

N11 RATHNEW TO ARKLOW ROAD IMPROVEMENT



NMSR No.: E3248

SITE A022/062

NGR: 326824, 189477

TOWNLAND: COOLACORK

COUNTY: WICKLOW

FINAL REPORT

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

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IAC Irish Archaeological
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ABSTRACT

This site was located in the townland of Coolacork, c. 4.5km southwest of Wicklow 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 a trough and two gullies that were sealed by a burnt mound, and two other pits that were related to this activity but were not sealed by the burnt mound. One retouched flint flake was recovered from the burnt spread during the course of the excavation. The typology of this artefact indicates a Bronze Age date for this activity.

The analysis of the surrounding archaeological landscape shows a continuity of activity from the Neolithic to the Bronze Age. Most of this activity is in the form of burnt mounds which is to be expected given the low-lying nature of the natural topography. It is noticeable however, that out of ten sites excavated further north in Coolbeg, only one of which was comprised burnt mound activity. This is probably indicative of the improvement in land quality further north along the route of the proposed scheme.

The results of the excavation have identified burnt mound activity from the middle Bronze Age. These results are not unexpected given the physical and archaeological landscape of the site which contains a number of similar sites typologically and broadly chronologically. The low-lying marginal nature of the landscape is very favourable for burnt mound sites and the results of the charcoal analysis confirm that this landscape contained wet/marginal areas in the Bronze Age. The results of several excavations on this scheme and to the south on the N11 Arklow By-pass have produced many burnt mounds dating to the Bronze Age period. Excavations along the N11 Rathnew to Arklow Road Improvement revealed 38 similar sites. Many of these burnt spreads would be broadly contemporary with the activity at this site, although examples ranging in date from the late Neolithic through to the early medieval period were recorded.

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The archaeological excavation at Coolacork 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 archaeological excavation carried out in the townland of Coolacork, Co. Wicklow (Figure 1) as part of an archaeological mitigation programme 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 Coolacork townland, Dunganstown parish and the barony of Arklow to the immediate west of the current N11, c. 4.5km southwest of Wicklow town (Wicklow OS sheet 31). The site details are:

- Site Coolacork, Ministerial Direction No.: A022/062, NMS Registration No.: E3248, Route Chainage (Ch) 13100-13150, NGR 326824/189477

The site was identified in a low lying area as a result of a test trenching undertaken by IAC Ltd. under the same contract in August 2005 (Ministerial Directions No.: A022/012 Fintan Walsh). The route was divided into 14 different test areas for the initial ground testing / assessment phase. The site is located in land that slopes gently to the southern limits of the site which is bounded by a small river/stream and the existing N11 road. It was used previously for rough grazing.

This site is c. 500m southeast of an area of archaeological potential that was recognised by the EIS. It is referred to as A19 and is classified as wide cultivation ridges, consisting of a 2m wide furrow with a 1m wide ridge approx rising to 10-20cm.

This site is also c. 1km southwest of A18, a further area of archaeological potential that was recognised by the EIS. It is classified as a ringfort site by the RMP (Margeret Gowen Ltd., 2004).

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 it's 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 23/01/2006. The order and date of the excavation is as follows:

- Cleaning back and pre-excavation planning commenced on 21/07/2006 with a team of 1 field director, 2 Supervisors, 10 assistant archaeologists and 6 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
- Excavation and recording of all features were completed by 17/08/2006.

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 Coolacork townland, Dunganstown parish and the barony of Arklow to the immediate west of the current N11, c. 4.5km southwest of Wicklow town.

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. Burnt mounds are generally dated 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 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 (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 the present site (Site 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

The immediate landscape in Coolacork and adjacent townland Roscath contained two sites of similar burnt mound activity. The present site (Site A022/062) dated to the Bronze Age while Site A022/063 returned dates varying from the late Neolithic/early Bronze Age through to the middle and late Bronze Age. Further south in Coolacork and adjacent Ballinameesda Upper two sites were identified. Both Sites A022/060 and A022/061 comprised burnt mound activity that dated to the early Bronze Age.

To the south of Ballinameesda, in Breagura, two undated site were recorded. Site A022/059 comprised burnt mound activity and Site A022/058 comprised a single pit. In Ballard Lower, on Site A022/057, a single pit dating to the early Neolithic was recorded.

To the north of Coolacork, ten sites were excavated in Coolbeg that varied in date from the late Mesolithic/early Neolithic to the late Iron Age/early medieval period (Sites A022/064-071).

To the south and southwest of Coolacork are two ringforts, WI031:004 and WI031:013. These typically earlier monuments have shown continuous settlement up to the early modern period (Long 1994, 257). A flint scatter, WI031:045 was located to the north in Coolbeg.

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 A022/062, Coolacork was undertaken as part of archaeological mitigation for the N11 Rathnew to Arklow Road Improvement in the townland of Coolacork.

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.

All artefacts uncovered on site 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.

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 {1005} consists of Cut [x] and fills (y) and (z)
- Subgroup {1007} 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 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 |
|---|---------|---------|-----------|-----------|------------|-----------|--|----------------|
| 2 | Subsoil | - | - | - | - | - | Grey sandy clay with moderate amount of small stone inclusions | Subsoil |

Finds: None

Interpretation:

The group represents the natural subsoil identified across the site. It comprised grey sandy clay (C2).

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 | | |

Deposit (C2) was natural subsoil which was consistent across the site.

4.2 GROUP 2: Prehistoric Activity

4.2.1 Subgroup: {1002} Trough

Contexts:

| C | Type | Fill of | Filled by | Depth (m) | Length (m) | Width (m) | Description | Interpretation |
|----|------|---------|-----------|-----------|------------|-----------|--|----------------|
| 17 | Fill | C18 | | 0.12 | 1.7 | 1.3 | Soft loose compaction, mid brownish grey sandy clay, with frequent inclusions of heat shattered stones | Fill of trough |
| 18 | Cut | | C17, C22 | 0.35 | 1.75 | 1.38 | Sub oval shaped cut. The break of slope was sharp on the southern and eastern edge of the cut and was not perceptible on the northern side. The sides were steeply sloped and the break of slope at the base was moderate. The base was sub oval in shape and was uneven | Cut of trough |
| 22 | Fill | C18 | | 0.25 | 1.75 | 1.38 | Moderately compact of dark brown sandy clay with occasional inclusions of heat shattered stone and moderate amounts of charcoal inclusions | Fill of trough |

Finds: None

Interpretation:

The trough [C18] was located in the north-eastern part of the site adjacent to the limit of excavation and a stream. The trough was sealed by the burnt mound (C3) (Figure 4, 5 and 6, Plate 1).

The sub-oval trough had a shallow concave profile and an uneven base. The primary fill of the trough (C22), was compact, dark brown sandy clay which contained occasional inclusions of heat shattered stones and a moderate amount of charcoal inclusions. The upper fill of the trough (C17), was a loosely compact, mid brownish

grey sandy clay, which had frequent inclusions of heat shattered stones, similar to burnt mound material.

