound (**C3**) which had been levelled by later agricultural activity. The spread consisted of a grey/black fill of sandy silt that contained small sub-angular stone inclusions and frequent flecks of charcoal (Figures 4 and 5; Plates 1-3). Burnt mound (**C3**) can be interpreted as the waste from the process of heating water within a trough. No trough was identified on the site but it is possible that it was located outside of the land take for the scheme. Two unmodified flint flakes were recovered from (**C3**). They showed the use of bipolar-on-an-anvil percussion technology suggesting a Bronze Age date (Sternke, Appendix 2.1).

#### 4.2.2 Subgroup: {1003} Pit

##### Contexts:

C	Type	Fill of	Filled by	Depth (m)	Length (m)	Width (m)	Description	Interpretation
C7	Fill	C7		0.08	0.8	0.35	Loose, dark brown, sandy silt. It contained frequent flecks of charcoal and occasional flecks of wood.	Fill of pit

C8	Cut		C8	0.08	0.8	0.35	An oval cut in shape. The break of slope at the top was sharp and the corners were concave. The sides were vertical and the break at the bottom was sharp. The base consisted of three small holes; the north was flat while the middle and the south were concave.	Cut of pit
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**Finds:**

None

**Interpretation:**

This subgroup represents an oval pit to the west of burnt mound (C3) (Figures 4 and 5; Plates 4 and 6). The base of the pit contained three shallow depressions (Plate 4) which could have represented post or stakeholes, possibly part of a temporary structure associated with the workings of the site. The pit contained a single fill (C7) which was a loose, dark brown sandy silt. It had frequent flecks of charcoal and occasional fragments of wood and resembled burnt mound material (C3), which may have been washed in after the posts were removed from their settings.

**4.2.3 Subgroup {1004} Shallow Burnt Spread**

**Contexts:**

C	Type	Fill of	Filled by	Depth (m)	Length (m)	Width (m)	Description	Interpretation
C6	Spread			0.03	5.0	2.4	Oval in shape. Loose, mid grey/ black fill of sandy silt. It had frequent flecks of charcoal and occasional small stone inclusions.	Burnt Mound Material

**Finds:**

None

**Interpretation:**

Subgroup {1004} represents a very shallow burnt spread north of burnt mound (C3) (Plate 5). The spread, (C6), consisted of a loose, mid grey/black deposit of sandy silt. It had frequent flecks of charcoal and occasional small stone inclusions. This feature was probably associated with burnt mound (C3).

**GROUP II Discussion: Prehistoric Activity**

Group	Subgroup	Subgroup Type	Period by Finds/Stratigraphy	Period by Interpretation	Group Interpretation
2	1002	Burnt mound	N/A	Probably Bronze Age	Prehistoric activity
2	1003	Pit	N/A	Probably Bronze Age	Prehistoric activity
2	1004	Shallow burnt spread	N/A	Probably Bronze Age	Prehistoric activity

It is tentatively assumed that this site was in use during the Bronze Age when such sites were widespread. These sites were characterised by a mound of fire-cracked stone and charcoal with associated pits or troughs. The firing debris was cleaned out of a trough after each use and this produced the burnt mound, Subgroup {1002}.

It is possible that an associated trough was located beyond the limit of excavation or that it was removed during later agricultural activity. This type of site could have been used for cooking, bathing, dyeing or industrial activity as the primary purpose of these sites was to boil water. The site was adjacent to a stream which could have provided water to the site. Environmental samples taken from context (C3) were inadequate for species identification of charcoal or radiocarbon dating analysis. Two



flint flakes recovered from (C3) have been identified as probably Bronze Age (Sternke, Appendix 2.1).

### 4.3 GROUP III: Topsoil

#### 4.3.1 Subgroup {1005} Topsoil

##### Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
1	Site	N/A	N/A	Topsoil	Loose, mid-brown, clay silt that had occasional small and medium stones.

**Finds:** None

##### Interpretation:

Topsoil

##### GROUP III Discussion: Topsoil

Group	Subgroup	Subgroup Type	Period by Finds/Stratigraphy	Period by Interpretation	Group Interpretation
3	1005	Topsoil			Topsoil

Topsoil {1005} sealed all of the archaeological features on the site and the natural geology. It had a depth of 0.40m. The topsoil was removed by a mechanical excavator equipped with a flat, toothless bucket under strict archaeological supervision.

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## 5 DISCUSSION

### 5.1 Physical Setting

The geology of the region surrounding Ballyclogh South consists of rolling lowland composed of a glacial drift mixture. On either side of Wicklow uplands Ordovician shales and slates form a jagged edge to the rounded granite (Alaen, F.H.A. 1997). The soils of the county have developed on glacial materials deposited by successive glaciations. Generally, the soils in the county are fertile except for the peaty podzols, notable in the central upland areas.

The predominant soil at this site was compact yellow / grey, clay which contained a moderate amount of sub-rounded stone inclusions. The profile was characterised by loose, brown, clayey silt with occasional small and medium stones. The surface horizon went to a depth of c. 0.60m. Below this level, the parent material consists of a grey / brown, gravelly loam which tends to be firm *in situ* and friable *ex situ*.

The main focus of the site at Ballyclogh South occupies a low-lying area sheltered at the south and west by elevated rock outcrops and overlooking a low wetland (turlough) to the north.

### 5.2 Summary of the Site Specific Archaeological Landscape

To the south of this site in Ballyclogh South, a portion of a burnt mound site was recorded at Site A022/081 in Cloghoge and was interpreted as being Bronze Age in date. Further south in Cloghoge and adjacent townlands Ballynapark and Cranagh, there was a complex of five burnt mounds: Sites A022/032, A022/035, A022/037, A022/038 and A022/039. These were broadly dated to between the middle Neolithic and the middle Bronze Age. Two possible middle Bronze Age pit burials were recorded at Sites A022/033 and A022/034, also in Cranagh.

