

**M8/N8 Cullahill to Cashel Road Improvement Scheme:  
Archaeological Resolution**

**FINAL REPORT  
Ministerial Direction: A027/000  
Registration No.: E2818**

**Site AR 29, Coolcroo Townland,  
Co. Tipperary**

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## **ABSTRACT**

This report comprises the final results of the archaeological excavation of Site AR 29, in the townland of Coolcree, Co. Tipperary. Work was undertaken as part of the archaeological programme for the M8/N8 Cullahill to Cashel Road Improvement Scheme. The excavation was conducted by Dr. D. McCullough, under Ministerial Direction No. A027/000, Registration No. E2818, for Valerie J Keeley Ltd, from 4<sup>th</sup> October to 20<sup>th</sup> October 2006.

Excavation of the site produced the remains of a denuded Burnt Mound. This comprised two troughs and a smaller pit that were dug into the underlying subsoil and filled with charcoal rich soil mixed with some heat-affected stone. The later of the two troughs produced a late Bronze Age radiocarbon date of 1041 – 845 Cal BC. Later plough furrows crossed the site truncating the upper burnt deposits. Two sherds of medieval pottery were also recovered from topsoil.

All archaeological work is now complete for this site and this report constitutes the final report on this excavation. A digital copy of the archive is available at the post excavation offices of Valerie J Keeley Ltd., Brehon House, Kilkenny Road, Castlecomer, Co. Kilkenny. The original paper archive for this excavation will rest with the Road Design Offices of Kilkenny County Council.

## CONTENTS

1.0	INTRODUCTION .....	1
1.1	Aims & Objectives .....	1
1.2	Summary of Archaeological Significance .....	1
1.3	Timescale .....	1
1.4	Site Location & Access .....	2
2.0	BACKGROUND .....	3
2.1	Topography & Geology .....	3
2.2	Historical Overview .....	3
2.3	Archaeological Background .....	9
2.4	Coolcree Townland .....	9
3.0	THE EXCAVATION .....	11
3.1	Site Description & Topography .....	11
3.2	Previous Archaeological Assessment .....	11
3.3	Method .....	11
3.4	Stratigraphic Summary .....	12
3.5	Condition Post Excavation .....	13
4.0	THE FINDS .....	14
4.0	Overview .....	14
4.1	Medieval Pottery By Nick Brannon .....	14
5.0	DISCUSSION .....	16
5.1	Definition .....	16
5.2	Interpretation .....	16
5.3	Distribution .....	17
5.4	Settlement Evidence .....	17
5.5	Structural Features .....	18
5.6	Environmental Evidence .....	21
5.7	Dimensions & Morphology .....	21
5.8	Artefactual Evidence .....	22
5.9	Chronology & Dating .....	23
6.0	CONCLUSIONS .....	26
7.0	ACKNOWLEDGEMENTS .....	26
8.0	REFERENCES .....	27
9.0	SPECIALIST APPENDICES .....	30
9.1	Non Wood Plant Remains By Meril McClatchie .....	30

9.2	Wood & Charcoal Identification By Ellen O Carroll .....	32
9.3	Radiocarbon Dating.....	41
10.0	EXCAVATION RECORD .....	42
A.	Context Register .....	42
B:	Finds Register .....	43
C:	Sample Register .....	43
D:	List Of Quantities .....	43
E:	Stratigraphic Matrix.....	44

## List of Figures

Figure 1	Location map (based on Ordnance Survey Discovery Series)
Figure 2	Scheme map with excavation area denoted
Figure 3	1 <sup>st</sup> edition Ordnance Survey map (1: 5000)
Figure 4	2 <sup>nd</sup> edition Ordnance Survey map (1: 2500)
Figure 5	RMP map showing site location (1: 5000)
Figure 6	Site overview
Figure 7	Plan of Burnt Mound
Figure 8	Site Sections & profile

## List of Plates

Plate 1	Post-excavation view of trough [c14]. Looking northwest.
Plate 2	Mid-excavation, showing section through trough [c14]. Looking north
Plate 3	Post-excavation view of subcircular troughs [c18] (foreground) and [c14]. Looking west
Plate 4	East-facing section through trough [c18]. Looking west
Plate 5	Working sections through the two features [c14] and [c18]. Looking west
Plate 6	Post-excavation view of troughs [c9] (foreground), [c14] (left) and [c18]. Looking northwest
Plate 7	Pre-excavation view of trough [c6]. Looking northwest
Plate 8	Pre-excavation of [c3] (foreground) and [c5] showing plough furrows. Looking southeast

## List of Tables

Table 1	Pottery recovered from topsoil
Table 2	Trough shape comparison on the M8/N8
Table 3	Trough quantity and shape on the southern and central section of the M8/N8 road scheme
Table 4	Radiocarbon Dates for Trough across M8/N8 Scheme
Table 5	Burnt mound/spread sizes on the M8/N8 road scheme
Table 6	Sequence of Bronze Age dates indicating contemporary sites on the northern and southern sections of the road scheme
Table 7	All Taxa Identified
Table 8	Wood taxa present in the charcoal assemblage
Table 9	Types identified from the charcoal and wood assemblage
Table 10	Radiocarbon Dates
Table 11	All taxa identified
Table 12	Wood taxa present in the charcoal assemblage
Table 13	Radiocarbon Dates. Calibration data set: intcal 04.14c