There was no evidence to indicate the presence of a lining around the base or sides of the trough. The base of the trough [C18] was below the water table so it filled naturally with water.

4.2.2 Subgroup {1003}: Gully

Contexts:

| C | Type | Fill of | Filled by | Depth (m) | Length (m) | Width (m) | Description | Interpretation |
|----|------|---------|-----------|-----------|------------|-----------|---|--------------------------|
| 28 | Cut | | C30 | 0.15 | 8.0 | 2.5 | NW-SE orientated linear cut. Break of slope at top was sharp on the SW & NW & gradual on the SE. Sides were concave & almost vertical on the SW & NW, imperceptible on the SE & NE. Break of slope at base was sharp on the SW & NW and imperceptible on NE & SE. Base was linear & flat. | Cut of possible gully |
| 30 | Fill | C28 | | 0.15 | 8.0 | 2.5 | Moderately compact black sandy clay with moderate amount of angular heat shattered sandstone inclusions. | Fill of a possible gully |

Finds: None

Interpretation:

This subgroup represents a gully [C28] that was oriented roughly northwest-southeast orientated and was located in the south-eastern part of the site adjacent to a stream. The gully was cut through the natural subsoil (C2) and was partially sealed by the burnt mound (C3) (Figure 4).

The gully [C28] contained a single fill (C30), a moderately compact black sandy clay which contained a moderate amount of angular heat shattered sandstone inclusions. The function of this gully was not determined, but the nature of the fill would indicate that it was related to the burnt mound activity.

4.2.3 Subgroup {1004}: Pit

Contexts:

| C | Type | Fill of | Filled by | Depth (m) | Length (m) | Width (m) | Description | Interpretation |
|----|------|---------|-----------|-----------|------------|-----------|--|----------------------|
| 6 | Fill | C20 | | 0.28 | 1.6 | 1.2 | Loosely compact greyish black sandy clay with frequent inclusions of sub-angular sandstone | Fill of possible pit |
| 20 | Cut | | C6 | 0.28 | 1.6 | 1.2 | Sub circular cut. The break of slope - top: sharp on all sides, gradual on the S. Sides: vertical on the N & E, stepped on the W & gradual on S. Break of slope - base: sharp on all sides, gradual on S. Shape of base: flat & uneven | Cut of possible pit |

Finds: None

Interpretation:

This subgroup represents a sub-circular pit [C20], which was located in the north-eastern part of the site adjacent to a stream. The pit [C20] was located immediately to the northwest of the burnt mound (C3) but was not sealed by it and was c. 5m west of the trough [C18] (Figure 4 and 5, Plate 2).

The pit contained a single fill (C6), which was comprised of greyish black sandy clay which contained frequent inclusions of sub-angular heat affected sandstone that probably originated in the burnt mound (C3).

The base of the pit was below the water table and so filled naturally with water.

4.2.4 Subgroup {1005}: Gully

Contexts:

| C | Type | Fill of | Filled by | Depth (m) | Length (m) | Width (m) | Description | Interpretation |
|----|------|---------|-----------|-----------|------------|-----------|--|------------------------|
| 16 | Fill | C19 | | 0.2 | 3.53 | 1.0 | Greyish black silty clay with inclusions of heat affected sandstone and occasional charcoal flecking | Fill of possible gully |
| 19 | Cut | | C16 | 0.2 | 3.53 | 1.0 | NW-SE orientated, linear shaped cut break of top slope was sharp on W side, gradual on E side. Sides at W were vertical & irregular. Break of base slope was sharp, shape of base was flat | Cut of possible gully. |

Finds: None

Interpretation:

This subgroup represents a northwest-southeast orientated gully [C19], that was located in the north-eastern part of the site, 1m south of the trough [C18] and adjacent to a stream. The gully [C19] was sealed by the burnt mound (C3) (Figure 4 and 5, Plate 3).

The gully contained a single fill (C16), which was comprised of grey black silty clay with frequent inclusions of sub-angular heat affected sandstone and occasional charcoal flecking.

The base of this gully was below the natural water table and so filled naturally with water. Although the function of the gully was not determined, it was most likely related to the trough [C18] and the burnt mound (C3).

4.2.5 Subgroup {1006}: Pit

Contexts:

| C | Type | Fill of | Filled by | Depth (m) | Length (m) | Width (m) | Description | Interpretation |
|----|------|---------|---------------|-----------|------------|-----------|--|--|
| 11 | Fill | C25 | | 0.24 | 3.7 | 2.0 | Moderately compact grey black sandy silt which contained frequent inclusions of heat affected sandstone and occasional charcoal flecking. | Fill of pit C25 |
| 23 | Fill | C25 | | 0.27 | 3.04 | 1.97 | Moderately compact grey silty sand which contained frequent inclusions of angular heat affected sandstone | Fill of pit C25 |
| 24 | Fill | C25 | | 0.07 | 1.98 | 0.9 | Moderately compact dark grey sandy silt with occasional charcoal flecking & inclusions of angular heat affected sandstone | Fill of pit C25. |
| 25 | Cut | | C11, C23, C24 | 0.44 | 3.45 | 2.42 | N-S orientated sub-rectangular shaped cut which had rounded corners. Break of slope at top was gradual. Sides were concave, break of slope at base was gradual, and the base was sub rectangular and uneven. | Possible pit associated with burnt mound activity. |

Finds: None

Interpretation:

This subgroup represents pit [C25], which was located in the south-western corner of the site. It was relatively isolated from the rest of the activity on site (Figure 4 and 5, Plate 4).

The pit [C25] contained three fills. The primary fill was (C24), which was comprised of moderately compact dark grey sandy silt with occasional charcoal flecking and occasional inclusions of angular heat affected sandstone. The secondary fill, (C23), was moderately compact grey silty sand with frequent inclusions of angular heat affected sandstone. The uppermost fill of the pit was (C11); moderately compact grey black sandy silt which contained frequent inclusions of heat affected sandstone and occasional charcoal flecking. Despite the isolation of pit [C25], the nature of the fills would indicate that it was related to the burnt mound activity. It is possible that the pit functioned as a trough prior to being backfilled.

4.2.6 Subgroup {1007}: Burnt mound material

Contexts:

| C | Type | Fill of | Filled by | Depth (m) | Length (m) | Width (m) | Description | Interpretation |
|---|--------|---------|-----------|-----------|------------|-----------|--|--------------------------------|
| 3 | Spread | | | 0.4 | 23.0+ | 10.0+ | N-S orientated large sub-circular spread of black silty sand, which contained very frequent inclusions of heat shattered sandstone and occasional charcoal flecking. | Spread of burnt mound material |

Finds:

| Find # | Context # | Material | Period | Description |
|--------------------|-----------|----------|------------|-----------------|
| E3248/A022/062:3:1 | C3 | Flint | Bronze Age | Retouched flake |

Interpretation:

This subgroup represents burnt mound material (C3) which sealed the trough [C18] and gullies [C28] and [C19]. The mound was immediately adjacent to the stream that defined the eastern limit of the site. The burnt mound material extended beyond the eastern limit of excavation and so was not fully excavated (Figure 4 and 6, Plate 5 and 6).

