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## **N11 RATHNEW TO ARKLOW ROAD IMPROVEMENT**



**NMSR No.: E3234**

**SITE A022/048**

**NGR: 327806/184632**

**TOWNLAND: KILMURRY 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  
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## ABSTRACT

This site is located in the townland of Kilmurry South, 12km north 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 mounds adjacent to each other on a slightly raised part of a low lying boggy field. Area A was an oval spread measuring 4.5m north-south by 3m east-west and was 0.28m deep. This consisted of black silty soil containing charcoal and heat shattered stone. Area B measured 9.8m east-west by 6m north-south and was 0.45m deep and consisted of a similar material, both of which are suggested to be a product of the same phase of activity. Subsequent excavation confirmed the presence of the two burnt mounds and revealed two pits and a trough. The site has been interpreted as a Bronze Age *fulacht fiadh* or burnt mound site. The excavation area measured 30m by 40m, (1200m<sup>2</sup>).

Specialist analysis on the charcoal retrieved from site has revealed that the fuel collected for use at the site indicates a selection of wood species from varied environments. Alder was the main species identified from the assemblage and used as fuel which is not surprising as alder will grow in wetland conditions close to streams and rivers and this is where most of the burnt mounds are sited. Other wood taxa collected for fuel at the site include ash, holly and oak (O'Carroll 2007). Lithic analysis of the flint retrieved from the site has suggested that this item would be more commonly associated with sites of a Neolithic date (Sternke 2007), as such this may have been intrusive.

The results of the excavation at this site are not unexpected given the nature of the marginal physical landscape and the surrounding archaeological landscape which consists primarily of typologically similar monuments. While the site was undated, it is likely that this site forms part of a wider complex of sites in the area that date to the early and middle Bronze Age. The presence of the Convex End Scraper in (C17) would not necessarily firmly date this feature to the Neolithic period where these tools were commonplace. This find may be residual or indicative of an earlier phase of activity on site. However it must be noted that there is evidence in the wider landscape for Neolithic/early Bronze Age activity, notably in the form of Beaker pottery. Only four sites on the scheme produced Beaker pottery and 2 of these Sites A022/046 and A022/049 are to the north and south of Site A022/048. In this context the presence of a Neolithic flint cannot be overlooked. Clearly there is a focus of Neolithic activity in close proximity to these sites.

## **ACKNOWLEDGMENTS**

The archaeological excavation at Kilmurry South 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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# 1 INTRODUCTION

This final report provides comment and analysis on the excavation carried out in the townland of Kilmurry South, Co. Wicklow (Figure 1) as part of an archaeological mitigation program associated with the N11 Rathnew to Arklow Road Improvement. Archaeological fieldwork was directed by Red Tobin 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 is located in Kilmurry South townland, Redcross parish and the barony of Arklow to the immediate west of the current N11, c.12km north of Arklow (County Wicklow OS sheet 36). The site is:

- Site Kilmurry South, Ministerial Direction No.: A022/048, NMS Registration No. E3234, route chainage (Ch) 7515-7590, NGR 327806/184632.

The site was identified in low-lying pasture, in close proximity to a small stream, as a result of a test trenching exercise undertaken by IAC Ltd. under the same contract in July 2005 (Ministerial Direction A022/007, Gill McLoughlin). The route was divided into 14 different test areas for the initial ground testing / assessment phase. Testing revealed two burnt mounds adjacent to each other on a slightly raised part of a low lying boggy field. Spread A was an oval spread measuring 4.5m north-south by 3m east-west and was 0.28m deep. This consisted of black silty soil containing charcoal and heat shattered stone. Spread B measured 9.8m east-west by 6m north-south and was 0.45m deep and consisted of a similar material. Subsequent excavation confirmed the presence of the two burnt mounds and revealed two pits and a trough. The site has therefore been interpreted as a Bronze Age *fulacht fiadh* or burnt mound site. The excavation area measured 30m by 40m (1200m<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 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 Newtownmountkennedy 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 31/05/2006. The order and date of the excavation is as follows:

- Site excavation commenced on 31/05/2006 with a team of 1 field director, 1 supervisor, 5 assistant archaeologists and 4 general operatives. This involved cleaning back and pre-excavation planning and was followed by hand recording and resolution of the site.
- Excavation and recording of all features were completed by 9/06/2006.

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.

## 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 (Margeret Gowen 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 Kilmurry South townland, Redcross parish and the barony of Arklow to the immediate west of the current N11, c. 12km north of Arklow town. The site was located on a slightly raised part of a low lying boggy field.

### 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 that is undated. This site type is usually dated to the Bronze Age, however lithic analysis has suggested a possible Neolithic date for one of the contexts on site (C17).

### **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 Newtownmountkennedy 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 Newtownmountkennedy 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 fiadh* 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, unearthened 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,).

Four 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 (Site A022/047 and the subject site (Site A022/048), 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**

Analysis of the sites excavated in immediate proximity to this site (Site A022/048) showed several examples which were typologically similar. The sites are broadly dated to the Bronze Age but radiocarbon dating and analysis of artefacts, particularly lithics, suggests a continuity of settlement in the area from the Late Neolithic to the Iron Age. Research undertaken as part of the testing programme revealed Kilmurry South townland to contain a site listed in the Record of Monuments and Places (RMP); WI036-004 a church and graveyard site located c. 900m NW of Site A022/047.

The nearest site to the south of this site (Site A022/048) was also in Kilmurry South. Site A022/047 consisted of an undated burnt mound that has been interpreted as Bronze Age. A complex of burnt mound sites was identified to the south of Kilmurry South in Ballyclogh North. Site A022/046 was located 25m to the south, and comprised of at least two phases of activity, the first was made up of several pit like features and pottery recovered from this part of the site has been identified as Beaker ware dating to c. 2450–2200 BC, this tied in with lithics recovered from site were suggestive of a possibly late Neolithic or early Bronze Age date. Later activity

on site comprised of burnt mound type features and activity which was dated to 1320–1000 BC putting this phase of activity in the middle Bronze Age. Located 60m to the south was Site A022/045, which comprised a burnt mound with related features, and whilst it was dated to the late Bronze Age, the lithic assemblage was suggested to be of a late Neolithic/early Bronze Age date. Site A022/044 was located 150m to the south of the subject site and comprised burnt mound style activity which was dated to the early Bronze Age period (1920–1690BC). Site A022/043 was located 170m to the south of the subject site and consisted of burnt mound material, with associated pits and troughs, dating to 1400–1050 BC. Site A022/041 also in Ballyclogh North comprised three areas of burnt spread activity with the fill of one of the three troughs yielding a date of 2020–1770 BC. Site A022/042 located nearby was not deemed to be archaeological.

The site in closest proximity to the north of this site (Site A022/048) was Site A022/049, in Kilmurry South, this comprised of two pits in isolation, one of which produced pottery during the test excavation phase of works which were identified as Beaker pottery and suggested to date to c. 2300 BC (Grogan and Roche 2007). The location of this site on higher ground separated it from the generally low lying sites in this vicinity, which were predominantly related to burnt mound style activity. This site was significant in being one of only four sites on the scheme to produce Beaker pottery.

Located 820m to the north, in Kilmurry North, Site A022/050 appeared to be a classic burnt mound type site. Dating of this site has placed it at the overlap between the later Neolithic and early Bronze Age (2600–2030 BC). Diagnostic examination of the lithics from this site suggests the assemblage most likely dates to the final phase of the Neolithic or the early Bronze Age.

The evidence from these surrounding excavations suggests that the area was occupied continuously from the early Neolithic period, through to Bronze Age period and on to the Iron Age period, when taking this site into account. Indeed the RMP evidence of WI036-004 (a church and graveyard site) indicates a continuity of settlement in the area beyond the Iron Age. Much of this activity is in the form of burnt mounds which is to be expected given the low-lying nature of the natural topography, however the lack of definitive structures would seem to suggest that this landscape may be peripheral to settlement from this period or deliberately chosen and set aside for a ceremonial or religious function. The placement of these sites and the technology or industry they represent and indeed their place in the landscape was comparable for the most part with the subject site.

Located further to the north was Site A022/051, which contained some evidence for burnt mound type activities. The specialist analysis of the lithics recovered from site suggested a late Neolithic or early Bronze Age date; however these were recovered from the site's topsoil (Sternke 2007). Charcoal analysed from the feature on site was subsequently sent for C14 dating and returned a date of 390–190 BC a date which places activity in the early Iron Age period.