## **1.0 INTRODUCTION**

### **1.1 Aims & Objectives**

Valerie J. Keeley Ltd. was appointed by Kilkenny County Council to excavate archaeological sites first identified during a programme of additional centreline testing carried out by Valerie J Keeley Ltd., Scheme No./ Works No. A0027/000, Excavation No. E2395 (Fegan 2006). The scope of the archaeological measures were:

- To strip the topsoil from an area measuring a total of 1400m<sup>2</sup> along the main M8/N8 road corridor and identify the previously discovered archaeological features and any other features that may be present in this area.
- Photograph and plan any archaeological features or possible features.
- Excavate any features identified and record their contexts and sections, retaining samples where necessary, to resolve them with preservation by record.

The goal of this project being to preserve by record the archaeological site/s exposed within the take of the proposed route, and to further assess areas previously unavailable for testing (McQuade *et al* 2006).

These works took place in accordance with the Directions issued by the Minister for Environment, Heritage and Local Government under Section 14A(2) of the National Monuments Acts (1930 – 2004), in accordance with the terms of the Contract between Kilkenny County Council and Valerie J Keeley Ltd and according to the terms of the *Code of Practice* agreed between the National Roads Authority and the Minister of Arts, Heritage, Gaeltacht and the Islands. The excavations also complied with the Policy and Guidelines on Archaeological Excavation (Govt of Ireland 1999) and were overseen by the Project Archaeologist.

### **1.2 Summary of Archaeological Significance**

The site represents a single phase of pyrolithic activity dating to the Late Bronze Age. The troughs and pit appear to have been utilised together in a pattern familiar on excavations of Burnt Mounds seen across the wider scheme. It would appear from the collective evidence that one of the troughs functioned as a water source while the other was utilised for a different purpose. The nearby excavated site in Rathcunikeen (E2372 / AR 28) presents an example with three identical and successive phases that took place in the centuries prior to the activity at E2818 / AR 29.

### **1.3 Timescale**

Topsoil was stripped from the site on 26<sup>th</sup> September 2006. Excavation commenced on the 4<sup>th</sup> October 2006 with the site being resolved on 20<sup>th</sup> October 2006. The site was backfilled by machine shortly after the work was carried out and the ground reinstated.

#### **1.4 Site Location & Access**

The site was located along the line of the proposed M8/N8 Cullahill to Cashel Road Improvement Scheme. The road scheme consists of a 39.5km route from its tie in with the M7/M8 Portlaoise to Cullahill Scheme south of Cullahill in Co. Laois to its tie in with the N8 Cashel bypass north of Cashel in County Tipperary South Riding.

The site was located along the south-central section of the Scheme, 1.5km north of Littleton, within Coolcree townland, in the parish of Twomileborris and Barony of Eliogharthy, County Tipperary North Riding (NGR 217795E, 155961N, 115m OD, Chainage 15700 – Link Road 600. See Figures 1, 2; Plate 1).



## 2.0 BACKGROUND

### 2.1 Topography & Geology

The site was located in the central section of the M8/N8 Cullahill to Cashel road scheme, in Coolcree townland, in the Barony of Eliogarty Co. Tipperary North Riding. The townlands through which the road passed in Eliogarty have been divided into two sections based on the territorial extents of the medieval manors of Moycarky and Burgage Leith (Twomileborris) and their associated parishes. The townlands of this section; Ballydavid, Lahardan Upper, Rathcunikeen, Coolcree, Monaraheen, Ballyerk, Blackcastle, Borris and Noard, would have fallen under the episcopal manor and parish of Burgaslethe ('The Settlement of *Liath Mor*', modern Twomileborris)

This area is set within a broad low lying 25km east – west, 40km north – south plain with a gradual northeast – southwest slope trend (falling 130-110m OD). The present undulating nature of the landscape was created during the last glacial period from morainic deposition of churned bedrock material, smoothed by passing glaciers. The plain is bounded by the Silvermine and Devil's Bit range of hills to the west and north, the Slieveardaghs to the east and is dotted with a small number of low hills not exceeding 235m OD. From 15km north of Thurles to the south, it is effectively bisected and drained by the River Suir and its tributaries. Between the limit of useful farmland east and northwest of the Suir and the Slieveardaghs, is a network of raised bogs; Derryville Bog to the northwest and Littleton Bog to the east.

The underlying bedrock throughout the plain is Carboniferous limestone with occasional erosion resistant blocks, such as the knoll that forms the Rock of Cashel. The bedrock is sealed by glacially deposited sediments, which in poorly drained regions tend to support tracts of raised bog. The greater proportion of the plain however, supports well drained farmland, the majority of it dairy farming pasture interspersed with marshy areas around the low lying flood plains of minor rivers.

The topography and geology of this section of the scheme is typical of the plain in general, with a gentle undulating northeast – southwest slope trend (falling 120-110m OD) and occasional hillocks not exceeding 134m OD. The area is drained by the Black River and its tributaries. The majority of land use was dairy farming pasture with some tillage.

### 2.2 Historical Overview

While the scheme as a whole comprises an essentially artificial geographic unit, defined by townlands traversed by the M8/N8 road corridor, the townlands of the central section can be readily placed in a historical/geographic context as they lie entirely within the pre – Norman territory of the *Eile Deiscert*, the medieval manor of Burgaslethe and the modern Barony of Eliogarty.