To the north of the site six further burnt mound sites were excavated in Ballyclogh North and South. No suitable material for dating was recovered from Site A022/042 but the remaining five sites – A022/041, 043, 044, 045, and 046 ranged in date from 2020–1770 BC and 1320–1000 BC, indicating early to middle Bronze Age activity.

Further north two more undated burnt mounds were excavated at Kilmurry South (Sites A022/047 and A022/048).

### 5.3 Summary of Excavation Results

Three features were identified on this site: a burnt mound (C3), a burnt spread (C6), and a single pit feature [C8].

The burnt mound (C3) had been levelled by later agricultural activity. It can be interpreted as discarded waste from the process of heating water within a trough. No associated trough was identified although one may be located outside of the area excavated. It is also possible that a portable trough may have been used, possibly made of leather and wood, which would leave no archaeological trace.

Pit [C8] was situated to the west of burnt mound (C3). The base consisted of three shallow depressions which may have represented the remains of postholes. The pit was filled with material (C7) similar to the burnt mound. Burnt spread (C6) was situated to the north of burnt mound (C3). The burnt spread feature (C6) was likely associated with the burnt mound (C3).

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#### 5.4 Summary of Lithic Analysis

Two flint pieces were recovered from (C3). These were both unmodified flint flakes that had been formed by the use of a bipolar and simple direct percussion technology the former of which is associated with Bronze Age activity (Sternke, Appendix 2.1). Environmental samples taken from context (C3) were inadequate for species identification of charcoal or radiocarbon dating analysis.

#### 5.5 Discussion

The combined features uncovered at this site have been interpreted as a burnt mound/*fulacht fiadh* site type. It has been tentatively assumed that the site was used at some point during the Bronze Age, when such sites were widespread.

*Fulachta fiadh*/burnt mounds are an integral part of the prehistoric landscape in Ireland, providing significant evidence of activity with little artefact deposition. *Fulachta fiadh*/burnt mounds also form the highest frequency of a single prehistoric monument in Ireland and over the years have generated much interest and experimentation interpreting their function.

The results of the excavation are not unexpected given the nature of the physical landscape and the archaeological landscape which shows several complexes of typologically similar sites to the north and the south. While the site is undated, analysis of lithics from the burnt mound suggests a Bronze Age date which compliments the surrounding archaeological landscape.

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## 6 BIBLIOGRAPHY

Barfield, L H 1991 *Hot stones: hot food or hot baths? Burnt mounds and hot stone technology*, Sandwell Metropolitan Borough Council.

Barfield, L H and Hodder, M A 1987 *Burnt mounds as saunas and the prehistory of bathing?*, *Antiquity* 61.

Bennett, I (ed.) *Excavations 1994: Summary Accounts of Archaeological Excavations in Ireland*. Bray. Wordwell.

Bennett, I (ed.) *Excavations 1995: Summary Accounts of Archaeological Excavations in Ireland*. Bray. Wordwell.

Bennett, I (ed.) *Excavations 1997: Summary Accounts of Archaeological Excavations in Ireland*. Bray. Wordwell.

Bennett, I (ed.) *Excavations 1998: Summary Accounts of Archaeological Excavations in Ireland*. Bray. Wordwell.

Bennett, I (ed.) *Excavations 2001: Summary Accounts of Archaeological Excavations in Ireland*. Bray. Wordwell.

Bennett, I (ed.) *Excavations 2002: Summary Accounts of Archaeological Excavations in Ireland*. Bray. Wordwell.

Bennett, I (ed.) *Excavations 2003: Summary Accounts of Archaeological Excavations in Ireland*. Bray. Wordwell.

Bennett, I (ed.) *Excavations 2004: Summary Accounts of Archaeological Excavations in Ireland*. Bray. Wordwell.

Bennett, I (ed.) *Excavations 2005: Summary Accounts of Archaeological Excavations in Ireland*. Bray. Wordwell.

Brindley, A L *et al.* 1989–90 Radiocarbon dates from Irish *fulachta fiadh* and other burnt mounds, *Journal of Irish Archaeology* (5), 25–33.

Brindley, A L and Lanting, J N 1990 The Dating of *Fulachta Fiadh* in V Buckley (ed.), *Burnt Offerings*, Wordwell Ltd, Bray.

Buckley, V M 1998 The excavation of a Bronze Age *fulachta fiadh* at Ballyremon Commons, Co. Wicklow in C Manning (ed.), *Dublin and beyond the Pale*, 111–112. Dublin.

Condit, T 1990 Preliminary observations on the distribution of *fulachta fiadh* in County Kilkenny in V M Buckley (ed.), *Burnt Offerings: International Contributions to Burnt Mound Archaeology*, 18–22. Wordwell Ltd, Dublin.

Corlett, C 1997 A *fulacht fiadh* site at Moynagh Lough, County Meath, *Ríocht na Mídhe*, 9(3), 46–49.

DAHGI (1999a) *Framework & Principles for the Protection of Archaeological Heritage*. Department of Arts, Heritage, Gaeltacht and the Islands.

DOEHLG 2004 An Introduction to the Architectural Heritage of County Wicklow  
*National Inventory of Architectural Heritage*.

Earthsound Archaeological Geophysics 2005 *N11 Rathnew to Arklow Road Improvement. A Geophysical Investigation at Test Area 6: A022/006*.

Grogan, E and Kilfeather, A 1997 *Archaeological Inventory of County Wicklow*, OPW The Stationery Office, Dublin.

Grogan, E, O'Donnell, L and Johnston, P 2007 *The Bronze Age Landscapes of the Pipeline to the West*. Margaret Gowen and Co. Ltd and Wordwell Ltd, Bray.

Halcrow Barry Ltd., Wicklow County Council 2004 *N11 Rathnew to Arklow Road Improvement Environmental Impact Statement*.

Harbison, P 1972 (and later editions) *Guide to the national monuments of Ireland*, Gill and Macmillan, Dublin.

Jeffrey, S 1991 Burnt mounds, fulling and early textiles? In M Hodder and L Barfield (eds), *Burnt mounds and hot stone technology*, 97-102. Sandwell Metropolitan Borough Council.