The evidence from these surrounding excavations suggests that the area was occupied continuously from the early Neolithic period, through to Bronze Age period and on to the Iron Age period, when taking this site into account. Much of this activity is in the form of burnt mounds which is to be expected given the low-lying nature of the natural topography, however the lack of definitive structures would seem to suggest that this landscape may be peripheral to settlement from this period or deliberately chosen and set aside for a ceremonial or religious function. The

placement of these sites and the technology or industry they represent and indeed their place in the landscape was comparable with the subject site.

### 2.2.3 Typological Background of Burnt Mounds

The excavation at 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 on-site 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 component of the Bronze Age landscape, the use of pyrolithic technology has a long history in Ireland.

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 mound sites were used as cooking sites. O'Kelly (1954) and Lawless (1990) have demonstrated how joints of meat could be efficiently cooked in troughs 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).

## 3 METHODOLOGY

### 3.1 Introduction

The excavation at Site A022/048, Kilmurray South was undertaken as part of archaeological mitigation for the N11 Rathnew to Arklow Road Improvement in the townland of Kilmurray South.

### 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.

An environmental strategy was devised at the beginning of the excavation. Features exhibiting large amounts of carbonised material were the primary targets. Features containing waterlogged or anoxic fills were sampled for later lab analysis.

All artefacts uncovered on site they were dealt with in accordance with the guidelines as issued by the NMI and where warranted in consultation with the relevant specialists. The archive is currently stored in IAC's facility in Lismore, Co Waterford and will ultimately be deposited with the National Museum of Ireland

Dating of the site is based on lithic analysis and comparison with sites of similar morphology.

### 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 {3400} consists of Cut [x] and fills (y) and (z)

- Subgroup {3456} 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 o 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 1: Natural Drift Geology

#### 4.1.1 Subgroup: {1001} Natural Drift Geology

##### Contexts:

C	Type	Fill of	Filled by	Depth (m)	Length (m)	Width (m)	Description	Interpretation
C2	Subsoil			-	-	-	Firmly compacted, yellow / blue mottled with mid to light grey clay with moderate inclusions of small to medium sub-rounded stones.	Subsoil

**Finds:** None

##### Interpretation:

This subgroup comprised the natural subsoil of the site which was a mottled yellowy blue and light grey silty clay.

#### GROUP 1 Discussion: Natural Drift Geology

Group	Subgroup	Subgroup type	Period by finds/stratigraphy	Period by interpretation	Group interpretation
1	1001	Natural subsoil	N/A		Natural geology

The area was waterlogged and flooded easily due to its close proximity to a small stream.

### 4.2 GROUP 2: Prehistoric Activity

#### 4.2.1 Subgroup {1002}: Pit

##### Contexts:

C	Type	Fill of	Filled by	Depth (m)	Length (m)	Width (m)	Description	Interpretation
12	fill	C14		0.24	1.35	1.20	Loose compaction of mid brown silty peat which had frequent small root inclusions, over C13	Uppermost fill of pit
13	fill	C14		0.40	1.35	1.20	Loose compaction of yellow sand and brown silt mix, frequent heat shattered stone inclusions.	Primary fill of pit
14	cut		C12, C13	0.24	1.35	1.20	Oval in plan, sharp break of slope at top, concave sides, gradual break of slope at base, oval shaped base.	Possible pit

**Finds:** None

##### Interpretation:

Subgroup {1002} represents a pit [C14] (Figure4&5, Plate 1), which was cut through the natural subsoil (C1) and sealed by the burnt mound material {1006}. The sub-oval pit measured 1.35m in length, was 1.35m wide and was 0.24m in depth. It had a concave profile and an oval base. The primary fill of the pit (C13), was a loose yellow silty sand clay which contained frequent inclusions of heat shattered stones. The uppermost fill (C12) of the pit [C14], was a loosely compact, mid brown grey silty peat, which had frequent root inclusions.

The base of the pit [C14] was below the water table so it filled naturally with water from the adjacent stream. The pit was located in close proximity to the trough [C10] and both were sealed by burnt mound material {1006}. There were no other features

to indicate a function for this pit [C14]. However, due to the nature of its fills, it would appear that this pit related to the activity associated with the trough [C10].

#### 4.2.2 Subgroup {1003} Trough

##### Contexts:

C	Type	Fill of	Filled by	Depth (m)	Length (m)	Width (m)	Description	Interpretation
7	fill	C10		0.50	1.50	1.60	Circular in plan, soft dark brown clayey silt with inclusions of roots, natural wood and occasional small stones, over C8 fill of C10	Uppermost fill of C10
8	fill	C10		0.40	0.20	0.10	A firm compaction of grey sandy silt, without inclusions.	Fill below C7, fill of possible trough C10
9	fill	C10		0.25	1.30	1.20	Soft compaction of light brown with dark brown patches, silty clay, with inclusions of medium-sized sub-rectangular stones, frequent charcoal fleck and burnt stone inclusions. Over C10, under C8	Primary fill of possible trough
10	cut		C7, C8, C9	0.60	2.15	1.3	Sub-circular in plan, ne-sw orientation, sharp break of slope at top, concave sides, gradual break of slope at base; concave base	Possible trough

**Finds:** None

##### Interpretation:

Subgroup {1003} represents the trough [C10] (Figure 4&5, Plates 2&3), which was cut into the natural subsoil (C2) and was sealed by the burnt mound {1006}. The sub-circular trough measured 1.6m in length, was 1.5m wide and was 0.6m in depth. It had a concave profile. The primary fill of the trough (C9), was moderately compact, dark brown silty clay which contained inclusions of heat shattered stones and a frequent charcoal inclusions. The secondary fill of the trough (C8), was compact, grey sandy silt. The uppermost fill of the trough was (C7), a soft dark brown clayey silt which had inclusions of roots, natural wood and occasional small stones

There was no surviving evidence for a lining around the base or sides of the trough. The base of the trough [C10] was below the water table so it filled naturally with water.

#### 4.2.3 Subgroup {1004}: Small Pit

##### Contexts:

C	Type	Fill of	Filled by	Depth (m)	Length (m)	Width (m)	Description	Interpretation
15	fill	C18		-	-	-	Timber 1 & 2	Timbers
17	fill	C18		0.26	1.42	0.94	Loose compaction of mid-black dark grey black silty sand with freq inclusions of sub-angular stones, moderate charcoal fleck and red ochre fleck inclusions, traces of organic material. Associated with timbers 1 & 2.	Burnt mound deposition surrounding timbers 1 & 2 C15
18	cut		C7	0.35	1.75	1.42	Circular in plan, E-W orientation, rounded corners NW & sharp break of slope at top (N) gradual to the S and E. irregular concave sloping sides, gradual irregular break of slope at base; irregular concave base.	Cut of pit containing worked timbers 1 & 2, C15



## Finds:

Find #	Context #	Material	Period	Description
E3234/A022/048:17:1	17	Flint	PH	convex end scraper

## Interpretation:

Subgroup {1004} represents a sub-circular pit [C18] (Figure 4&5, Plates 4&5), located at the eastern corner of the site adjacent to a small stream. The pit [C18] was cut into the natural subsoil (C2). The sub-circular pit (C18) was 1.75m in length, 1.42m in diameter and had a depth of 0.35m. The cut contained a single fill (C17), which was a loose mid black silty sand and contained frequent inclusions of angular heat shattered sandstone and a moderate amount of charcoal flecking. Two worked timbers (C15)(Plates 4,6 & 7) were also contained within this fill, they were not driven into the ground and had no apparent construction purpose.

A large convex end scraper, which was subsequently suggested by specialist analysis to date to the Neolithic (Sternke 2007), was discovered within fill (C17). This feature along with (C11) formed the smaller of the burnt spreads (Spread A) that were identified during testing.

### 4.2.4 Subgroup {1005}: Burnt Spread

#### Contexts:

C	Type	Fill of	Filled by	Depth (m)	Length (m)	Width (m)	Description	Interpretation
11	spread			0.06	1.02	0.93	Sub-oval in plan, N-S orientation, moderately compact black silty clay with frequent (80%) inclusions of angular stones. Under C1, over C2	Spread of burnt mound material

**Finds:** None

## Interpretation:

Subgroup {1005} (Figure 4) represents a small spread of burnt mound material (C11). The spread (C11) was 10m northeast of the burnt mound {1006} and was adjacent to the small pit (C18). This subgroup represents the waste material associated with the activity of such sites. This spread (C11), was black silty clay which contained frequent inclusions of heat-shattered sandstone.