The burnt mound (C3) was 23m in length and its excavated width was 12m, with a depth of 0.40m. The burnt mound material comprised black silty sand with very frequent inclusions of heat shattered sandstone and occasional charcoal flecking. The flint artefact recovered from the burnt mound was identified as a retouched flake that was produced using bipolar-on-an-anvil technique on a beach pebble core. It was probably used as a scraper or backed knife. The bipolar technology is indicative of a Bronze Age date (Sternke, Appendix 2.1).

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 | Prehistoric activity |
| 2 | 1003 | Gully | N/A | Bronze Age | Prehistoric activity |
| 2 | 1004 | Pit | N/A | Bronze Age | Prehistoric activity |
| 2 | 1005 | Gully | N/A | Bronze Age | Prehistoric activity |
| 2 | 1006 | Pit | N/A | Bronze Age | Prehistoric activity |
| 2 | 1007 | Burnt mound material | Bronze Age | Bronze Age | Prehistoric activity |

This group represents the archaeological activity on site. It comprises a trough [C18] and two gullies, [C19] and [C28], which were sealed by a burnt mound (C3) and two pits, [C20] and [C25] that were related to the burnt mound but were not sealed by it.

There was no evidence to indicate that the trough [C18] was lined by timber, but the base of the trough was below the water table and so it filled naturally with water. The function of the two gullies [C28] and [C19] was not determined, but the base of both features was below the natural water table and so they probably held water and were probably associated with the trough [C18]. The two pits [C20] and [C25] were filled with material similar to the burnt mound material (C3) and this indicates that they were related to the burnt mound activity on the site. The retouched flint flake recovered from the burnt mound material indicates a Bronze Age date for this activity, based on the typology of the artefact.

No hearth or evidence of *in situ* burning was recorded on the site.

4.3 GROUP 3: Post-Medieval Activity

4.3.1 Subgroup {1008}: Drain

Contexts:

| C | Type | Fill of | Filled by | Depth (m) | Length (m) | Width (m) | Description | Interpretation |
|----|------|---------|-----------|-----------|------------|-----------|--|----------------|
| 21 | Fill | C29 | | 0.8 | 3.5 | 0.5 | Loose brownish grey sandy clay which contained a moderate amount of sub rounded stone inclusions. | Fill of drain |
| 29 | Cut | | C21 | 0.8 | 3.5 | 0.5 | N-S orientated drain which cut the burnt mound (C3). The break of slope at the top of the cut was sharp, the sides were steeply sloped and the break of slope at the base was sharp. The base was flat. Filled by C21. | Cut of drain |

Finds: None

Interpretation:

This subgroup represents a linear field drain [C29], which was oriented roughly north-south and was located in the northeast of the site (Figure 4 and 6). This drain was filled by (C21), loose brownish grey sandy clay that contained a moderate amount of sub-rounded stone inclusions. The drain [C29] was part of post-medieval land drainage works.

4.3.2 Subgroup {1009}: Drain

Contexts:

| C | Type | Fill of | Filled by | Depth (m) | Length (m) | Width (m) | Description | Interpretation |
|----|------|---------|-----------|-----------|------------|-----------|--|----------------|
| 12 | Fill | C13 | | 0.35 | 2.3 | 0.35 | Fill of drain C13, moderately compact brown sandy clay which contained a moderate amount of sub rounded stone inclusions. | Fill of drain |
| 13 | Cut | | C12 | 0.35 | 2.3 | 0.35 | Modern drain orientated in NE-SW. The break of slope at the top of the cut was sharp, the sides were steeply sloped and the bread of slope at the base was sharp. The base was regular and flat. | Cut of drain |

Finds: None

Interpretation:

This subgroup represents a linear field drain [C13], which was northeast-southwest oriented. This drain was filled by (C12), a moderately compact brown sandy clay with sub-rounded stone inclusions. Drain [C13] cut through the burnt mound (C3) and was probably associated with post-medieval agricultural drainage works.

GROUP 3 Discussion: Post-Medieval Activity

| Group | Subgroup | Subgroup type | Period by finds/stratigraphy | Period by interpretation | Group interpretation |
|-------|----------|---------------|------------------------------|--------------------------|---------------------------------------|
| 3 | 1008 | Drain | N/A | Post-Medieval | Post-Medieval agricultural activities |
| 3 | 1009 | Drain | N/A | Post-Medieval | Post-Medieval agricultural activities |

Group 3 is represented by the drains [C29] and [C13], which are indicative of post-medieval agricultural activities.

4.4 GROUP 4: Topsoil

4.4.1 Subgroup {1010}: Topsoil

Contexts:

| C | Type | Fill of | Filled by | Depth (m) | Length (m) | Width (m) | Description | Interpretation |
|---|---------|---------|-----------|-----------|------------|-----------|--|----------------|
| 1 | Topsoil | - | - | - | - | - | Dark brown silty clay which contained a moderate amount of sub rounded stone inclusions. | Topsoil |

Finds: None

Interpretation:

This subgroup represents the topsoil which sealed all the archaeological features on site. The topsoil (C1) was a dark brown silty clay which contained a moderate amount of sub rounded stone inclusions.

GROUP 4 Discussion: Topsoil

| Group | Subgroup | Subgroup type | Period by finds/stratigraphy | Period by interpretation | Group interpretation |
|-------|----------|---------------|------------------------------|--------------------------|----------------------|
| 4 | 1010 | Topsoil | Modern | Modern | Topsoil |

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

5 SYNTHESIS AND DISCUSSION

5.1 Physical Setting

The geology of the region surrounding Coolacork is within a plain based on Palaeozoic rocks. The soils of the region have developed on glacial materials deposited by successive glaciations. The subsoil within the site comprises compact yellow brown silty clay.

The site was located in land that slopes gently to the southern limits of the site which is bounded by a small river/stream and the existing N11 road to the east. It was used previously for rough grazing.

5.2 Summary of the Site Specific Archaeological Landscape

The immediate landscape in Coolacork and adjacent townland Roscath, two sites of similar burnt mound activity were recorded. This site (Site A022/062) dated to the Bronze Age while Site A022/063 returned dates varying from the late Neolithic/early Bronze Age through to the middle and late Bronze Age.

Further south in Coolacork and adjacent townland Ballinameesda Upper two sites were identified. Both Sites A022/060 and A022/061 comprised burnt mound activity that dated to the early Bronze Age. To the north of Coolacork, ten sites were excavated in Coolbeg that varied in date from the late Mesolithic/early Neolithic to the late Iron Age/early medieval period (Sites A022/064-071). A flint scatter, WI031:045 was located to the north in Coolbeg.