Joyce, P W 1923 *Irish Local Names Explained*, Roberts Books, Dublin.

Lawless, C 1990 A *Fulacht Fiadh* Bronze Age cooking experiment at Turlough, Castlebar, *Cathair na Mart*, (10), 1-10.

Lewis, S 1937 *A topographical dictionary of Ireland*, 2 Vols, Lewis and Co, London.

Lucas, A T 1965 Washing and bathing in ancient Ireland, *JRSAI*, (96), 65-114.

McClatchie, M, Brewer, A, Dillon, M, Johnston, P, Lyons, S, Monk, M, Stewart, K and S Timpany 2007 Brewing and *fulachta fiadh*. *Archaeology Ireland* 21(4), 46.

McLoughlin, G 2005 Archaeological Assessment for A022/006 Test Area 6: Ballyclogh South, Ballyclogh North and Togher. Unpublished report, Irish Archaeological Consultancy Ltd.

NRA 2005 Archaeological Guidelines for Reporting on Constraint, Route Selection, Environmental Impact Assessment on Archaeological Aspects of NRA Road Schemes. National Roads Authority.

O' Drisceoil, D 1988 Burnt Mounds: Cooking or Bathing? *Antiquity* 62.

O' Kelly, M J 1954 Excavations and experiments in ancient Irish cooking places? in *Journal of the Royal Society of Antiquities in Ireland* 95.

Ó Néill, J 2003–2004 Lapidibus in igne calefactis coquebatur: The historical burnt mound 'tradition', *The Journal of Irish Archaeology* (12–13), 79–85.

Power, D et al. 1997 *Archaeological inventory of County Cork. Volume 3: Mid Cork*, The Office of Public Works, Dublin.

---

Power, P 1994 A Survey: Some Wicklow Maps 1500-1888 in K Hannigan and W Nolan (eds), *Wicklow: History and Society*, Geography Publications, Dublin.

Quinn, B and Moore, D 2007 Ale, brewing and *fulachta fiadh*, *Archaeology Ireland* (21) (3), 8–10.

Reilly, E 2000 *Archaeological Appraisal: Rathnew to Arklow Feeder Mains Pipeline, Co Wicklow*. Unpublished report, Margaret Gowen & Co Ltd., Dublin.

Stephenson, A 2004 Preliminary report of excavations in Killadreenan townland in advance of the N11 Newtownmountkennedy to Ballynabarney Road Improvement. Unpublished report, Archaeological Development Services Ltd.

Stout, G 1994 Wicklow's Prehistoric Landscape. In K Hannigan and W Nolan (eds) *Wicklow: History and Society*, 1-40. Geography Publications, Dublin.

Waddell, J 1998 *The prehistoric archaeology of Ireland*, Dublin, 14-24.

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

Wicklow County Council 1999 County Development Plan.

### **Other Sources**

Record of Monuments and Places (RMP), The Department of the Environment, Heritage and Local Government, 7 Ely Place Upper, Dublin 2.

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

## APPENDIX 1: CATALOGUE OF PRIMARY DATA

### Appendix 1.1 List of Contexts

C	Type	Fill of	Filled with	Definition	Group	Subgroup {XXX}	Subgroup summary	Depth (m)	Length (m)	Width (m)
C1	Topsoil				3	1006	Topsoil	-	-	-
C2	Subsoil				1	1001	Subsoil	-	-	-
C3	Spread			Burnt mound	2	1002	Burnt mound	0.26	10.75	10.5
C4	N/A									
C5	N/A									
C6	Spread			Spread of burnt material	2	1004	Shallow burnt spread	0.03	5.0	2.4
C7	Fill	C8		Disuse of C8	2	1003	Fill of pit (possible remains of temporary structure)	0.08	0.8	0.35
C8	Cut		C7	Stake imprints	2	1003	Cut of pit (possible remains of temporary structure)	0.08	0.8	0.35

## Appendix 1.2      Artefact Catalogue

C	Find Number	Description and comments	Material
C3	E3226/A022/040:3:1	Flake, unmodified	Flint



## Appendix 1.3 Archive Index

Appendix 16

Archive Index

Project: N11 Rathnew to Arklow Road Improvement		Irish Archaeological Consultancy Ltd	
Site Name: Ballyclogh South			
Ministerial Number: A022/040			
Site director: Yvonne Whitty			
Date: April 2009			
Field Records		Items (quantity)	Comments
Site drawings (plans)		3	
Site sections, profiles, elevations		4	
Other plans, sketches, etc.		-	
Timber drawings		-	
Stone structural drawings		-	
Site diary/note books		-	
Site registers (folders)		6	
Survey/levels data (origin information)		-	
Context sheets		8	
Wood Sheets		-	
Skeleton Sheets		-	
Worked stone sheets		-	
Digital photographs		46	
Photographs (print)		-	
Photographs (slide)		-	
Finds and Environmental Archive			
Flint/chert		2	Flint flakes
Stone artifacts		-	
Pottery (specify periods/typology)		-	
Ceramic Building Material (specify types e.g. daub, tile)		-	
Metal artefacts (specify types - bronze, iron)		-	
Glass		-	
Other find types or special finds (specify)		-	
Human bone (specify type e.g. cremated, skeleton, disarticulated)		-	
Animal bone		-	
Metallurgical waste		-	
Enviro bulk soil (specify no. of samples)		2	
Enviro monolith (specify number of samples and number of tins per sample)		-	
Security copy of archive		-	

IAC

Irish Archaeological Consultancy

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## **APPENDIX 2: SPECIALIST REPORTS**

### **Appendix 2.1: Lithic Report - Dr. Farina Sternke**

## **N11 Rathnew to Arklow Road Improvement**

### **Lithics Finds Report for A022/040 Ballyclogh South**

Dr. Farina Sternke

MA, PhD

Department of Archaeology  
University College Cork

## **Contents**

List of Tables

List of Figures

Introduction

Methodology

Quantification

Provenance

*Condition*

*Technology/Morphology*

*Dating*

Conservation

Comparative Material

Discussion

Bibliography

## **List of Tables**

Table 1 Composition of the lithic assemblage from Ballyclogh South (A022/040)

## **List of Figures and Plates**

Figure 1 Dimension (mm) of the Assemblage Components from Ballyclogh South (A022/040)

## Introduction

Two lithic finds from the archaeological investigations of a Bronze Age site along the route of the N11 Rathnew to Arklow Road Improvement at Ballyclogh South were presented for analysis (Table 1). The finds are associated with the remains of a *fulacht fiadh* and an associated pit.