### 4.2.5 Subgroup {1006}: Burnt Mound

#### Contexts:

C	Type	Fill of	Filled by	Depth (m)	Length (m)	Width (m)	Description	Interpretation
3	spread			0.40 (max)	16.4	9.0	NW-SE orientated spread of loosely compacted mottled dark to mid brown sandy silt with clay patches. Frequent charcoal fleck and small - medium sub-angular heat affected sandstone inclusions. Disturbed by machine tracks to the W extent	Spread of material associated with burnt mound activity
4	spread			< 0.30	> 11.0	> 9.0	Firm compaction of mid - light brown clay with very occasional heat affected sandstone inclusions and occasional charcoal flecking	Spread of material associated with burnt mound activity
5	spread			0.08	0.62	---	E-W orientated spread, loose compaction of light brown sand with inclusions of burnt stones, tree roots and small angular stones, under C1 over C2	Spread of material associated with burnt mound activity
6	spread			0.16	2.22	---	E-W orientated sub-circular spread, loose	Spread of

							compaction of back clayey silt, inclusions of burnt stone and large angular stones, under C1 and over C2	material associated with burnt mound activity
16	Fill			0.06	0.46	0.20	Sub-lar E-W orientated lens of light brown sand with occasional small burnt stones, tree roots and small sub-angular stones, similar to C5	Sandy lens within spread C3

**Finds:** None

**Interpretation:**

Subgroup {1006} (Figure 6, Plate 8) represents burnt mound material (C3, 4, 5, 6 and 16) which sealed the trough [C10]. The mound was adjacent to a stream that defined the eastern limit of the site.

This subgroup represents the waste material from the working of the site i.e. the heat-fractured stone and charcoal-rich associated soil removed from the troughs after their working cycle was completed. Four deposits were visible in section which related to different working cycles of the trough. This feature forms the main spread of material identified as Spread B during archaeological testing.

**GROUP 2 Discussion: Prehistoric Activity**

Group	Subgroup	Subgroup type	Period by finds/stratigraphy	Period by interpretation	Group interpretation
2	{1002}	Trough	N/A	Bronze Age	Bronze Age activity
2	{1003}	Trough	N/A	Bronze Age	Bronze Age activity
2	{1004}	Small pit	Neolithic	Bronze Age	Bronze Age activity
2	{1005}	Burnt spread	N/A	Bronze Age	Bronze Age activity
2	{1006}	Burnt mound	N/A	Bronze Age	Bronze Age activity

It is suggested that the site was used during the Bronze Age, when such *fulachta fiadh*, or burnt mound 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 the trough after each use and this produced the burnt mound, Subgroup {1006}. This type of site could have been used for cooking, bathing, dyeing or industrial activity. The primary purpose of these sites however, was to boil water. This site was adjacent to a stream which provided a water source for the trough [C10].

The burnt mound at this site displays all the characteristics of a *fulacht fiadh*. The shape and dimensions of [C10] seem to be compatible with the function of a trough which would have been the main focus of activity on the site. There was no surviving evidence for a lining around the base or sides of the trough. The base of the trough [C10] was below the water table so it filled naturally with water from the adjacent stream. The pit [C14] was filled with material similar to that of {1006}. No other features were associated with this pit. It is probable that it held water and was associated with the activities carried out at the trough [C10].

There was no hearth or evidence of *in situ* burning on the site, the hearth would have been used to heat the sandstone in order to boil the water. This was presumably situated outside the limits of excavation.

### 4.3 GROUP 3: Topsoil

#### 4.3.1 Subgroup {1007}: Topsoil

**Contexts:**

C	Type	Fill of	Filled by	Description	Interpretation
1		N/A	N/A	Mid to dark brown peaty silt with occasional stones	Topsoil

**Finds:** None

**Interpretation:**

The topsoil was consistent across the site and sealed all archaeological deposits.

#### GROUP 3 Discussion: Topsoil

Group	Subgroup	Subgroup type	Period by finds/stratigraphy	Period by interpretation	Group interpretation
3	{1007}	Topsoil	Post Medieval	Post Medieval	Topsoil

The topsoil was consistent across the area of excavation and sealed all archaeological features.

## **5 DISCUSSION**

### **5.1 Physical Setting**

The geology of the region surrounding Kilmurry South consists of rolling lowland composed of a glacial drift mixture of shaley sandstone and slates; on either side of Wicklow uplands, Ordovician shales and slates form a jagged edge to the rounded granite. 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. During removal of topsoil on the site the lower areas of the site were characterized with deeper silty-clay topsoil deposits. The site was located in a low-lying boggy area, on a slight rise. The composition of the surrounding subsoil indicates that this site was probably surrounded by either slow moving water or subject to seasonal flooding during its period of use. It is generally a low-lying boggy area; additionally the present course of the stream, to the east of the site, underlines this. The aspect of this particular landscape perfectly suited the location of this site type and its associated activities.

### **5.2 Summary of the Site Specific Archaeological Landscape**

The site was located within a landscape which was used relatively extensively for similar activities; there were several comparable sites in this area, which had used hot stone technology in conjunction with similar features (i.e. trough, pits). In the absence of material providing a firm date for the site the lithic analysis of the find retrieved from (C17) has suggested a Neolithic date for the feature. If the remainder of the site dates to this period then the sites such as Sites A022/046, 049, 053, 055 may be the closest comparable possible contemporaries of the subject site. In the wider scheme excavations at Coolacork, Site A022/063, 4.5km to the north identified similar activity, with dates from the Neolithic period.

### **5.3 Summary of Excavation Results**

The excavations at this site revealed two areas of burnt mound material with associated features. The largest mound/spread of material (C.3 et al.) comprised of four separate deposits, possibly indicating four phases of usage for the site. This material was 0.4m in depth (Spread B from testing) and it overlay the trough [C10] which would have been the main focal point of the site. To the southeast, adjacent to the spread was a pit (C14), which may have functioned as an auxiliary trough or possibly due to the water level on site, may have been excavated to access groundwater or for use as a refuse pit. The remaining features on site were located 10m to the northeast of the main spread. The features (C11) and [C18] are suggested to be the remains of Spread A, which was identified in testing. The spread (C11) was quite shallow (0.06md) and approximately 1mx 1m. It was located to the immediate west of pit [C18], which was filled by material similar to (C3) and (C11), which contained a single lithic find (Neolithic Convex End Scraper (Sternke 2007)).

### **5.4 Summary of the Specialist Analysis**

A number of specialists provided analysis of samples and artefacts recovered from the site as part of the post-excavation works. This work in part formed the basis for the dating evidence for the site. The detailed reports on the results of all analysis are in Appendix 2.

#### **5.4.1 Species Identification of Charcoal Samples**

Specialist analysis of the charcoal samples retrieved from site has found that a mixture of species were collected and used for kindling at the site excavated at this site Kilmurry South. The fuel collected for use at this excavated burnt mound

indicates a selection of wood species from varied environments. Alder was the main species identified from the assemblage and used as fuel which is not surprising as alder will grow in wetland conditions close to streams and rivers and this is where most of the *fulacht fiadh* or burnt mounds are sited. Other wood taxa collected for fuel at the site include ash, holly and oak. (O'Carroll 2007)

#### **5.4.2 Lithic Analysis**

Specialist analysis of the solitary lithic find from this site along the route of the N11 Rathnew to Arklow Road Improvement was a large convex end scraper from a lithic production involving what appears to be a direct percussion technology which is commonly associated with Neolithic rather than Bronze Age sites. This site potentially makes an important contribution to the hitherto scarce evidence for Neolithic and Bronze Age settlement and related sites along the eastern Wicklow coast.

#### **5.5 Discussion**

The results of the excavation at this site are not unexpected given the nature of the marginal physical landscape and the surrounding archaeological landscape which consists primarily of typologically similar monuments. While the site was undated, it is likely that this site forms part of a wider complex of sites in the area that date to the early and middle Bronze Age. The presence of the Convex End Scraper in (C17) would not necessarily firmly date this feature to the Neolithic period where these tools were commonplace. This find may be residual or indicative of an earlier phase of activity on site. However it must be noted that there is evidence in the wider landscape for Neolithic/early Bronze Age activity, notably in the form of Beaker pottery. Only four sites on the scheme produced Beaker pottery and 2 of these, Sites A022/046 and A022/049, are to the north and south of this site (Site A022/048). In this context the presence of a Neolithic flint cannot be overlooked. Clearly there is a focus of Neolithic activity in close proximity to these sites.