5.3 Summary of Excavation Results

The activity on this site comprised a trough and two gullies that were sealed by a burnt mound, and two pits that were related to this activity but were not sealed by the burnt mound. One retouched flint flake was recovered during the course of the excavation. The typology of the artefact indicates a Bronze Age for this activity.

5.4 Summary of the Specialist Analysis

No environmental or charcoal samples were forwarded to specialists from this site for further analysis or dating. A single lithic was recovered which was forwarded for specialist analysis. This work in part formed the basis for the dating evidence for the site. The detailed report on the results of the analysis are in Appendix 2.

5.4.1 Finds Results

One lithic was recovered during the excavation. It was identified as a retouched flint flake from a lithic production involving a bipolar-on-an-anvil technology which is commonly associated with Bronze Age sites.

5.5 Discussion

This site in Coolacork comprised burnt mound activity. The low-lying marginal nature of the landscape is very favourable for burnt mound sites. Two other burnt mound sites were located in close proximity to the present site (Site A022/062). Site A022/061 was located to the south and returned an early Bronze Age date. Site A022/063 was located to the north and returned dates ranging from the late Neolithic/early Bronze Age through to the middle/late Bronze Age.

The analysis of the surrounding archaeological landscape shows a continuity of activity from the Neolithic to the Bronze Age. Most of this activity is in the form of burnt mounds which is to be expected given the low-lying nature of the natural topography. It is noticeable however, that out of ten sites excavated further north in

Coolbeg, only one of these was comprised burnt mound activity. This is probably indicative of the improvement in land quality further north along the route of the proposed scheme.

The results of the excavation have identified burnt mound activity from the middle Bronze Age. These results are not unexpected given the physical and archaeological landscape of the site which contains a number of similar sites typologically and broadly chronologically. The low-lying marginal nature of the landscape is very favourable for burnt mound sites and the results of the charcoal analysis confirm that this landscape contained wet/marginal areas in the Bronze Age. The results of several excavations on this scheme and to the south on the N11 Arklow By-pass have produced many burnt mounds dating to the Bronze Age period. Excavations along the N11 Rathnew to Arklow Road Improvement revealed 38 similar sites. Many of these burnt spreads would be broadly contemporary with the activity at this site, although examples ranging in date from the late Neolithic through to the early medieval period were recorded.

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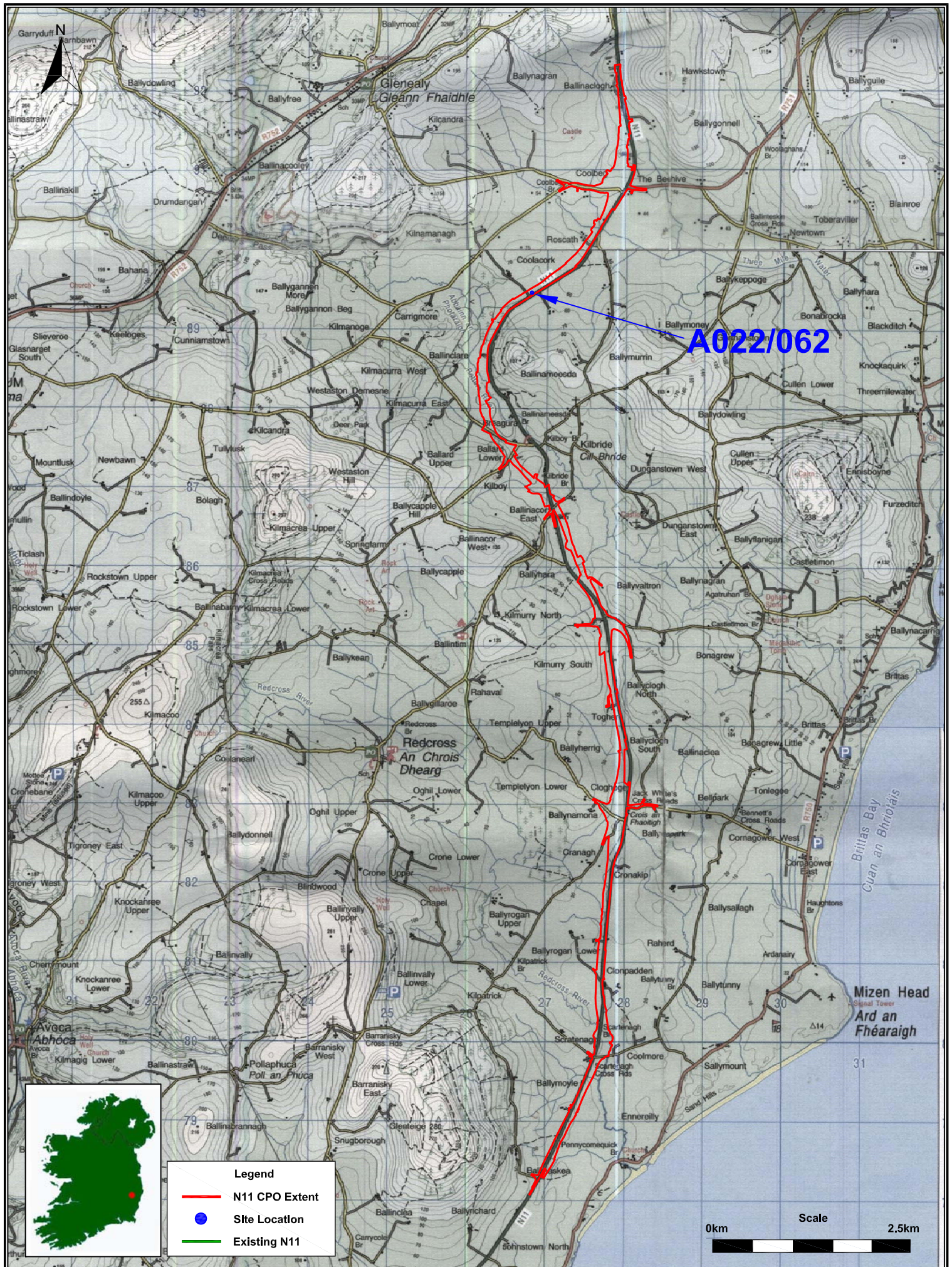
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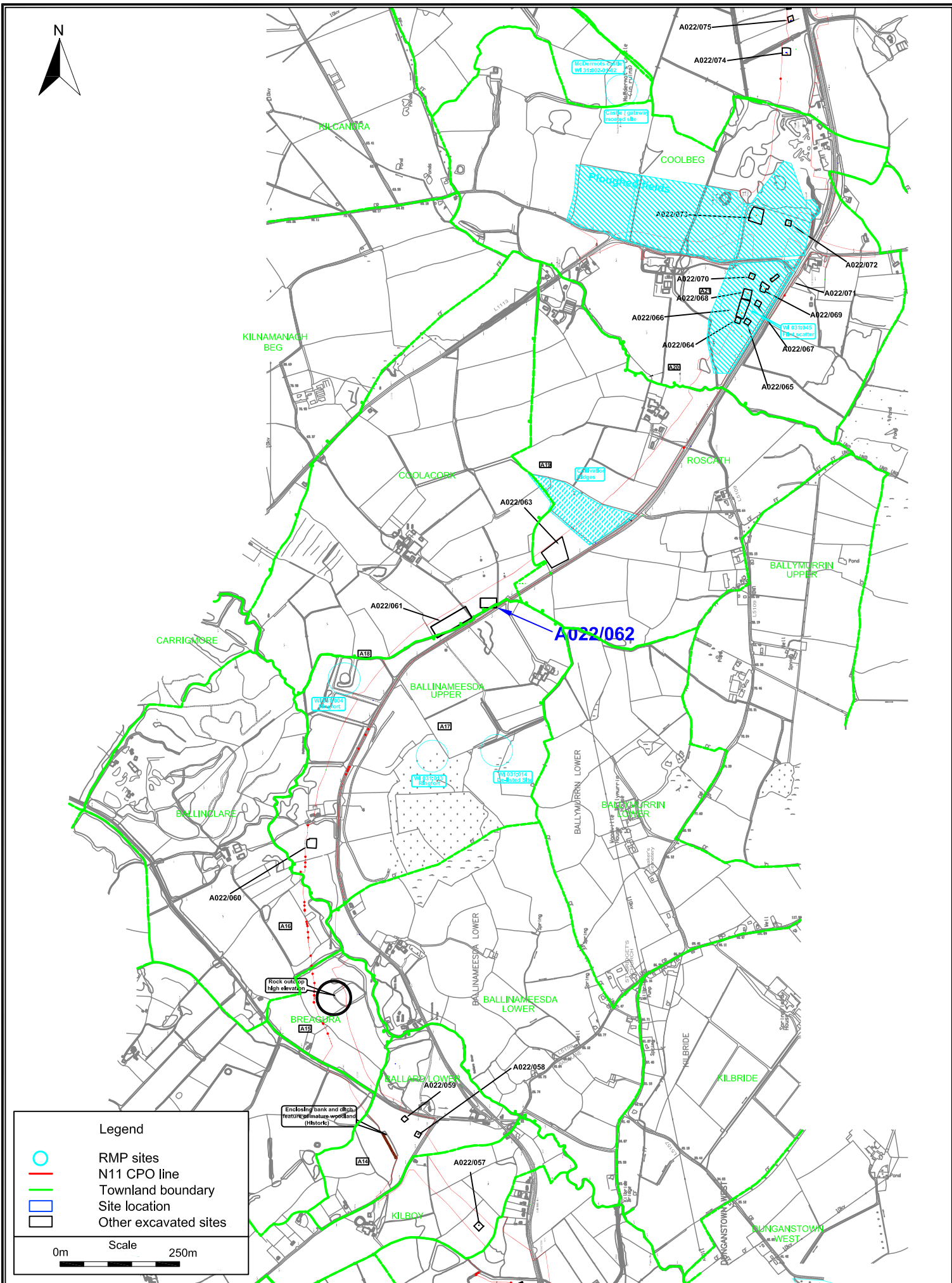
Other Sources