Find Number	Context	Test Trench	Material	Type	Cortex	Condition	Length (mm)	Width (mm)	Thickn. (mm)	Complete	Retouch
A022/040:3:1	3	E	Flint	Flake	Yes	Patinated	34	28	5	Yes	No
A022/040:3:2	3	B	Flint	Flake	Yes	Patinated	23	21	4	Yes	No

Table 1 Composition of the lithic assemblage from Ballyclogh South (A022/040)

## Methodology

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

## Quantification

The lithics are two worked flints (Table 1).

## Provenance

The artefacts were recovered from the subsoil of Test Trench E and B (Table 1).

### Condition:

The lithics survive in patinated and complete condition. Both flakes display remnants of cortex on their dorsal surfaces.

### Technology/Morphology:

The artefacts represent two unmodified flakes. Flake A022/040:3:2 was produced using a bipolar-on-an-anvil technique on a beach pebble core, while flake A022/040:3:1 appears to have been produced using a simple direct percussion technique on a split pebble.

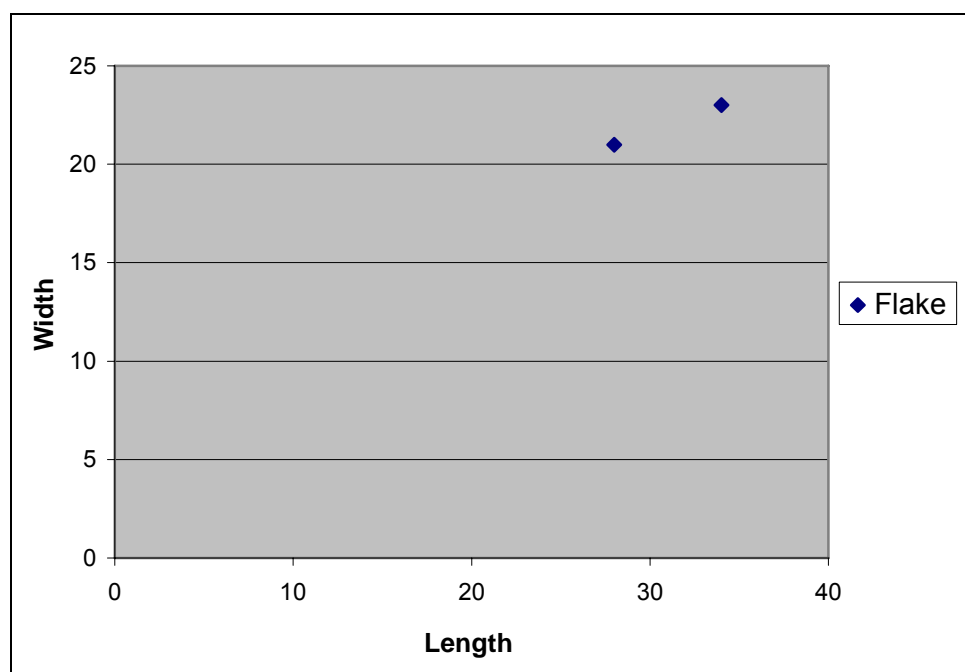


Figure 1 Dimension (mm) of the Assemblage Components from Ballyclogh South (A022/040)

#### Dating:

The artefacts are typologically un-diagnostic, but the use of the bipolar-on-an-anvil technology suggests a Bronze Age date.

#### **Conservation**

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

#### **Comparative Material**

Evidence for Bronze Age activity in Wicklow derives predominantly from burial contexts or high altitude sites (Delaney 2000).

The small size and composition of the assemblage is typical for Irish burnt mounds. Recent excavations in the southeast of Ireland revealed a similar pattern of very small assemblages found in associated *fulachta fiadh*, e.g. the N25 Waterford By-Pass (Woodman 2006). These assemblages are dominated by the use of beach pebble flint which is often worked using the bipolar method (see also O'Hare 2005).

#### **Discussion**

Flint is available in larger and smaller nodules on the south Wicklow coast (Delaney 2000). The use of a bipolar technology is in parts the result of this availability and is distinctly Bronze Age in date. The majority of these flint nodules are rather small pebbles with an average dimension of 7 cm and often only permit the use of a bipolar or scalar technology to efficiently reduce the nodule achieving a maximum outcome, i.e. the largest possible amount of suitable and usable blanks. The result is the

regionally dominant scalar and split pebble bipolar, rather idiosyncratic character of the south-eastern lithic assemblages (O'Hare 2005, 123).

The lithic finds from the archaeological investigations at Ballyclogh South (A022/040) along the route of the N11 Rathnew to Arklow Road Improvement are two simple flakes from a lithic production involving a bipolar and simple direct percussion technology. The former is commonly associated with the Bronze Age. The lithics might be directly associated with activities carried out at the *fulacht fiadh*.

This site makes an important contribution to the hitherto scarce evidence for Bronze Age settlement and related sites along the eastern Wicklow coast.

### **Bibliography**

Delaney, S. 2000. *An Investigation into the Availability of Flint as a Raw Material along the South-East Coast of Ireland and an Examination of a Collection of Flint Artefacts from the same Area*. Unpublished MA Thesis, NUI University College Cork.

Inizan, M.-L., M. Reduron-Ballinger, H. Roche and J. Tixier 1999. *Technology and Terminology of Knapped Stone* 5. CREP, Nanterre.

O'Hare, M. B., 2005. *The Bronze Age Lithics of Ireland*. Unpublished PhD Thesis. Queen's University of Belfast.