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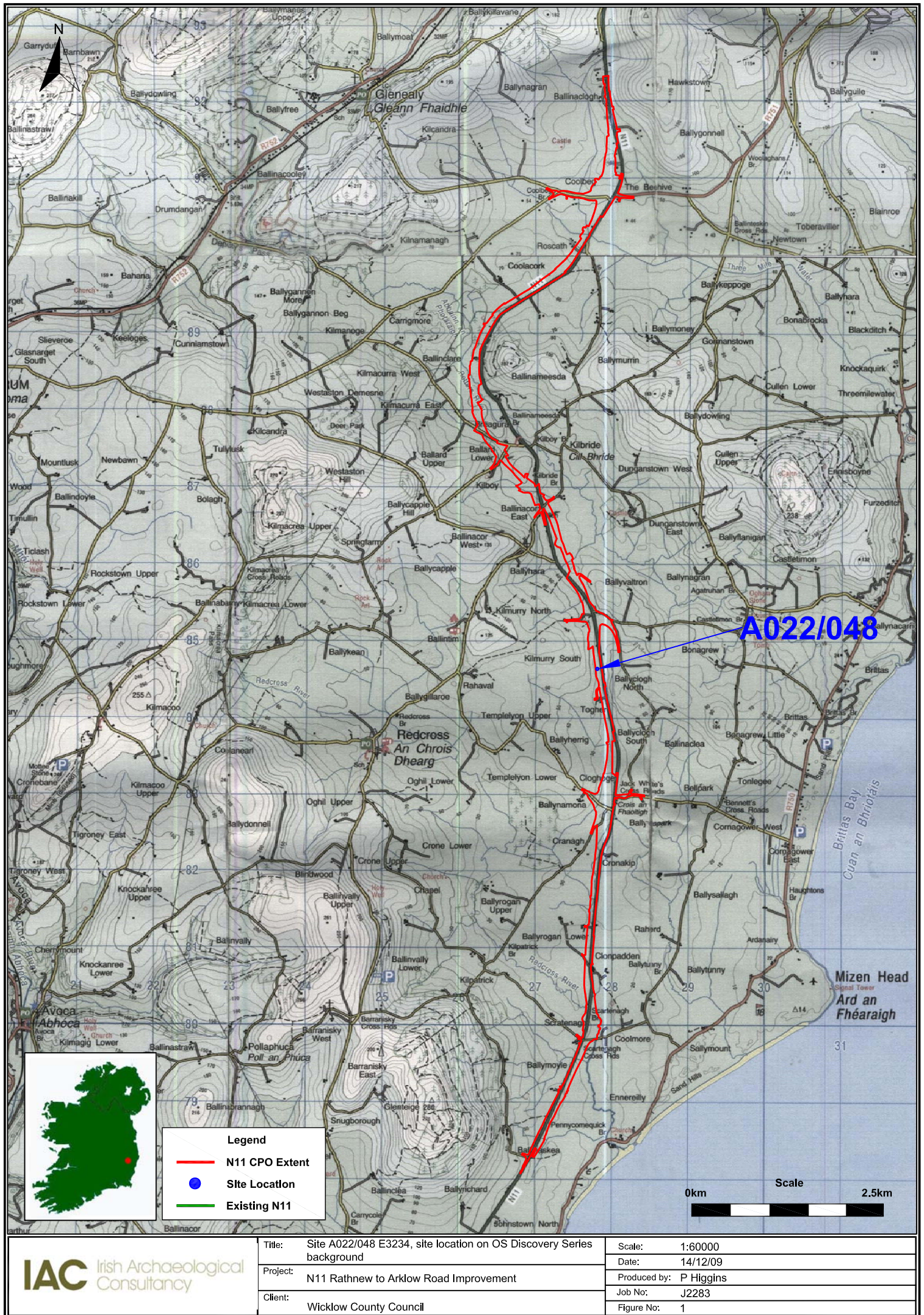
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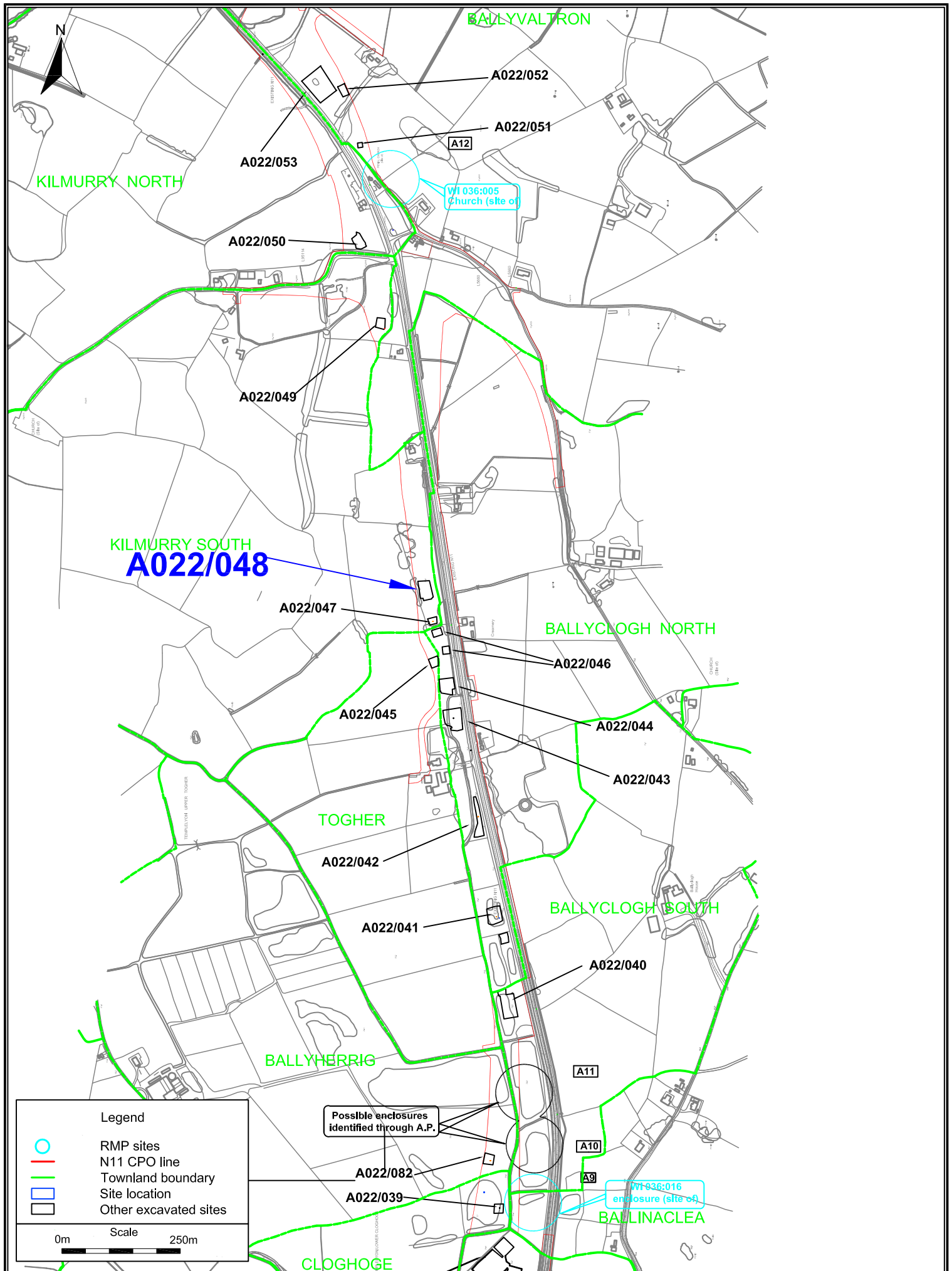
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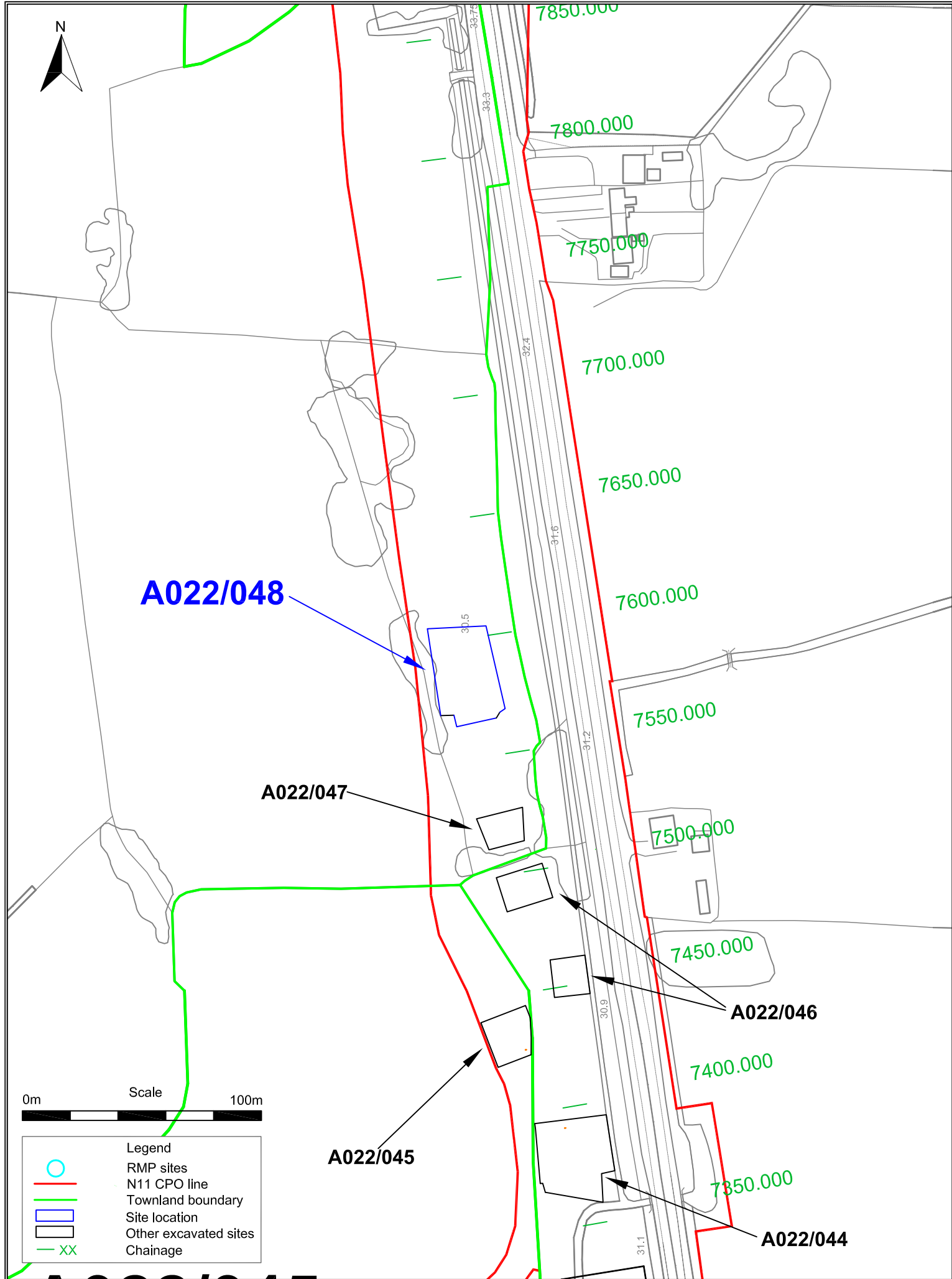
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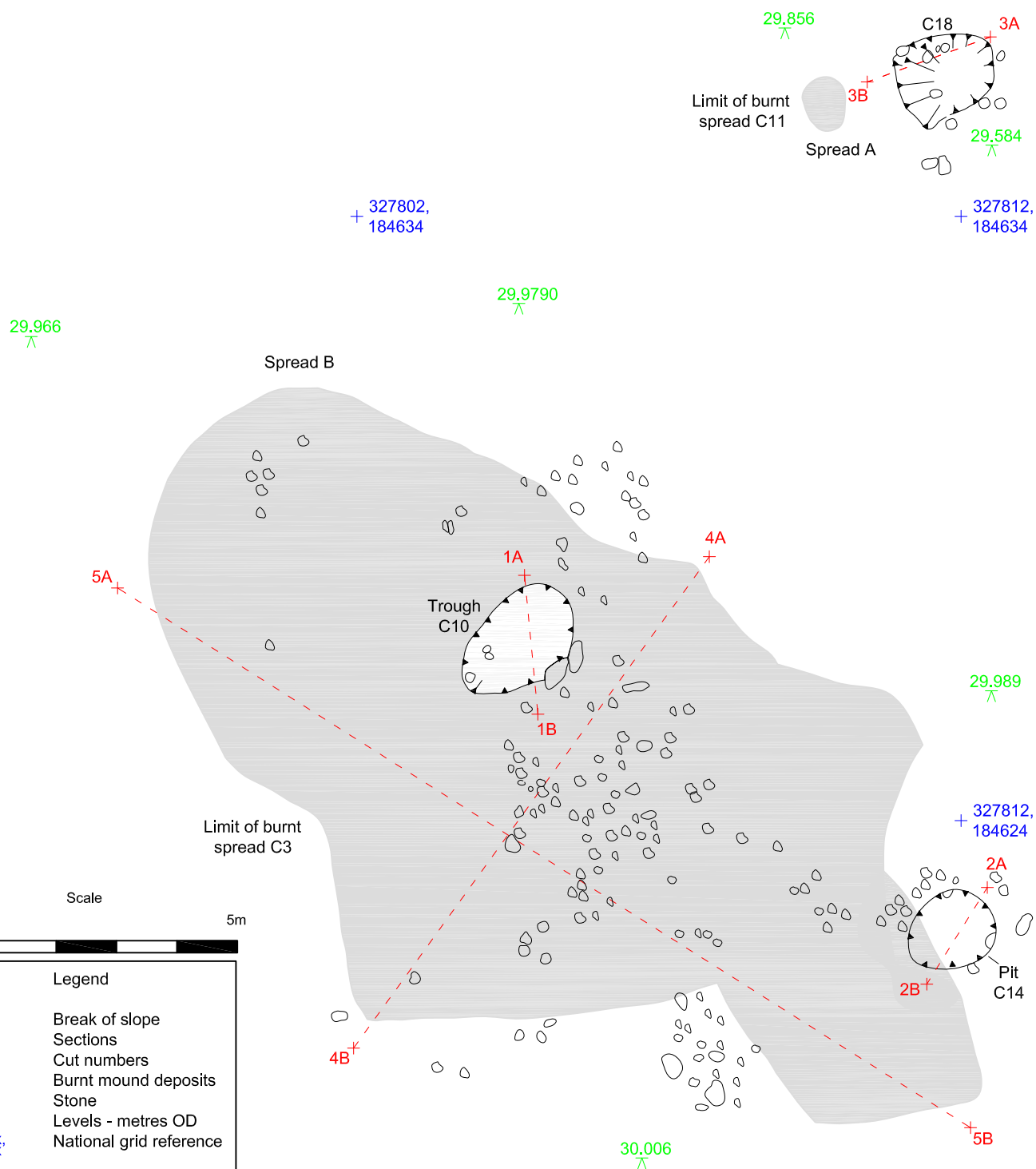
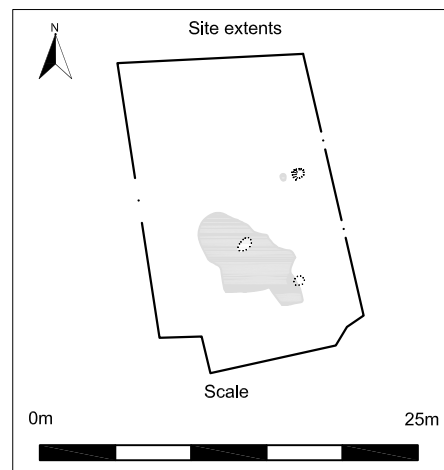