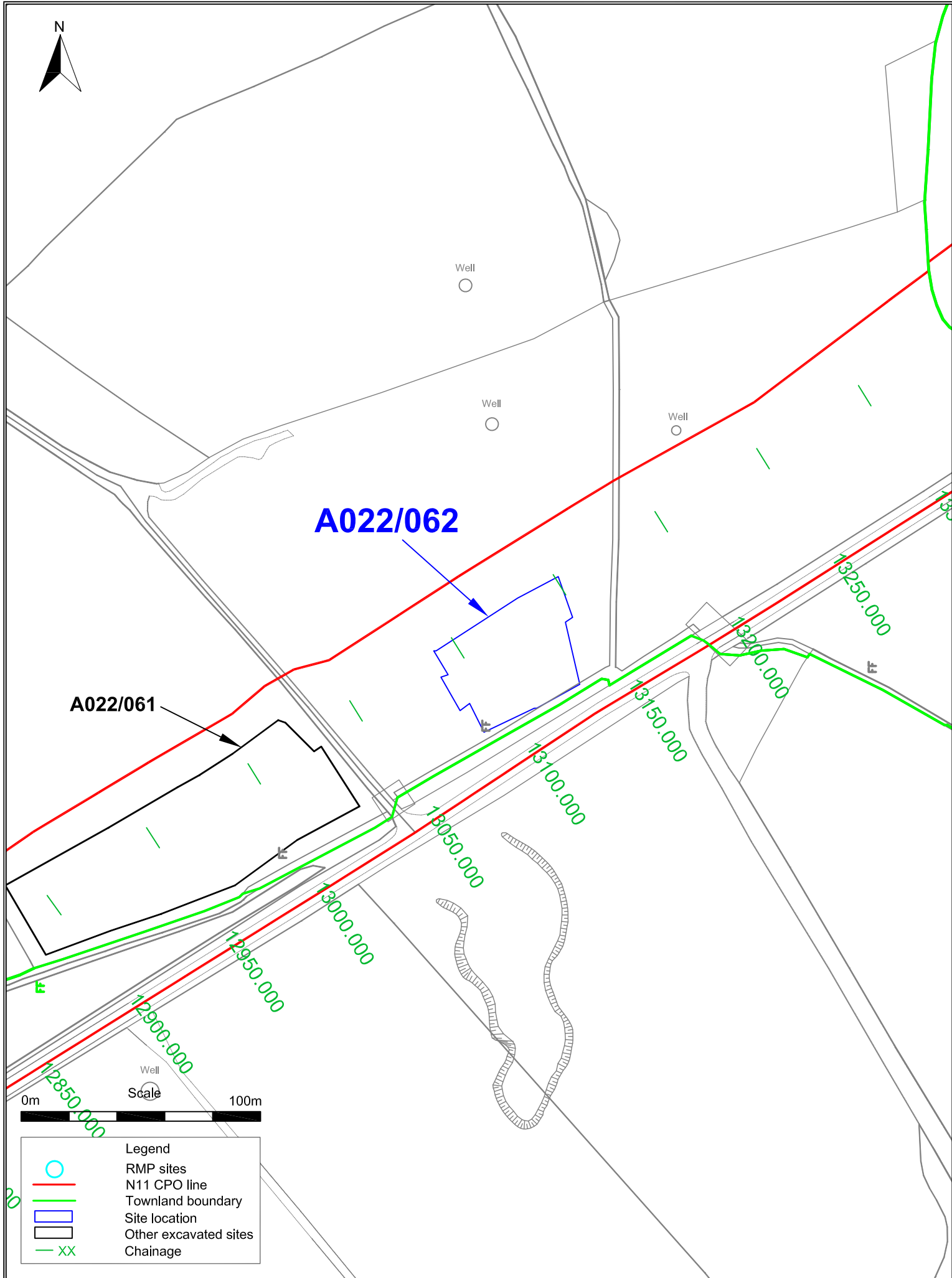
Record of Monuments and Places (RMP), The Department of the Environment, Heritage and Local Government, 7 Ely Place Upper, Dublin 2.