Woodman, P.C. 2006. *The significance of the lithic assemblages from the archaeological excavations on the Waterford By-Pass*. Unpublished Report for Headland.

Woodman, P. C., Finlay, N. and E. Anderson 2006. *The Archaeology of a Collection: The Keiller-Knowles Collection of the National Museum of Ireland*. National Museum of Ireland Monograph Series 2. Wordwell, Bray.

## APPENDIX 3: LIST OF N11 RATHNEW TO ARKLOW ROAD IMPROVEMENT SITE NAMES

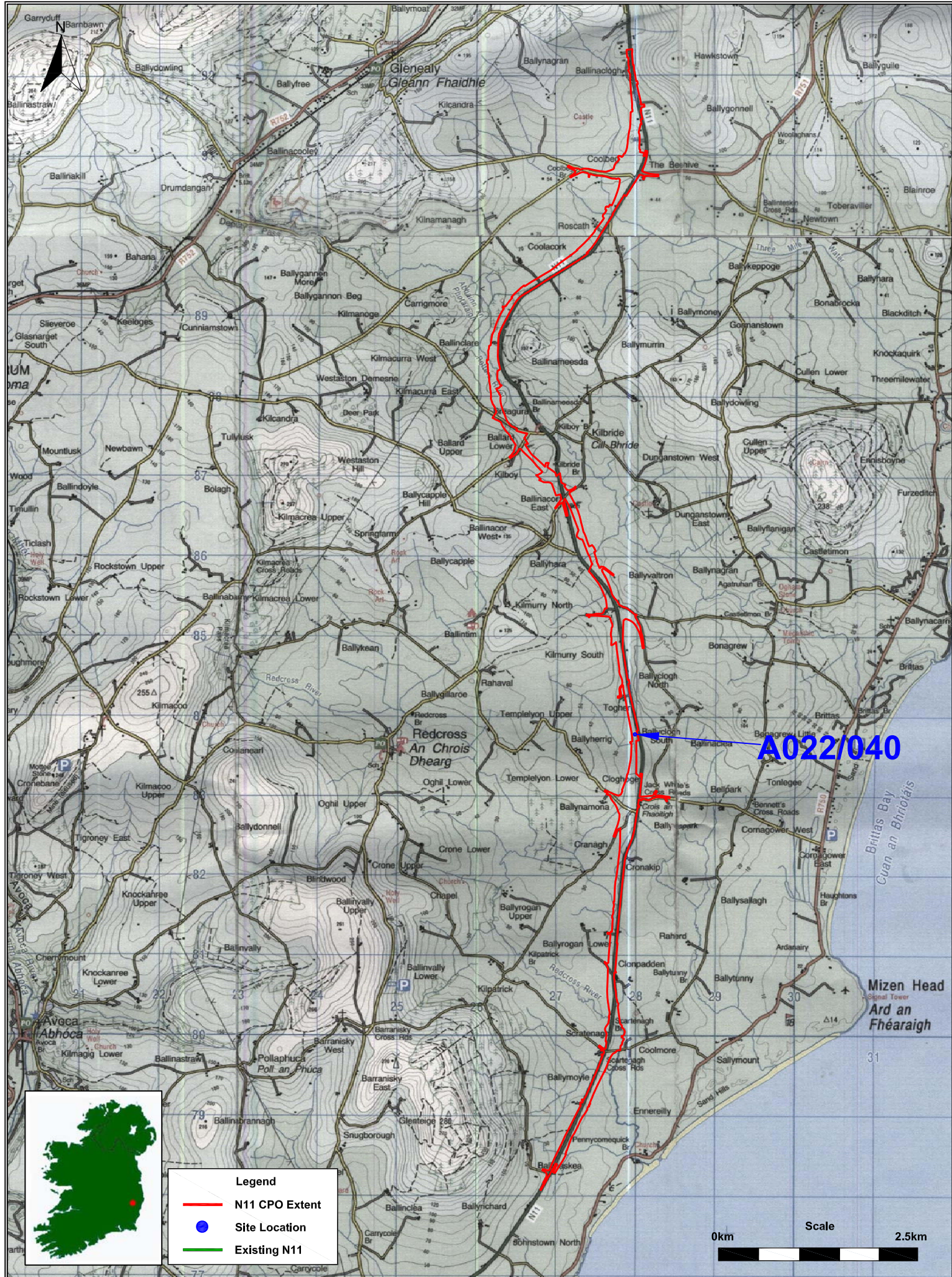
Ministerial Direction No.	Townland	NMS Registration Number	Director
A022/016	Ballinaskea	E3201	Yvonne Whitty
A022/017	Ballinaskea	E3202	Yvonne Whitty
A022/018	Ballinaskea	E3203	Yvonne Whitty
A022/019	Ballymoyle	E3204	Yvonne Whitty
A022/020	Ballymoyle	E3205	Yvonne Whitty
A022/021	Scratenagh	E3206	Goorik Dehaene
A022/022	Scratenagh	E3207	Goorik Dehaene
A022/023	Scratenagh	E3208	Goorik Dehaene
A022/024	Scratenagh	E3209	Goorik Dehaene
A022/025	Scratenagh	E3210	Goorik Dehaene
A022/026	Scratenagh	E3211	Goorik Dehaene
A022/027	Ballyrogan Lower	E3212	Goorik Dehaene
A022/028	Ballyrogan Lower	E3213	Goorik Dehaene
A022/029	Ballyrogan Lower	E3214	Goorik Dehaene
A022/030	Ballyrogan Lower	E3215	Yvonne Whitty
A022/031	Cranagh	E3216	Yvonne Whitty
A022/032	Cranagh	E3217	Ellen O' Carroll
A022/033	Cranagh	E3218	Ellen O' Carroll
A022/034	Cranagh	E3219	Ellen O' Carroll
A022/035	Ballynapark	E3220	Goorik Dehaene
A022/036	Cloghoge	E3221	Ellen O' Carroll
A022/037	Ballynapark	E3222	Ellen O' Carroll
A022/038	Ballynapark	E3223	Goorik Dehaene
A022/039	Cloghoge	E3224	Ellen O' Carroll
A022/040	Ballyclogh South	E3226	Yvonne Whitty
A022/041	Ballyclogh North	E3227	Yvonne Whitty
A022/042	Ballyclogh North	E3228	Yvonne Whitty
A022/043	Ballyclogh North	E3229	Yvonne Whitty
A022/044	Ballyclogh North	E3230	Yvonne Whitty
A022/045	Ballyclogh North	E3231	Yvonne Whitty
A022/046	Ballyclogh North	E3232	Yvonne Whitty
A022/047	Kilmurry South	E3233	Yvonne Whitty
A022/048	Kilmurry South	E3234	Yvonne Whitty
A022/049	Kilmurry South	E3235	Red Tobin
A022/050	Kilmurry North	E3236	Red Tobin
A022/051	Ballyvaltron	E3237	Goorik Dehaene
A022/052	Ballyvaltron	E3238	Goorik Dehaene
A022/053	Ballyvaltron	E3239	Goorik Dehaene
A022/054	Ballinacor East	E3240	Red Tobin
A022/055	Ballinacor East	E3241	Red Tobin
A022/056	Ballinacor East	E3242	Red Tobin
A022/057	Ballard Lower	E3243	Red Tobin
A022/058	Breagura	E3244	Ellen O' Carroll
A022/059	Breagura	E3245	Goorik Dehaene
A022/060	Ballinameesda Upper	E3246	Yvonne Whitty
A022/061	Coolacork	E3247	Yvonne Whitty
A022/062	Coolacork	E3248	Yvonne Whitty
A022/063	Roscath	E3249	Yvonne Whitty
A022/064	Coolbeg	E3250	Goorik Dehaene
A022/065	Coolbeg	E3251	Goorik Dehaene
A022/066	Coolbeg	E3252	Goorik Dehaene