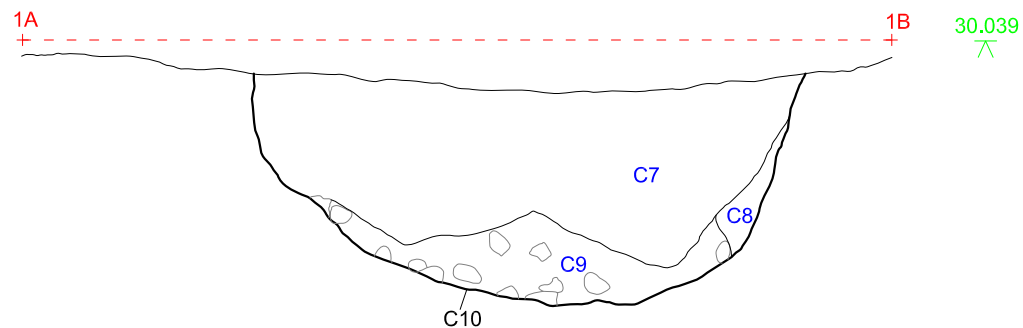




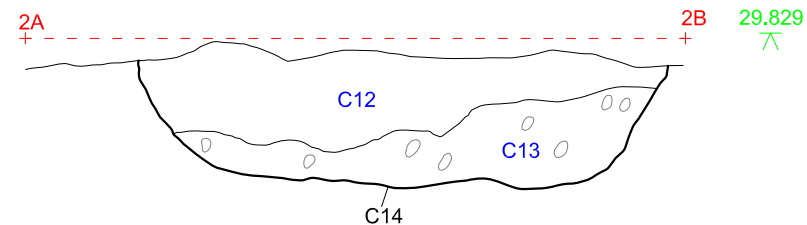
Legend	
---	Break of slope
- - -	Sections
Cxx	Cut numbers
■	Burnt mound deposits
○	Stone
xx.xx	Levels - metres OD
+ xxxxxx,	National grid reference
xxxxxx	