### 2.2.1 Early Origins

The historic period in Ireland begins with the arrival of writing in the early medieval period, concurrent with the spread of Christianity. Little can be definitively stated about the internal geographic boundaries and political structures of Ireland prior to this time and indeed until about the 8<sup>th</sup> century AD, although we can project known early medieval divisions back to the near proto – historic period. The earliest traditional division of the country was into two halves along a boundary that ran roughly from Dublin to Galway (Byrne 2001, 168). The north was Leth Cuinn (Conn's Half) and the south was Leth Moga (Mugs Half). Conn was the progenitor of the Connachta, a tribal grouping from whom the later rulers of Connaght and Ulster claimed descent, while Mug was believed to be the first of the Eoganachta, from whom the kings of Munster and Leinster claimed descent. The two Halves of Ireland were more cultural than they were political, but it is from them that the very real polities of the Fifths of Tara (Mide), Ulster, Connaght, Leinster and Munster emerge. Each Fifth was a conglomeration of sub – provincial kingdoms under the suzerainty of a provincial over – king. Munster itself was subdivided into Fifths; *Aurmumu* (Ormond) east Munster, *Taudmumu* (Thomond) north Munster, *Medón Muman* mid Munster, *Desmumu* (Desmond) south Munster, and *Iarmumu* west Munster (*ibid.* 165). The site lay within the Fifth of *Aurmumu* and in the *Tricha Cet* (an area that could nominally muster 3000 fighting men) of *Eile* (Ely; which would have composed the modern Baronies of Ballybrit, Clonlisk and Ikerrin in Co. Offaly and Eliogarty in Co. Tipperary) under the kingship of the O' Cearbhaill (O' Carroll). The sub – provincial kingship of *Aurmumu* was centred on the rock of Cashel, as was the kingship of Munster itself, and was held exclusively between the fifth and tenth centuries by various septs of the Eoganachta, to whom the kings of *Eile* gave tribute. In the mid tenth century the southern part of *Eile*, within which the site was situated, became a separate entity called *Eile Deiscert* (Southern Ely) under the kingship of the O' Fogarta (precise boundaries unknown; majority of the modern barony of Eliogarty). The O' Fogarta were believed to be descended from Eochaidh Balderg, a *Dal Cais* king of *Taudmumu* in the fifth century AD (O' Donovan 1840).

*"South Ely of well established tributes –  
Its clans are of the race of Eochaidh Balderg –  
A country of affluence, abounding in hazel woods,  
It is the land which O' Fogarty obtained."* (*ibid.* 710)

The site and the general route of the M8/N8 also lay along a branch of the broad northeast – southwest running corridor of the Slige Dála, the main prehistoric and early medieval route way from Leinster to Munster, with which the M8/N8 shares a similar axis (Byrne 2001, 169).

### 2.2.2 Early Medieval

There is no documentary evidence for the O' Fogarta and their territory of *Eile Deiscert* prior to the mid tenth century AD and it would appear that around this time the O' Fogarta split from the larger kingship of the O'Cearbhaill and established an independent kingship in the south of *Eile*, separated by a ready made boundary in the Derryville/Littleton Bog Complex. The two *Eile* polities would henceforth be known as *Eile/ Eile Tuiscert*

(Northern Ely)/ *Eile Uí Cearbhail* and *Eile Deisceart/ Eile Uí Fhogartaigh* respectively (O' Donovan 1840 vols. II, III). The earliest reference to two *Eili* is from 967 AD, when it is recorded that a Munster army lead by Mathgamain mac Cennitig, the King of Munster and of Cashel (originally king of the Dal Cais and *Taudmumu* and elder brother of Brian Ború) was composed of units from the two *Eili*, the *Deisi* and the *Imhar* of Waterford (O' Donovan 1840 vol.II, 692). They took to the field against a Leinster army composed of Dublin Vikings and the *Osraighi*, in Ossory (possibly southwest Offaly or northwest Kilkenny). There is no mention of the O' Fogarta in the annals for another 90 years until 1057 when the then king Maelruanaidh Ua Fogarta was killed by the king of Cashel and of Munster, Donnchadh Ua Brian (O' Donovan 1840 vol.II, 873). Further deaths of kings in battle are noted in 1121 and 1171, the latter killed by the king of the *Osraighe* who is recorded to have subsequently slaughtered 300 people in the two *Eili* (O' Donovan 1840 vol.II, 1014, 1183). While the surviving historical evidence tells us little about *Eile Deiscert* specifically, it does seem to indicate a mid tenth century origin for the polity which coincides with the Dal Cais (kings of *Taumumu*) take over of Cashel and the kingship of Munster in 964, with whom they shared a common lineage. It would also appear that *Eile Deiscert*, due in part to its strategic location on the regional border between Leinster and Munster and the local Egonachta/Eile border with the Eoganacht Caisel to the south (modern Barony of Middlethird), was subject to intense inter and intra - provincial conflict in the 10<sup>th</sup>, 11<sup>th</sup> and 12<sup>th</sup> centuries.