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Ministerial Direction No.	Townland	NMS Registration Number	Director
A022/067	Coolbeg	E3253	Goorik Dehaene
A022/068	Coolbeg	E3254	Goorik Dehaene
A022/069	Coolbeg	E3255	Goorik Dehaene
A022/070	Coolbeg	E3256	Goorik Dehaene
A022/071	Coolbeg	E3257	Goorik Dehaene
A022/072	Coolbeg	E3258	Ellen O' Carroll
A022/073	Coolbeg	E3259	Red Tobin
A022/074	Ballinaclogh	E3260	Goorik Dehaene
A022/075	Ballinaclogh	E3261	Goorik Dehaene
A022/076	Ballinaclogh	E3262	Goorik Dehaene
A022/077	Ballinaclogh	E3263	Ellen O' Carroll
A022/081	Cloghoge	E3225	Ellen O' Carroll





Title: Site A022/039 E3224, site location on OS Discovery Series background

Project: N11 Rathnew to Arklow Road Improvement

Client: Wicklow County Council

Scale: 1:60000

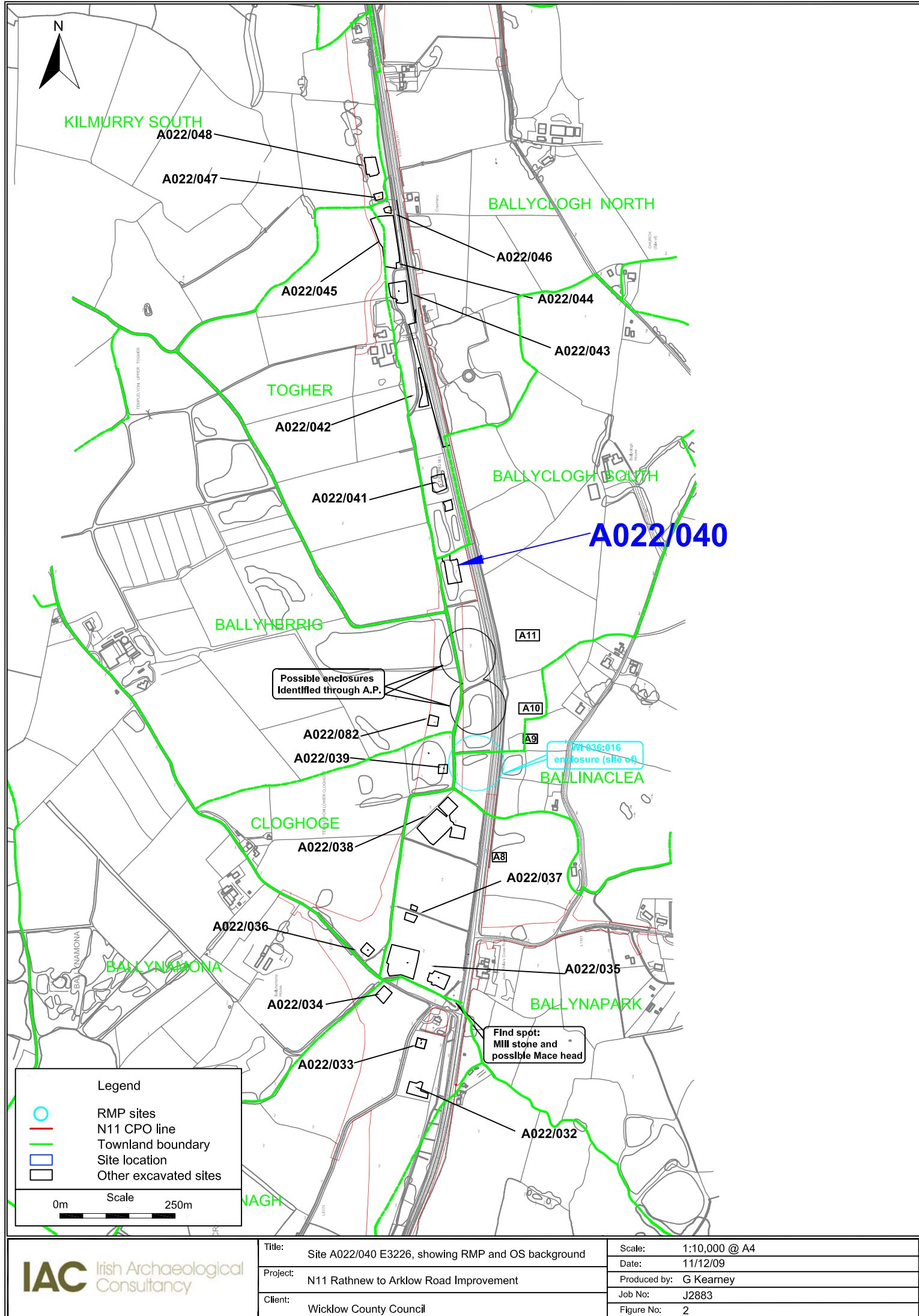
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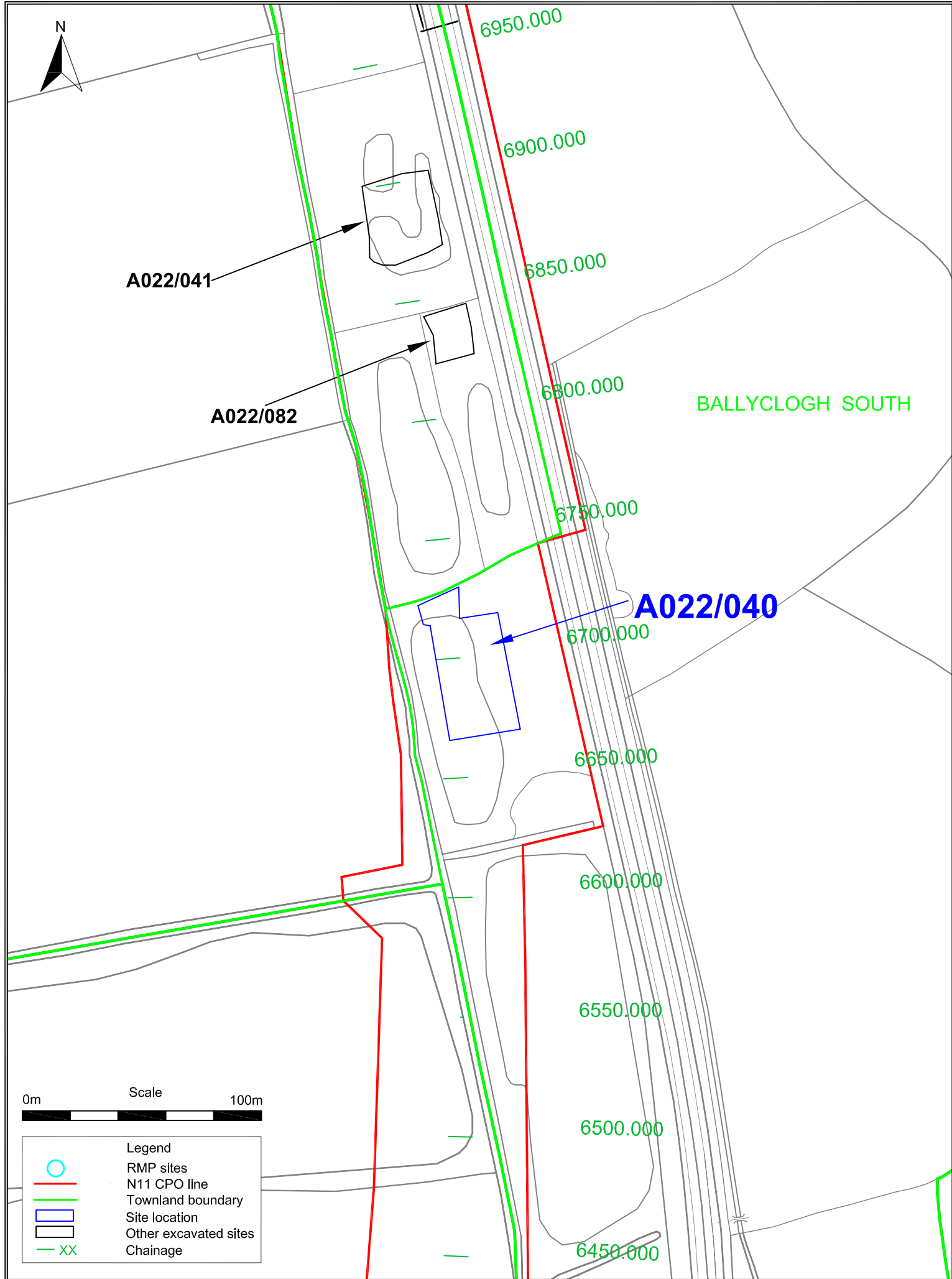
Produced by: P Higgins