Title:	Site A022/048 E3234, Plan of site	Scale:	1:100 @A4
Project:	N11 Rathnew to Arklow Road Improvement	Date:	08/05/09
Client:	Wicklow County Council	Produced by:	G Kearney
		Job No:	J2283
		Figure No:	4

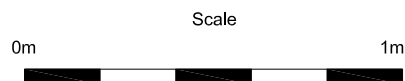
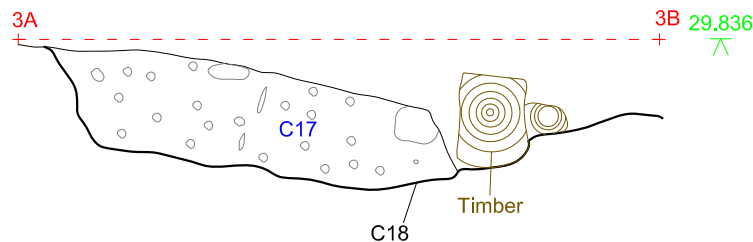
West facing section of C10



Northwest facing section of C14



NNW facing section of C18



Legend

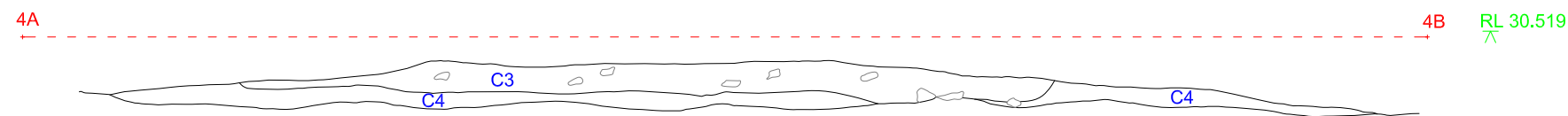
- Cxx Cut numbers
- Cxx Fill numbers
- Stone
- # Charcoal
- xx.xx Levels - metres OD

**IAC** Irish Archaeological Consultancy

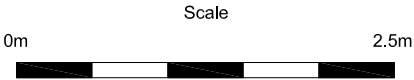
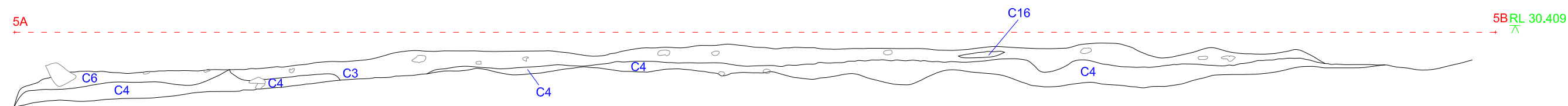
Title: Site A022/048 E3234, Sections through [C10], [C14] and [C18]  
 Project: N11 Rathnew to Arklow Road Improvement  
 Client: Wicklow County Council


Scale: 1:20 @A4  
 Date: 02/02/10  
 Produced by: G Kearney  
 Job No: J2283  
 Figure No: 5


Northwest facing section of C3, C4



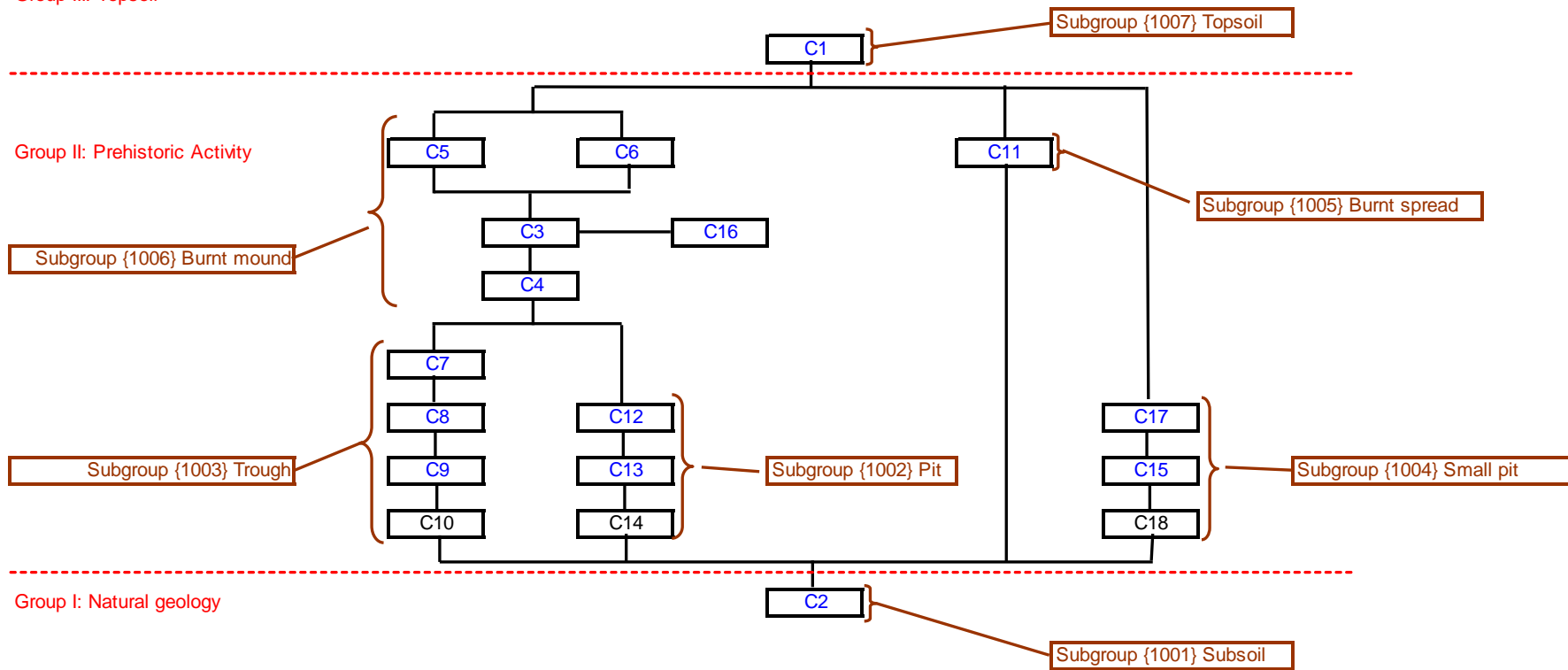
Southwest facing section of C3, C4, C5, C6



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

Title: Site A022/048 E3234, sections through Subgroup {1006}		
Project: N11 Rathnew to Arklow Road Improvement		
Client: Wicklow County Council		
Scale: 1:50 @A3	Job No: J2283	
Date: 02/02/10	Figure No: 6	
Produced by: G Kearney		

Group III: Topsoil



A22/0048:17:1

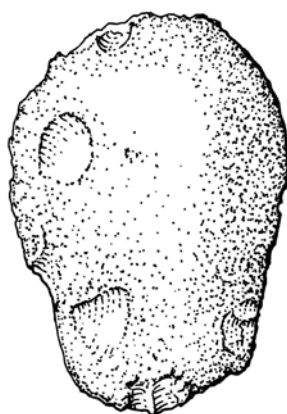






Plate 1: Post-excavation view of pit [C14], facing southwest.



Plate 2: Mid-excavation view of trough [C10], facing west.