*Eile Deiscert* would have fallen under the early medieval Diocese of Cashel, as it does today, however we have no definitive evidence to suggest that there were early medieval churches in this section of the scheme. The 7<sup>th</sup> century ecclesiastic centre of *Liath Mor* (Leigh), which was to give its name to the later manor of Burgaslethe, is located 3km northeast of the site and would have been the nearest such religious complex. *Liath Mor* was one of five major pre - Norman ecclesiastic sites in proximity to the route of the road; Cashel, *Doire Edhnaigh* (Derrynaflan), *Doire Mor* (Longfordpass North) and *Fearta na gCaireach* (Grangefertagh) being the others.

### 2.2.3 Anglo – Norman Era

The 12<sup>th</sup> century saw a dramatic change to Gaelic Ireland, following the arrival of Anglo – Norman armies and the submission of Irish kings to Henry II, making Ireland a lordship of England. While daily life for the majority of the population continued much as it had before, a new population group became established across the country bringing with them a new material culture and a new system of civil and ecclesiastic administration. In areas under Anglo-Norman control the various strata of provincial, sub-provincial and local kingships were replaced with a manorial system under lordships and earldoms. The idiosyncratic organisation and practices of the Irish church were adapted to fit the European norm with the introduction of a parochial system following the submission of the Irish Bishops to Henry II at Cashel in 1172 (Scott & Martin 1978, 99). New geographic units such as cantreds, baronies, counties and palatinate counties were created to facilitate the Anglo-Norman colonisation. The manorial system and new geographic units by and large followed pre-existing boundaries, although their precise definition and function remained in a state of flux throughout the medieval period. In

Munster the Fifth of *Aurmu* became Ormond (established as an earldom under the Butlers in 1330's), the *Tricha Cet* of *Eile Deiscert* became the barony of Eliogarty and the sub-provincial kingship of the O' Fogarta became a cantred (a group of manors) centred in the former heartland of the O' Fogarta at Thurles (*Durlas Eile*). Tipperary was defined as a palatinate county (under the Butlers of Ormond) in 1254 or 1261 and was effectively divided in half by the de Burgo lordship in the south and the Butler lordship in the north, which incorporated the cantred of Eliogarty (Power 1987, 1, Hennessy 1996, 116-125). There was also a parallel system of civil administration over disparate church lands, called Tipperary of the Cross, separate from the lordships in the palatinate county.

The progress of the colonisation programme in the 13<sup>th</sup> / 14<sup>th</sup> century Tipperary was erratic and subject to pressure from Gaelic lordships bordering the colony, conflicts between Anglo-Irish lords themselves, the paucity of colonists beyond urban centres and external factors outside government control. One of these factors was the worst recorded famine in medieval Ireland in 1314-1318 coupled with the wide spread devastation caused by de Bruce's invasion of Ireland in 1315-1318 (Marnane 2003, 193). During the period of instability which followed in the 1320-30's, settlements in the de Burgo lordship were subject to orchestrated attacks from the Earl of Desmond to the south and the O'Brien lordship of Thomond to the west (*ibid* 198). The spread of bubonic plague throughout the urban centres of Ireland in the 1350's had a major impact on the English colony as a whole, but a minor one on the dispersed populations of the Gaelic lordships. The weakening civil administration of the colony fuelled continuing conflict throughout the fifteenth century between Desmond, Ormond and Thomond and factional conflict between the various lords within these earldoms and lordships defined the political background for the region in this period.

#### **2.2.4 The Possible Manor of Burgeslethe**

The cantred of Eliogarty was granted to Theobald Walter (the first of the Butlers of Ormond) by Henry II in 1185 (Empey 1988, 209). A further eight carucates (960 acres, sufficient to support a manor) of the abbey of Let (*Liath Mor*) was granted in fee (not the land *per se* but rather the value of annual rents and the implicit permission to develop said lands) to Theobald Walter by the Archbishop of Cashel between 1195 and 1206 (Curtis & Berry 1932 vol. I, 8). Although the precise location of this land relative to *Liath Mor* is not known, it is possible that it comprised the territory of Burgeslethe (3km northwest), as the ecclesiastic site and hinterland of *Liath Mor* maintained its territorial integrity separate from secular development – i.e. the site was not fortified, it contained no mills and there is no documentary or archaeological evidence for a manor centred at this location. While there is likewise no documentary evidence for the development of a manor at Burgeslethe during the 13<sup>th</sup> century, this may in part be due the probability that, although granted in fee by the Archbishop of Cashel to the lord of the cantred, the ownership of the land itself remained with the church and therefore part of Tipperary of the Cross. If this were the case, then the various manorial accounts would have been stored in church archives, now lost, rather than the surviving Red Book of Ormond or Ormond Deeds.

A strong indication that a manor existed at Burgaslethe by at least the late 14<sup>th</sup>/ early 15<sup>th</sup> century is alluded to by a grant in 1416 of three tenements, an orchard, an acre of rabbit warren and 40 acres of land in Gybeston/Gibbeston (formerly Rath sax/Rathsowagh, defunct townland) in the lordship of Burgageleyth to the Archbishop of Cashel (Curtis & Berry 1932 vol. III, 15). The detailed and varied holding is indicative of a manorial unit, as the term 'lordship' is of a manorial *caput*. A later grant of two messuages (a plot of a cottage, outbuildings and roughly an acre of land) and three acres in Boteston in Burgaslethe parish by the archdeacon of Cashel to a John Cantwell from *circa* 1450, is further evidence suggestive of a manor and that the land remained church administered (Curtis & Berry 1932 vol. III, 166). This document also suggests that Boteston (also Boytheston) may have been the name of the original medieval settlement of Twomileborris (RMP Ref: TN042:052). It bears a close parallel to the Borrestowne in Borresliegh parish of the 1659 Civil Survey (population 85; i.e. a village) and the modern townland of Borris in Twomileborris parish; the centre of the present village of Twomileborris (Pender 2002, 317).