Job No: J2283

Figure No: 1









327970,  
183771  
+

C6

327970,  
183751  
+

327990,  
183751  
+

26,738  
x

3A

C3

26,583  
x

2B  
1A  
C8  
1B

2A

26,328  
x

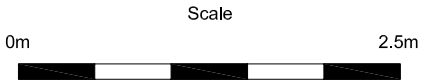
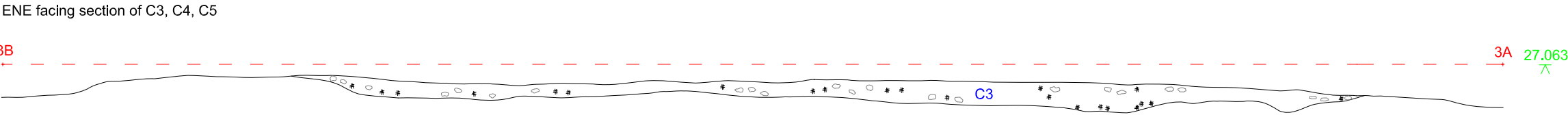
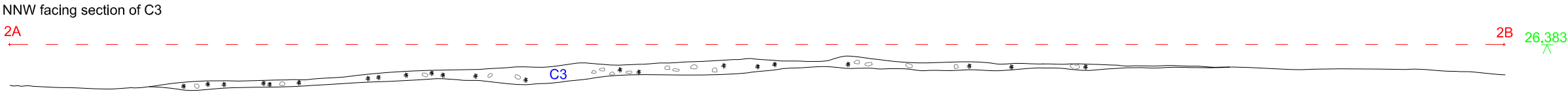
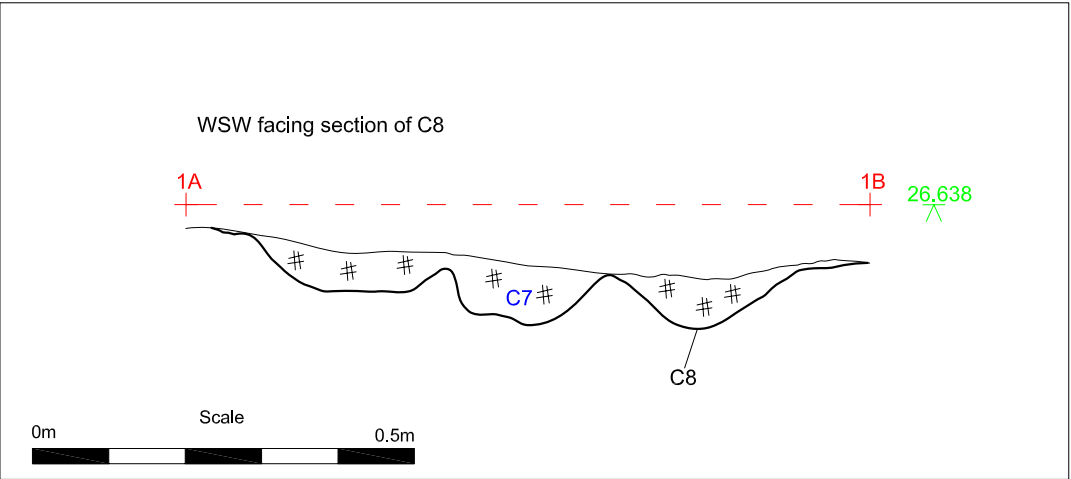
3B

0m 10m

Scale

### Legend

- Break of slope
- - - Sections
- Cxx Cut numbers
- Burnt mound deposits
- xx.xx Levels - metres OD
- + xxxxxx, xxxxxx National Grid Reference



Legend	
Cxx	Cut numbers
Cxx	Fill numbers
○	Stone
#	Charcoal
xx.xx ^	Levels - metres OD

Title: Site A022/040 E3226, Sections through [C8] and (C3)

Project: N11 Rathnew to Arklow Road Improvement

Client: Wicklow County Council

Scale: as shown @A3 Job No: J2283

Date: 16/12/09 Figure No: 5

Produced by: G Kearney

IAC Irish Archaeological  
Consultancy

GROUP III: TOPSOIL

GROUP II:  
PREHISTORIC ACTIVITY

GROUP I: NATURAL  
DRIFT GEOLOGY

CXX = Spreads and Fill Contexts  
CXX = Cut Contexts

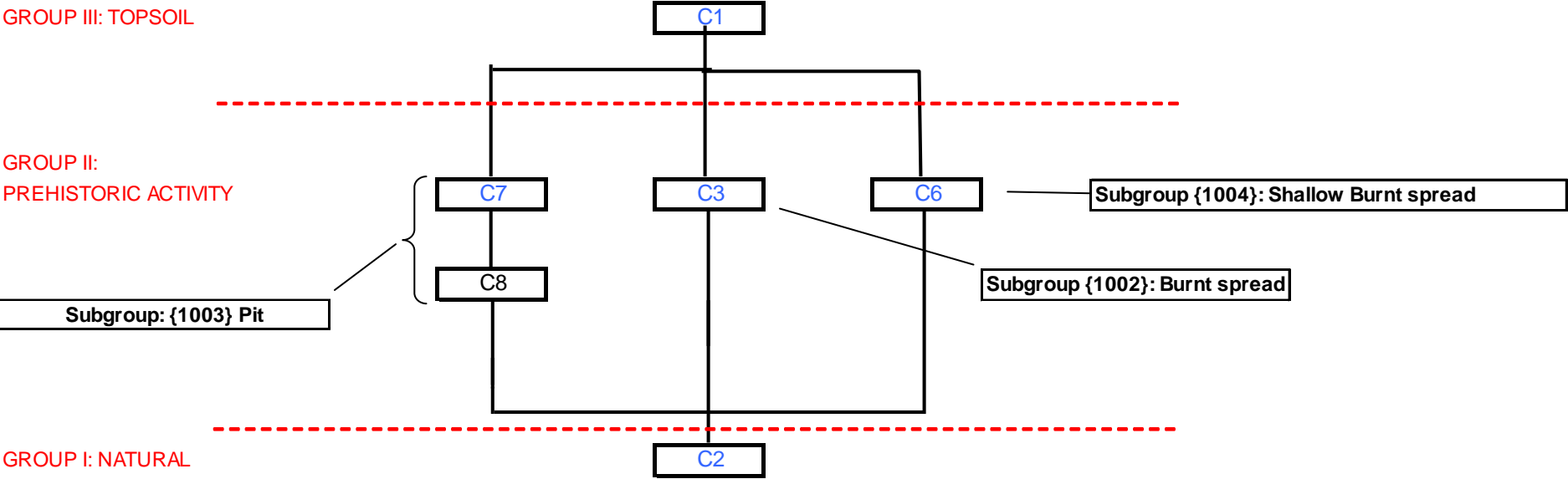






Plate 1 Burnt mound spread (C3) pre-excavation, facing west



Plate 2 West-southwest facing section of burnt mound spread (C3)



Plate 3 North-northwest facing section of burnt mound spread (C3)





Plate 4 Pit [C8] post-excavation from above, facing north



Plate 5 Burnt Spread (C6) pre-excavation from above, facing south



Plate 6      Site E3226 post-excavation, facing southeast