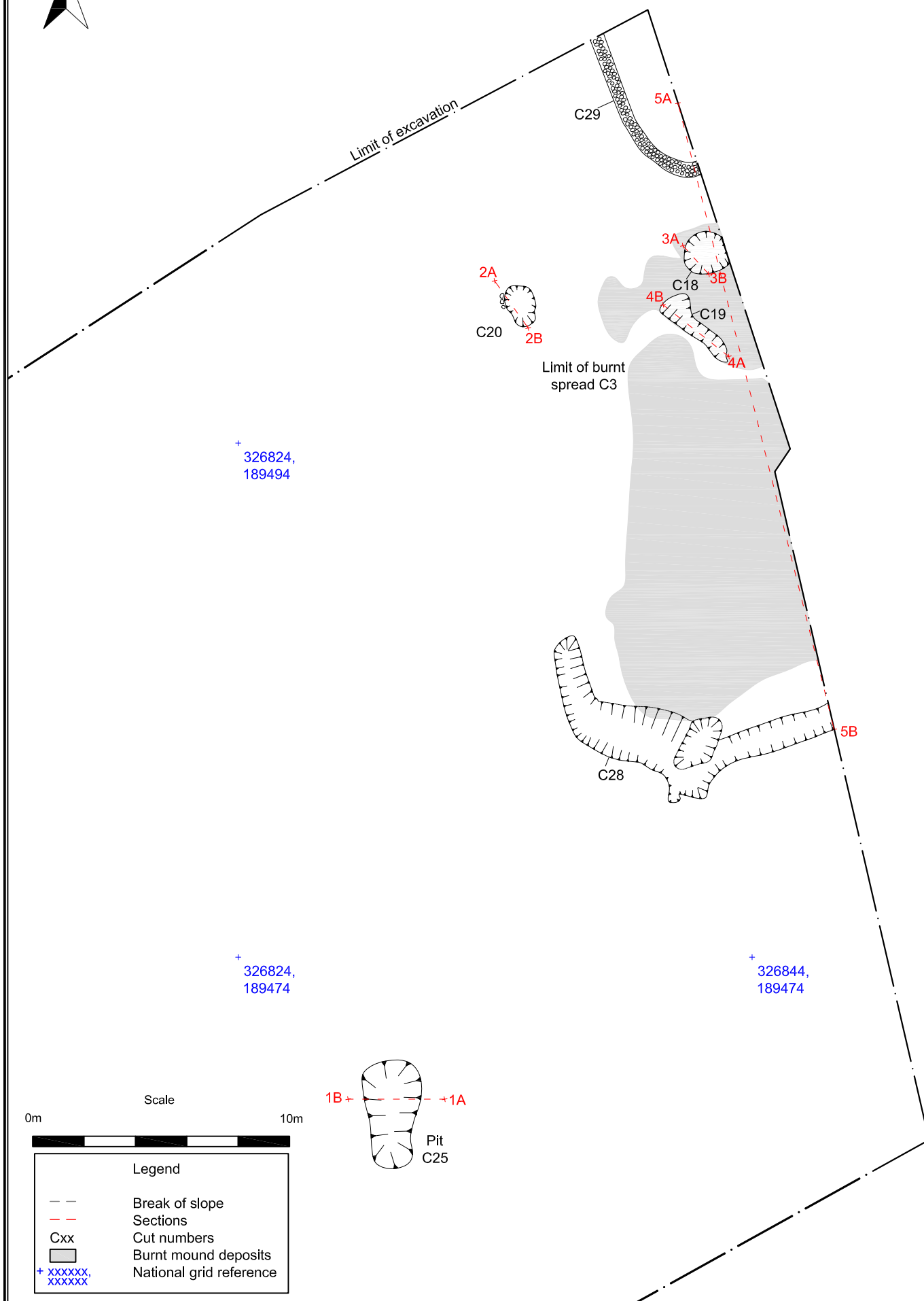
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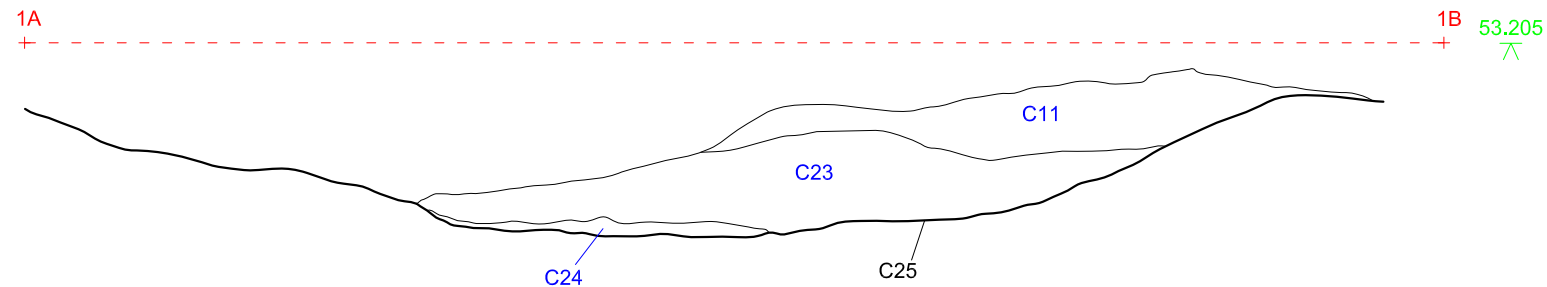
| | | | | |
|--|----------|--|--------------|-----------|
| | Title: | Site A022/062 E3248, site location on OS Discovery Series background | Scale: | 1:60000 |
| | Project: | N11 Rathnew to Arklow Road Improvement | Date: | 14/12/09 |
| | Client: | Wicklow County Council | Produced by: | P Higgins |
| | | | Job No: | J2283 |
| | | | Figure No: | 1 |