### 2.2.5 Late Medieval

The ongoing nature of low – scale warfare throughout north Munster in the late medieval period created a political and militarily unstable society for Anglo-Irish and Gaelic areas alike. A physical manifestation of this was the proliferation of tower houses constructed in the 15<sup>th</sup> and 16<sup>th</sup> century, with multiple strongholds built in each lordship. The scale of conflict between Ormond and Desmond can be seen in the largest densities of tower houses in the country in counties Limerick (Desmond), Kilkenny and Tipperary (Ormond) (Marnane 2003, 220). The comparatively large number of such strongholds in the area may also be due to the fact that Ormond and Desmond escaped the Elizabethan plantations of the early 16<sup>th</sup> century. Three tower houses were constructed along this section of the route in Ballydavid, Coolcroo and Borris.

The second half of the 16<sup>th</sup> century saw the most dramatic political change in Ireland since the submission of the Irish kings to Henry II. In the 1540's Henry VIII instituted wide scale administrative and ecclesiastic reforms in Ireland including the Reformation of the church, and a new Irish policy of Surrender and Regrant; through which the Gaelic lordship of Thomond became the earldom of Thomond (Lennon 2005, 145-166). The definitive symbol of this period of transformation was the change in title of Irish crown territory from the Lordship of Ireland to the Kingdom of Ireland in 1541. The new found English interest in Ireland also meant the projection of direct influence on what for centuries had been semi-autonomous Anglo-Irish earldoms and a diminution of the independence of Gaelic lords. This interference in feudal Irish society, in addition to forced Anglicisation and opposition to the Reformation caused simmering resentment against the crown that spilled over into the unsuccessful Desmond Rebellions of 1569-73 and 1579-83. The result of the rebellions was the creation of the Presidency of Munster in 1576 and the crown confiscation of Desmond land in Munster in 1586 (Marnane 2003, 247-266, Lennon 2005, 210-231).

The first mention of Burgeslethe (now Burges Lieghe) in the 16<sup>th</sup> century are two agreements from 1572 and 1591 between the Earl of Ormond and tenants of the Black Castle and mill of Burges Lieghe (Curtis & Berry 1941 vol. V, p227; Curtis & Berry 1941 vol. VI, 84). There is no mention of a village or of a manor court in the documents (had they have been present they would have been stated), suggesting that by this time, possibly as a result of the Desmond Rebellions, the manor and village had become defunct. Another rental agreement of 1572 covers that of the castle of Ballybeg/Littleton (3.6km southwest of Twomileborris). Here, a village and court are mentioned; and as there is no earlier record of a manor at Ballybeg it is possible to suggest that the decline of Burges Lieghe and rise of Littleton were linked. The continuing investment in Burges Lieghe may be due to its mill, of which there were none recorded in Littleton.

The defeat of the second Geraldine rebellion in the south of Ireland at the close of the 16<sup>th</sup> century was followed swiftly by one led from the north of the country - The Nine Years War, during which Ormond lands in Tipperary were attacked by the Earl of Tyrone's forces, as were most pro-crown settlements in Munster. The ultimate failure of the Desmond and O'Neill rebellions and the subsequent Flight of the Earls was followed by a period of relative peace and increased English settlement on confiscated lands. Ormond loyalty to the crown was to prove disastrous when it and The Confederacy of Kilkenny allied itself with Charles I in the 1640's English Civil War. In 1641 pro-Confederacy rebels took Cashel, which was subsequently sacked and burned by English parliamentary forces in 1647 (O'Donovan 2004, 10).

Unlike the relatively organised military Desmond Rebellions which preceded it, 1641 was more typified by sectarian conflict and the brutal activities of the Roundhead army. The ruthless suppression of this rebellion by Oliver Cromwell led to a massive confiscation of rebel Catholic property and the ethnic cleansing of their former owners (To Hell or to Connaght). The unparalleled land seizures, larger in scope than the first Anglo – Norman period of settlement, were facilitated by the commissioning of the Civil and Down Surveys which mapped out lands to be divided up amongst a new wave of English settlers.

The Williamite War of 1689-1691 was the last formal war in Ireland. Its conclusion following the Treaty of Limerick in 1691 was marked by a mass exodus of Irish soldiers and commanders to the continent and with them left the last vestiges of autonomous Irish military strength (Murphy 1994, 23). The following centuries saw the death of Gaelic Ireland and the firm establishment of English law and governance across the country. The process of forced Anglicisation and subjugation of the majority Catholic population continued apace throughout the eighteenth century. The popular uprising of 1798 had a minimal effect on Tipperary, however the famine of the 1840's led to a wide scale depopulation of the region, more through emigration than starvation.