Plate 3: Post-excavation view of trough [C10], facing southwest.



Plate 4: Mid-excavation view of small pit [C18] and timbers (C15) *in situ*, facing east.



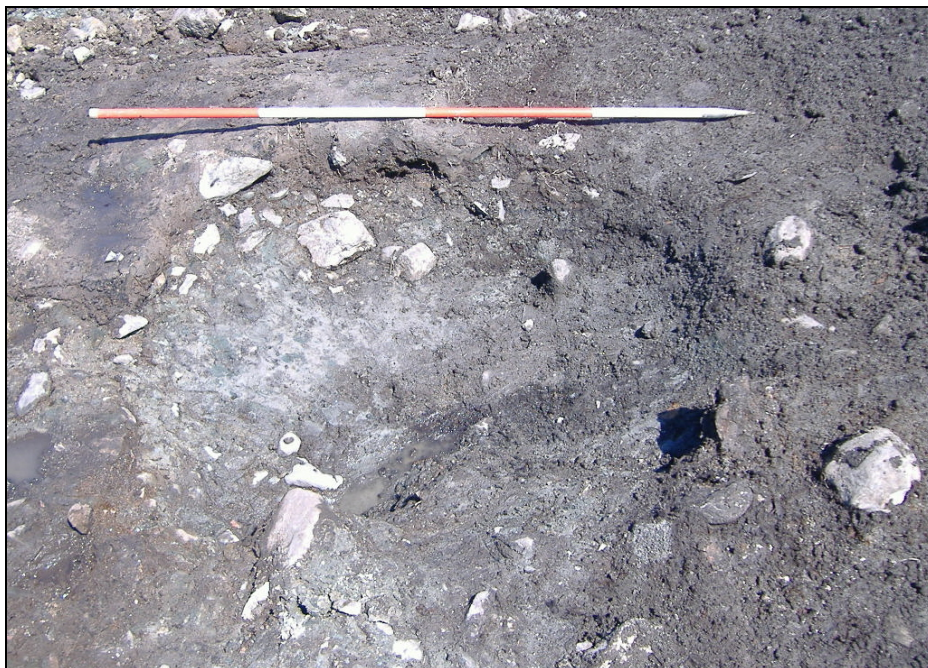


Plate 5: Post-excavation view of small pit [C18], facing west.



Plate 6: Details of timbers (C15).





Plate 7: Details of timbers (C15).



Plate 8: Northeast facing section of burnt mound (C3) and (C4).

## APPENDIX 1: CATALOGUE OF PRIMARY DATA


### Appendix 1.1 Context Register

C	Type	Fill of	Filled by	Definition	Group	Subgroup {XXX}	Subgroup summary	Depth (m)	Length (m)	Width (m)
1	topsoil			Topsoil	3	1007	Topsoil	-	-	-
2	subsoil			Subsoil	1	1002	Subsoil	-	-	-
3	spread			Burnt mound	2	1006	Burnt mound	0.40	16.4	9.0
4	spread			Disturbed natural spread	2	1006	Burnt mound	< 0.30	> 11.0	> 9.0
5	spread			Hard to ascertain due to massive disturbance by machine.	2	1006	Burnt mound	0.08	0.62	---
6	spread			Spread of Burnt mound material	2	1006	Burnt mound	0.16	2.22	---
7	fill	C10		Natural deposition / sedimentation within C10	2	1003	Trough	0.50	1.50	1.60
8	fill	C10		Collapsed pit wall probably due to root disturbance	2	1003	Trough	0.40	0.20	0.10
9	fill	C10		Bottom deposit of possible <i>fulacht fiadh</i> trough	2	1003	Trough	0.25	1.30	1.20
10	cut		C7, C8, C9	Possible trough	2	1003	Trough	0.60	2.15	1.3
11	Spread			Spread of burnt mound material, fire area?	2	1005	Burnt spread	0.06	1.02	0.93
12	Fill	C14		Natural peat deposition within C14	2	1002	Small pit	0.24	1.35	1.20
13	fill	C14		Basal deposit of C14	2	1002	Small pit	0.40	1.35	1.20
14	cut		C12, C13	Possible trough	2	1002	Small pit	0.24	1.35	1.20
15	Fill			timbers	2	1004	Trough	-	-	-
16	Fill			Sandy lens within <i>fulacht fiadh</i> spread (c.09)	2	1006	Burnt mound	0.06	0.46	0.20
17	fill	C18		Burnt mound deposition surrounding timbers 1 & 2 C15	2	1004	Trough	0.26	1.42	0.94
18	cut		C17	Cut of pit containing worked timbers 1 & 2, c15	2	1004	Trough	0.35	1.75	1.42

## 1.2 Artefact Catalogue

C	Find Number	Description and comments	Material
17	E3234/A022/048:17:1	Flint convex end scraper	Flint

### 1.3 Archive Index

<b>Project:</b> N11 Rathnew to Arklow Road Improvement	<div>Irish Archaeological Consultancy Ltd</div> 	
<b>Site Name:</b> Kilmurry South		
<b>Ministerial Number:</b> A022/048		
<b>Site director:</b> Yvonne Whitty		
<b>Date:</b> May 2009		
<b>Field Records</b>	<b>Items (quantity)</b>	<b>Comments</b>
Site drawings (plans)	6	
Site sections, profiles, elevations	4	
Other plans, sketches, etc.		
Timber drawings		
Stone structural drawings		
Site diary/note books		
Site registers (folders)	8	
Survey/levels data (origin information)	Reduced	On plans, digital record also
Context sheets	18	
Wood Sheets	2	
Skeleton Sheets		
Worked stone sheets		
Digital photographs	38	
Photographs (print)		
Photographs (slide)		
<b>Finds and Environ. Archive</b>		
Flint/chert	1	
Stone artefacts	-	
Pottery (specify periods/typology)	-	
Ceramic Building Material (specify types eg daub, tile)	-	
Metal artefacts (specify types - bronze, iron)	-	
Glass	-	
Other find types or special finds (specify)	-	
Human bone (specify type eg cremated, skeleton, disarticulated)	-	
Animal bone	-	
Metallurgical waste	-	
Enviro bulk soil (specify no. of samples)	6	
	Plus one sample of hazelnut shells	
Enviro monolith (specify number of samples and number of tins per sample)		
Security copy of archive	yes	

## **APPENDIX 2: SPECIALIST REPORTS**

### **Appendix 2.1 Charcoal and Wood ID Report – Ellen O’ Carroll**

### **Appendix 2.2 Lithic Analysis-Dr. Farina Sternke**



## APPENDIX 2.1 CHARCOAL AND WOOD ID REPORT – ELLEN O' CARROLL

### 1. INTRODUCTION

One charcoal sample from archaeological investigations at A022/048 Kilmurry South, Co. Wicklow were analysed in respect of suitability for dating and species selection in association with the excavated features. The excavated features consisted of a burnt mound spread, pits and associated trough. Although there were no dates returned for this site the charcoal assemblage is probably associated with the later pre-historic period (Bronze Age).

The charcoal was sent for species identification prior to C<sup>14</sup> dating, and also to obtain an indication of the range of tree species which grew in the area, as well as the utilization of these species for various functions. Wood used for fuel at pre-historic sites would generally have been sourced at locations close to the site. Therefore charcoal identifications may, but do not necessarily, reflect the composition of the local woodlands. Larger pieces of charcoal, when identified, can provide information regarding the use of a species.

### 2. METHODOLOGY

The process for identifying wood, whether it is charred, dried or waterlogged is carried out by comparing the anatomical structure of wood samples with known comparative material or keys (Schweingruber 1990). The identification of charcoal material involves breaking the charcoal piece so as a clean section of the wood can be obtained. This charcoal is then identified to species under an Olympus stereomicroscope with a magnification of 200. By close examination of the microanatomical features of the samples the species were determined. The diagnostic features used for the identification of charcoal are micro-structural characteristics such as the vessels and their arrangement, the size and arrangement of rays, vessel pit arrangement and also the type of perforation plates.

The identifications were completed by weight. The charcoal fragments from similar species were grouped together and then counted and weighed (Table 1).