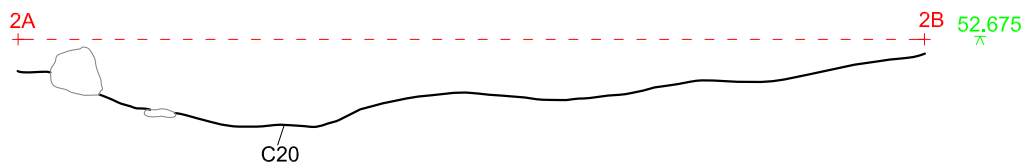




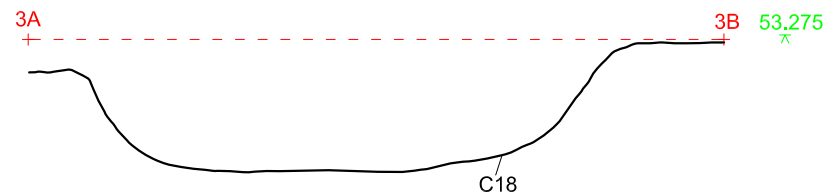
North facing section of C25



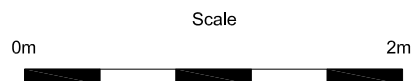
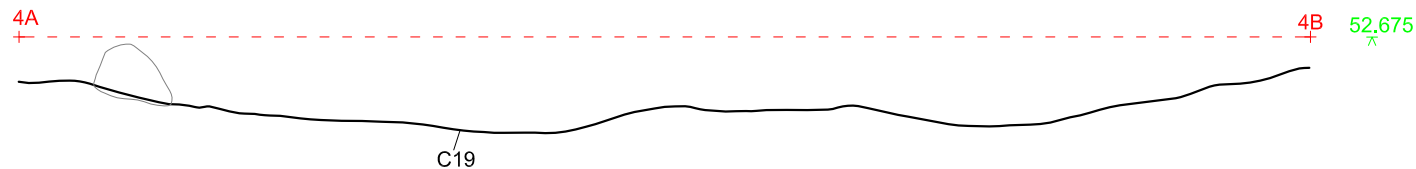
North facing profile of C20



West facing profile of C18



Northeast facing profile of C19

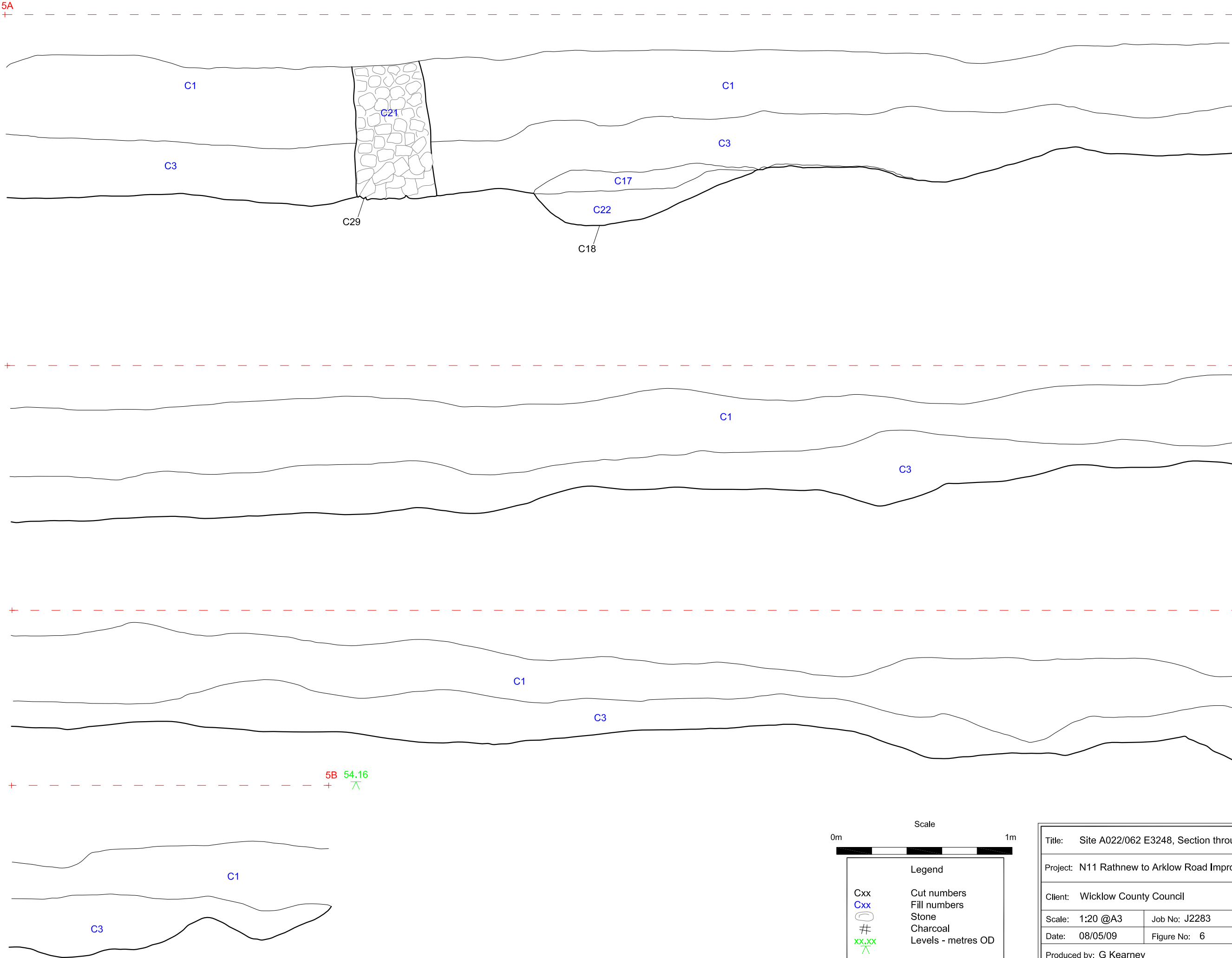


Legend

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

IAC Irish Archaeological Consultancy

| | | | |
|----------|---|--------------|-----------|
| Title: | Site A022/062 E3248, Sections through [C25], [C20], [C18] and [C19] | Scale: | 1:20 @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: | 5 |