## **2.3 Archaeological Background**

### **2.3.1 Prehistoric Archaeology**

Prior to the current scheme of archaeological works undertaken by Valerie J Keeley Ltd. there were no known prehistoric sites identified in the townlands through which the road scheme passed in the south – central section. The RMP files however, record a mound site in Ballyerk, an undated enclosure in Coolcroo and an undated conjoined enclosure in Monaraheen all of which may be prehistoric.

### **2.3.2 Historical Archaeology**

In contrast to the lack of upstanding prehistoric sites and monuments in this section of the scheme, there is a wealth of surviving medieval settlement evidence. There are four early medieval ringforts or ringfort sites in the seven townlands of this section, at least one of which – a 75m diameter ringfort in Ballydavid – was high status. Heavy Anglo-Norman settlement in the area can be seen in three rectangular enclosures (Ballydavid, Borris and Noard), two ringworks (Borris and Lahardan Upper) and the medieval village and manor of Twomileborris. There was also only one medieval church in this section of the scheme, also in Twomileborris. Later medieval activity is attested to by the presence of two tower house sites at Coolcroo and Ballydavid (adjacent to the large ringfort there) and one upstanding tower house in Borris.

## **2.4 Coolcroo Townland**

Coolcroo townland falls within the modern parish of Twomileborris and the barony of Eliogarty, Co. Tipperary North Riding. It is bounded by the townlands of Monahreen to the north, Ballydavid to the south, Ballyerk to the east and Rathcunikeen to the west. The majority of the townland is undulating pasture and reclaimed bog drained by a tributary of the Black River in the townlands to the east. Coolcroo contains no known prehistoric sites, however there is one 25m diameter undated enclosure (RMP Ref. TN048:051) that may be prehistoric. This undated enclosure may equally be a small ringfort and provide evidence for early medieval settlement in the townland. A late medieval Butler lordship tower house (RMP Ref. TN048:048) is the only other recorded site in Coolcroo. The townland was described in the Civil Survey of 1654-1656 as Coolcrue; within the parish of Borresleagh, the property of James Earl of Ormond; containing 600 English acres; 80 arable, 60 pasture and 60 wood (Simington 1931, 48). There is no mention of a tower house; however, this may be an error in the survey. There is a “stump of castle out of repaire” in addition to an upstanding castle mentioned for Borresleagh (Borris townland), but there is only one tower house in that townland today and the only surviving tower house in the parish not mentioned in the survey is at Coolcroo (Simington 1931, 46-9). This omission, in addition to its proximity to Borris (1.2 km), suggests that Coolcroo tower house was likely to have been erroneously noted as

the second such structure for Borresleagh. The return for the townland in Petty's Census of 1659 (Culcruetowne) gives the population as 18, two English and 16 Irish (Pender 2002, 317). The modern townland name Coolcroo may have been derived from *Cuil Crú* – Corner or Angle of the Blood, although the precise origin of the name is unclear. Testing undertaken by Margaret Gowen & Co. Ltd in 2005 / 2006 in advance of the M8/N8 road scheme (McQuade *et al* 2006) revealed one potential site; E2373 / AR30 (isolated pit).



### **3.0 THE EXCAVATION**

#### **3.1 Site Description & Topography**

The site was situated in Rathcunikeen townland, in improved land used extensively for pasture, mirroring the wider landscape. Regular, sometimes extensive, localised flooding of lower-lying dells is a common feature of the local environment.

The site was situated in the western corner of a flat field, used extensively for tillage. The wider landscape of Coolcree is within gently undulating pasturelands. The landscape has been improved for pasture and regular extensive long-lived floods were a common feature of the local environment. (V.J. Keeley, 2004).

#### **3.2 Previous Archaeological Assessment**

An EIS report was compiled by Valerie J. Keeley Ltd in 2003, with regard to the Archaeological, Architectural and Cultural Heritage of the entire route of the proposed scheme (V.J. Keeley, 2004). The area through which the proposed road scheme passes was subject to an advanced oblique aerial survey by Marcus Casey in 2004.

Archaeological testing undertaken by Valerie J. Keeley Ltd in 2006 in advance of the M8/N8 road scheme revealed the site of "a burnt mound or *fulacht fiadh*" (A027/000) at chainage 15700 – Link Road 600, NGR 217795E, 155961N. This was reported to have comprised several areas of burnt stone and charcoal rich clay (Fegan 2006).

#### **3.3 Method**

Topsoil from a cutting measuring 1499.86m<sup>2</sup> was removed from the site utilising a hydraulic excavator under the direction, supervision and monitoring of a qualified archaeologist. Once the topsoil had been removed, the entirety of the site area was cleaned back to reveal the features identified during the previous testing (Fegan 2006) and to try to identify any new features which may have been exposed.

Upon location all archaeological materials were cleaned and excavated by hand using methods appropriate to their composition, nature and date. All archaeological contexts were photographed and planned (in relation to the site grid) prior to excavation. Sections were excavated through all features to obtain profiles and to expose the stratigraphic sequences and then fully excavated. All sections and cut features were photographed and drawn. The position of all finds and samples were recorded in three - dimensions (where appropriate) in relation to the site grid. The composition, stratigraphic position and interpretation of all contexts were recorded on context sheets prior to excavation. Contexts were sampled for palaeobotanical material, radiocarbon dating, micromorphology, petrology and wood identification, where appropriate. Features that proved to be of modern origin were fully investigated and characterised.