### 3. RESULTS

Date	Context	Sample No.	Species	Comment	Weight	Context Type
	3	2	4	<i>Quercus</i> sp (1.2g), <i>Alnus glutinosa</i> (10.6g), <i>Corylus avellana</i> (2.3g), <i>Ilex aquifolium</i> (0.5g), <i>Fraxinus excelsior</i> (5.6g)	Extracted from stone sample	Spread associated with burnt mound

Table 1 Wood species identification and analysis of samples

Botanical Name	Species	Weight
<i>Alnus glutinosa</i>	Alder	10.6g
<i>Corylus avellana</i>	Hazel	2.3g
<i>Fraxinus excelsior</i>	Ash	5.6g
<i>Quercus spp</i>	Oak	1.2g
<i>Ilex aquifolium</i>	Holly	0.5g

Table 2 Species represented in the identified samples

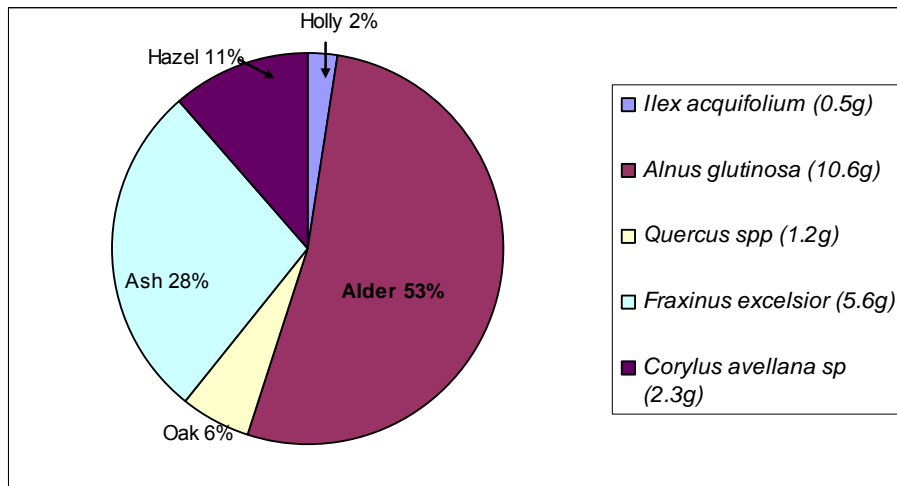


Figure 1 Wood species identifications from all analysed samples

#### 4. DISCUSSION

There were five taxa identified from the charcoal remains. These were alder, ash, hazel, oak, and holly in order of representation. The range of species identified from the excavated features analysed includes dryland trees (hazel, oak, and ash) as well as wetland species (alder) as well as some small evergreen trees/bushes (holly). The charcoal analysed is representative of wood used as kindling and is associated with the burnt mound spread material (C3).

Alder (*Alnus glutinosa*) was the main species identified from the burnt spread material. Alder is a widespread native tree and occurs in wet habitats along streams and riverbanks. Alder also grows regularly on fen peat. It is an easily worked and split timber and does not tear when worked. Alder is commonly identified from wood remains associated with wet/boggy areas and is one of the main species identified from *fulacht fiadh* material.

Ash (*Fraxinus excelsior*) was also a dominant species identified from the burnt mound spread C3 (Figure 1). Ash is a native species preferring lime-rich freely draining soils. It is not a very durable timber in waterlogged conditions but has a strong elastic nature. It is easily worked and lends itself well to a range of different requirements like the turning of wooden bowls.

A smaller amount of hazel (*Corylus avellana*) was identified from the fill of the burnt mound spread (C3). Hazel was very common up to the end of the 17th century and was used for the manufacture of many wooden structures such as wattle walls, posts, trackways and baskets. McCracken (1971, 19) points out that "it was once widespread to a degree that is hard to imagine today". With the introduction of brick, steel and slate the crafts associated with hazel became obsolete, and today the woods that supplied hazel have diminished rapidly. Hazel is normally only about 3-5m in height and is often found as an understory tree in deciduous woods dominated by oak. It also occurs as pure copses on shallow soils over limestone as in The Burren in Co. Clare and survives for 30 to 50 years. Its main advantage is seen in the production of long flexible straight rods through the process known as coppicing.

Oak (*Quercus* sp.) was also present within the burnt mound spread C3. Sessile oak (*Quercus petraea*) and pedunculate oak (*Quercus robur*) are both native to and common in Ireland. The wood of these species cannot be differentiated based on its

microstructure. Pendunculate oak is found on heavy clays and loams particularly where the soil is of alkaline pH. Sessile oak is found on acid soils often in pure stands and although it thrives on well-drained soils it is also tolerant of flooding (Beckett 1979, 40-41). Both species of oak grow to be very large trees (30-40m) and can live to an age of about 400 years. The oak identified suggests that there was a supply of oak in the surrounding environment at the time of use of the site.

Holly was identified from the burnt spread material **C3**. Hollies are members of the holly family (*Aquifoliaceae*). The holly *Ilex aquifolium* L.) is a shrub growing to 35 feet in open woodlands and along clearings in forests. Hollies are evergreen, and stand out in winter among the bare branches of the deciduous forest trees that surround them. Hollies form red berries before *Samhain* which last until the birds finish eating them, often after *Imbolc*.

## 5. COMPARATIVE MATERIAL

The author has carried out a large number of charcoal identifications from excavated *fulacht fiadh* or burnt mound sites and a range of species are generally identified from these cooking places. Alder (*Alnus glutinosa*) is generally the most dominant species identified from excavated *fulacht fiadh* along with ash, hazel and oak and to a lesser degree holly, pomoideae, willow, gorse and alder buckthorn represented among these assemblages.

## 6. SUMMARY & CONCLUSIONS

A mixture of species was collected and used for kindling at the site excavated at A022/048 Kilmurry South.

The fuel collected for use at this excavated *fulacht fiadh* indicates a selection of wood species from varied environments. Alder was the main species identified from the assemblage and used as fuel which is not surprising as alder will grow in wetland conditions close to streams and rivers and this is where most of the *fulacht fiadh* are sited. Other wood taxa collected for fuel at the site include ash, holly and oak.

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## **APPENDIX 2.2 LITHICS REPORT**

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

### **Lithics Finds Report for A022/048 Kilmurry South**

**Dr. Farina Sternke**

**MA, PhD**

**Department of Archaeology  
University College Cork**

## Introduction

One lithic find from the archaeological investigations of a possible Bronze Age site along the route of the N11 Rathnew to Arklow Road Improvement at Kilmurry South A022/048 was presented for analysis (Table 1). The find is associated with the remains of a possible *fulacht fiadh* and associated pits.

Find Number	Context	Material	Type	Cortex	Condition	Length (mm)	Width (mm)	Thickn. (mm)	Complete	Retouch
A022/048:17:1	17	Flint	Scraper	Yes	Patinated	52	37	12	Yes	distal direct abrupt

Table 1 Composition of the lithic assemblage from Kilmurry South (A022/048)

## 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, with and thickness measurements, fragmentation and the type of retouch (where applicable). The technological criteria recorded are based on the terminology and technology presented in Inizan et al. 1999. The general typological and morphological classifications are based on Woodman et al. 2006. Struck lithics smaller than 2 cm were classed as debitage and not analysed further. The same was done with natural chunks.

## Quantification

The lithic is a worked flint (Table 1).

## Provenance

The artefact was recovered from the fill of a small pit.

## Condition:

The lithic survives in patinated and complete condition.

## Technology/Morphology:

The artefact is a large convex end scraper which measures 57 mm in length, 37 mm in width and 12 mm in thickness. It was produced using a direct percussion technique on a beach pebble core.

## Dating:

Large convex end scrapers can be found in all prehistoric periods, but are less so associated with the Bronze Age (Woodman *et al.* 2006; Woodman pers. comm.). Its technological character and larger size would suggest a Neolithic date. This might suggest that the pit it was recovered from pre-dates the possible *fulacht fiadh*.

## 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**

Apart from polished stone axes, an arrowhead from Rathdown, a hollow based arrowhead from Sugar Loaf Mountain (Delaney 2000) and a collection of scrapers from Rathmeague (Delaney 2000), very little Neolithic settlement evidence has hitherto been found in the eastern Wicklow, while evidence for Bronze Age activity in Wicklow derives predominantly from burial contexts (Delaney 2000).

It is not unusual to recover single finds from Irish burnt mounds. Recent excavations in the south-east 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).

However, the convex end scraper stands out and is most likely Neolithic in date.

### **Discussion**

The lithic find from the archaeological investigations at Kilmurry South (A022/048) along the route of the N11 Rathnew to Arklow Road Improvement is a large convex end scraper from a lithic production involving what appears to be a direct percussion technology which is commonly associated with Neolithic rather than Bronze Age sites.

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

### *Recommendations for Illustration*

- Convex end scraper (A022/048:17:1)

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### 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



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