GROUP 4: TOPSOIL

Subgroup {1010} Topsoil

C 01

GROUP 3: POST MEDIEVAL ACTIVITY

Subgroup
{1009}
Drain

C 012

C 013

C 021

C 029

Subgroup
{1008}
Drain

GROUP 2:
PREHISTORIC
ACTIVITY

Subgroup
{1007} Burnt
Mound

C 003

Subgroup
{1002}
Trough

C 017

C 022

C 018

Subgroup
{1003}
Gully

C 030

C 028

Subgroup
{1004} Pit

C 006

C 020

Subgroup
{1005}
Gully

C 016

C 019

C 011

C 023

C 024

C 025

Subgroup
{1006} Pit

GROUP 1: NATURAL GEOLOGY

Subgroup {1001} Natural Subsoil

C 002



Plate 1 Pre-excavation view of trough [C18], facing east



Plate 2 South facing section of pit [C20], facing north



Plate 3 Post-excavation view of gully [C19], facing southeast



Plate 4 Pre-excavation view of pit [C25], facing north



Plate 5 North facing section of burnt mound (**C3**), facing south



Plate 6 West facing section of burnt mound (**C3**), facing east

APPENDIX 1: CATALOGUE OF PRIMARY DATA

Appendix 1.1 Context Register


| Context | Type | Fill of | Filled by | Definition | Group | Subgroup | Subgroup Summary | Depth (m) | Length (m) | Width (m) |
|---------|---------|---------|-----------|--------------------------------|-------|----------|-----------------------|-----------|------------|-----------|
| 1 | Topsoil | - | - | Topsoil | 4 | 1010 | Topsoil | - | - | - |
| 2 | Subsoil | - | - | Subsoil | 1 | 1001 | Natural Drift Geology | - | - | - |
| 3 | Spread | - | - | Spread of burnt mound material | 2 | 1007 | Burnt Mound Material | 0.4 | 23.0+ | 10.0+ |
| 4 | Void | - | - | - | | | | - | - | - |
| 5 | Void | - | - | - | | | | - | - | - |
| 6 | Fill | C20 | - | Fill of possible pit C20 | 2 | 1004 | Pit | 0.28 | 1.6 | 1.2 |
| 7 | Void | - | - | - | | | | - | - | - |
| 8 | Void | - | - | - | | | | - | - | - |
| 9 | Void | - | - | - | | | | - | - | - |
| 10 | Void | - | - | - | | | | - | - | - |
| 11 | Fill | - | - | Fill of pit C25 | 2 | 1006 | Pit | 0.24 | 3.7 | 2.0 |
| 12 | Fill | - | - | Fill of drain C13 | 3 | 1009 | Drain | 0.35 | 2.3 | 0.35 |
| 13 | Cut | - | - | Cut of drain, filled by C12 | 3 | 1009 | Drain | 0.35 | 2.3 | 0.35 |
| 14 | Void | - | - | - | | | | - | - | - |
| 15 | Void | - | - | - | | | | - | - | - |
| 16 | Fill | C19 | - | Fill of possible gully | 2 | 1005 | Gully | 0.2 | 3.53 | 1.0 |
| 17 | Fill | C18 | - | Fill of trough | 2 | 1002 | Trough | 0.12 | 1.7 | 1.3 |
| 18 | Cut | - | C17, C22 | Cut of trough | 2 | 1002 | Trough | 0.35 | 1.75 | 1.38 |
| 19 | Cut | - | C16 | Cut of possible gully | 2 | 1005 | Gully | 0.2 | 3.53 | 1.0 |
| 20 | Cut | - | C6 | Cut of possible pit | 2 | 1004 | Pit | 0.28 | 1.6 | 1.2 |
| 21 | Fill | C29 | - | Fill of drain C29 | 3 | 1008 | Drain | 0.8 | 3.5 | 0.5 |
| 22 | Fill | C18 | - | Fill of trough | 2 | 1002 | Trough | 0.25 | 1.75 | 1.38 |
| 23 | Fill | C25 | - | Fill of pit C25 | 2 | 1006 | Pit | 0.27 | 3.04 | 1.97 |

| | | | | | | | | | | |
|----|------|-----|---------------|---|---|------|-------|------|------|------|
| 24 | Fill | C25 | - | Fill of pit C25 | 2 | 1006 | Pit | 0.07 | 1.98 | 0.9 |
| 25 | Cut | - | C11, C23, C24 | Possible pit associated with burnt mound activity | 2 | 1006 | Pit | 0.44 | 3.45 | 2.42 |
| 26 | Void | - | - | - | | | | - | - | - |
| 27 | Void | - | - | - | | | | - | - | - |
| 28 | Cut | - | C30 | Cut of possible gully | 2 | 1003 | Gully | 0.15 | 8.0 | 2.5 |
| 29 | Cut | - | C21 | Cut of drain | 3 | 1008 | Drain | 0.8 | 3.5 | 0.5 |
| 30 | Fill | C28 | - | Fill of a possible gully | 2 | 1003 | Gully | 0.15 | 8.0 | 2.5 |

Appendix 1.2 Artefact Catalogue

| Find Number | Context | Material | Description |
|--------------------|---------|----------|-----------------|
| E3248/A022/062:3:1 | 3 | Flint | Retouched Flake |

Appendix 1.3 Archive Index

| | | |
|---|--|-----------------------|
| Project: N11 Rathnew to Arklow Road Improvement | Irish Archaeological Consultancy Ltd | |
| Site Name: Coolacork |  | |
| Ministerial Number: A022/062 | | |
| Site director: Yvonne Whitty | | |
| Date: May 2009 | | |
| | | |
| Field Records | Items (quantity) | Comments |
| Site drawings (plans) | 9 | |
| Site sections, profiles, elevations | 7 | |
| Other plans, sketches, etc. | 0 | |
| Timber drawings | 0 | |
| Stone structural drawings | 0 | |
| | | |
| Site diary/note books | 1 | |
| Site registers (folders) | 1 | |
| Survey/levels data (origin information) | On plans | Digital copy also |
| Context sheets | 30 | |
| Wood Sheets | 0 | |
| Skeleton Sheets | 0 | |
| Worked stone sheets | 0 | |
| | | |
| Digital photographs | 16 | |
| Photographs (print) | 0 | |
| Photographs (slide) | 0 | |
| Finds and Environmental Archive | | |
| Flint/chert | 1 | Retouched flint flake |
| Stone artefacts | 0 | |
| Pottery (specify periods/typology) | 0 | |
| Ceramic Building Material (specify types e.g. daub, tile) | 0 | |
| Metal artefacts (specify types - bronze, iron) | 0 | |
| Glass | 0 | |
| Other find types or special finds (specify) | 0 | |
| Human bone (specify type e.g. cremated, skeleton, disarticulated) | 0 | |
| Animal bone | 0 | |
| Metallurgical waste | 0 | |
| Enviro bulk soil (specify no. of samples) | 3 | |
| Enviro monolith (specify number of samples and number of tins per sample) | 0 | |
| Security copy of archive | Yes | Digitised |

APPENDIX 2: SPECIALIST REPORTS

Appendix 2.1 Lithics Report – Dr Farina Sternke

Appendix 2.1 Lithics Report – Dr Farina Sternke

Introduction

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

| Find Number | Context | Material | Type | Cortex | Condition | Length (mm) | Width (mm) | Thickn. (mm) | Complete | Retouch |
|--------------|---------|----------|-----------------|--------|-----------|-------------|------------|--------------|----------|------------------------------|
| A022/062:3:1 | 3 | Flint | Retouched Flake | Yes | Patinated | 43 | 27 | 7 | Yes | right edge direct semiabrupt |

Table 1 Composition of the lithic assemblage from Coolacork (Site A022/062)

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 possible pit.

Condition:

The lithic survives in patinated and complete condition.

Technology/Morphology:

The artefact is a flake with retouch concentrated on its direct right edge. The flake was produced using a bipolar-on-an-anvil technique on a beach pebble core. It was probably used as a scraper or backed knife.

Dating:

The retouched flake is typologically undiagnostic, but a Bronze Age date is likely based on the use of a bipolar technology for its production.

Conservation

Lithics do not require specific conversation, 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).

It is not unusual to recover single finds at 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).

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. The majority of these flint nodules are rather small pebbles with an average dimension of 7cm 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 find from the archaeological investigations at Coolacork (Site A022/062) along the route of the N11 Rathnew to Arklow Road Improvement is a retouched flake from a lithic production involving a bipolar-on-an-anvil technology which is commonly associated with Bronze Age sites.

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

Recommendations for Illustration

- Retouched flake (A022/062:3:1)

Bibliography

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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 |

| 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 |