### 3.4 Stratigraphic Summary

#### 3.4.1 Natural

The dominant geology of the area is oolitic limestone (Archer *et al*, 1996). The natural subsoil [c2] comprised a mid orangey grey podzolic sandy silt.

#### 3.4.2 Troughs and pits

Two troughs and an adjacent pit were the earliest features identified in the excavations at the site.

**Trough A:** The western-most trough [c14] (See Figures 4, 5 & 6; Plate 1) was a rectangular-shaped feature that had a flat base and steep sides. It was orientated east – west and measured 2.70m in length by 2.14m in width and 0.31m in depth. The lower fill [c13] was a dark bluish black silty clay with heat-affected stones and charcoal inclusions (See Figure 8; Plate 2). The upper fill was a sedimentary deposit [c12] of mid grey silty clay with frequent heat-affected stones and moderate flecks of charcoal. On top of this deposit, was a further episode of sediment [c11] that comprised a homogeneous mid brown sandy silt. This deposit, being at the same level as the surrounding natural subsoil, was subject to disturbance from ploughing, as was evidenced by the intrusion of two joining sherds of medieval earthenware.

**Trough B:** The second larger trough [c18] (See Figure 5; Plate 3) was adjacent to, and situated immediately east, of the rectangular trough [c14]. It was possible the two troughs were interconnected, although this remains uncertain. The trough was subcircular in plan with irregular disturbed base and sides. It measured 3.60m in length, 3m in width and 0.50m in (maximum) depth and contained a basal fill [c17] of a thin but wide deposit of light bluish grey silty clay with frequent decayed stones and charcoal flecks (See Figure 8; Plate 4). A charcoal rich soil [c16] was deposited over this fill (See Plates 4 & 5), which comprised a black charcoal rich silt and heat-affected stone. Charcoal from the deposit was identified as Alder, Birch, Hazel, Ash, Blackthorn / Cherry and Oak. This deposit extended beyond the limit of the trough but was only deposited down the north side of the feature. It is possible this was slump from the burnt mound spread. A sample of charcoal produced a radiocarbon determination of 2792 ± BP which calibrated to 1014 – 845 cal BC (UBA – 10358. See Section 9.3)

This in turn was sealed by a dark sandy silt [c15], which completely backfilled the trough. Above this the sediment was a homogeneous sedimentary deposit of dark brown sandy silt which filled the top of the pit and merged imperceptibly with the adjacent similar deposit [c11].

**Pit:** A smaller pit [c9] was located to the southeast (see Figures 7 & 8; Plate 6) and like the larger trough [c14], was very regular in shape. This feature was rectangular in plan and also had a steep, flat-based, profile (see Figure 8), but was a good deal smaller measuring only 1.46m in length, 1.03m in width and 0.21m maximum depth. It was filled by a single deposit [c6] (See Plate 7) of mid brownish grey clayey sand with frequent decayed stones and occasional flecks of charcoal. The feature is differentiated from the troughs by virtue only of its smaller size.

### **3.4.3 Burnt Mound**

The northern-most spread of burnt mound material was a very shallow irregularly shaped deposit [c3] (see Figure 7, Plate 8). It comprised mid blackish brown silty sand with frequent heat-affected stones and occasional charcoal and measured 8m in length by 4m in width by 0.05m maximum depth. This deposit had greater and lesser concentrations of charcoal and appeared quite mixed. A similar deposit [c5] lay to the east and comprised mid blackish brown sandy silt with occasional heat-affected stones and occasional charcoal. One small patch [c7] of this material represented a shallow deposit.

### **3.4.4 Modern**

Several thin linear features [c20] interpreted as plough furrows were orientated north – south and truncated the thin spreads of burnt material [c3] and [c5]. The furrows were all closely spaced and shallow, in some cases backfilled by redeposited mound material (see Plate 8).

### **3.4.9 Topsoil**

Topsoil [c1] was dark brown clayey silt up to 0.35m in depth with occasional small stones. Occasional heat-shattered stone was mixed in with the material confirming that the underlying deposits had been disturbed in more recent times. Two sherds of medieval pottery were recovered topsoil (See Section 4.1)

## **3.5 Condition Post Excavation**

The site was backfilled by machine after the work was carried out and the ground reinstated in October 2007. The contractor Roadbridge / Sisk Joint Venture took possession of the site in November 2007 for the construction of the M8N8 Cullahill to Cashel Road Scheme. The site formed part of the mainline for the new road.

## 4.0 THE FINDS

### 4.0 Overview

Two joining sherds of medieval earthenware were recovered from the upper fill [c11] of the trough [c18]. These were Irish in origin and had a red fabric with a speckled green glaze, and may have been introduced from manuring practices. These intrusive objects presumably originally derive from nearby settlement, locally represented now only by the surviving remains to the north within Coolcree (Coolcree castle RMP ref. TN042: 048), to the west in Lahardan Upper (ringwork RMP ref. TN048: 002), and nearby in Ballydavid (rectangular enclosure RMP ref. TN048: 004). The possibility of more immediate medieval settlement of a less substantial nature should also be considered.

### 4.1 Medieval Pottery By Nick Brannon

#### 4.1.1 Comments on Contexts

All of the ceramic vessels (sherds) appear to have had domestic use. Tablewares (ie, plates and bowls) and kitchenwares (ie crockpots) are necessarily household waste (unless glasswares [not seen] – eg, bottles and drinking glass – suggest tavern culture). It is difficult to offer comments on sherds deriving from topsoil. Convention has it that such finds are either direct discards from adjacent occupation, or secondary field manuring from rubbish heaps combining ceramic breakages and organic waste. The same made be said for those sherds deriving from ditch fills, field drains, furrows and hedgerows.

Find #	Form	Fabric	Decoration	Min no. vessels	Date (tpq)	Origin	Comment
E2818: 1 E2818: 2	2x 6" base, h'ware	red-grey e'ware	i/e speckled green glz	1	medieval	Irish	medieval h'ware

Table 1: Pottery recovered from topsoil

These are two joining sherds. Note that most of the wares are wheel-thrown (ie, none are coil-built, as with prehistoric wares).

#### 4.1.2 Glossary of Terms

**h'ware** – hollow ware (generally containers [eg panceons, pitchers, jugs, bottles] often taller than wide)

**f;ware** – flat ware (essentially plates, saucers, shallow bowls, wider than tall)

**e'ware** – earthenware

**int** – interior of vessel

**ext** – exterior of vessel

**i/e** – interior and exterior

**glz** – glaze

**h-p** – hand-painted

**t-p** – transfer-print

**9" rim, 6" base** – examples of measured dimensions of vessel. Imperial measurement used, as this was the [pre-metric] measure used by the potters

#### **4.2.3 References**

Francis, Peter 2000 *Irish delftware: an illustrated history*, Jonathan Horne Publications, London

Francis, Peter 2001 *A Pottery by the Lagan*, Institute of Irish Studies, Belfast

Grant, Alison 1983 *North Devon Potter: the Seventeenth Century*, University of Exeter

Mullholland, M. 1988 *Brown Ware: a post-medieval pottery assemblage in Ireland*, unpub. thesis, Queen's University, Belfast

## 5.0 DISCUSSION

### 5.1 Definition

Burnt mounds or *fulachta fiadh* are visible within the landscape usually in the form of low, grass – covered mounds, which may be horseshoe, crescent, oval or kidney shaped. The mounds are generally composed of a heap of fire shattered stones and charcoal that gives it a blackened appearance. They often have a depression to one side, which upon excavation reveals itself to be a trough area. This trough would have held water and can be lined with timber or stone or simply excavated into the natural clay. The trough would have been filled with water and heated stones placed into it, in order to raise the temperature. The stones shattered during this process would have been removed and piled next to the trough. This activity repeated would eventually form the mound. The larger of the *fulachta Fiadh*/burnt mounds can contain over 20 tonnes of burnt stone which points to them being re-used more than 100 times (Roycroft 2006). The descriptive term “Burnt Mound” has been used throughout the text here. Whilst there was no mound present on the site, there was evidence that it formerly existed prior to its denudation.

### 5.2 Interpretation

The function of Burnt Mounds, or *fulachta fiadh* as they are sometimes called, has ranged from the popular traditional view that they represent cooking sites to bathing, curing of animal skins, soap production, garment waterproofing and ritual practice (Monk 2000). Other functions have been argued that they may have been covered by light structures and used as saunas or sweathouses such as at Rathpatrick Co. Kilkenny, excavated as part of the Waterford city bypass (Eogan 2008, Laidlaw 2008) or used for bathing, or for some semi-industrial purpose such as washing or dyeing large quantities of cloth or for dipping hides in hot water as part of the preparation of the leather (Waddell 2000). In recent years brewing has also been suggested as a possible function (Quinn & Moore 2007).

The Irish terminology has recently come under scrutiny with the suggestion that the use of it in connection with pyrolithic technology should no longer be considered appropriate as medieval manuscripts such as the Yellow Book of Lecan and the Book of Leinster refers to *fulacht* as cooking on a spit. The text from the Yellow Book of Lecan states “a piece of raw meat and another of dressed meat, and a bit of butter on it; and the butter did not melt, and the raw was dressed and the dressed was not burned, even though the three were together on the spit”. An illustration of this spit is also depicted with the text “*fulacht na mórigna inso*” below it (O’Neill 2004). The earliest sites appear to date from the early third millennium BC with the majority of examples dating to the Bronze Age and the latest possibly surviving into the Iron Age and later (O’Neill 2000). Generally the earlier site types exhibited were troughs circular in shape and unlined while the rectangular trough usually lined with planks or wicker became more common from around 2000 BC (O’Neill 2000). Generally the earlier site types were troughs

circular in shape and unlined while the rectangular trough usually lined with planks or wicker became more common from around 2000 BC (O'Neill 2000).

### 5.3 Distribution

*Fulachta fiadh*/burnt mounds are the most common type of prehistoric site in Ireland (Power *et al* 1997, 75; Waddell 1998, 174) and are also known from Scandinavia, Wales, Orkney, the Shetland Islands and parts of Cumbria (Buckley 1990). There are over 7000 known examples distributed throughout Ireland and over 3000 of these occur in Co. Cork (Power *et al* 1997) with thousands of more *fulachta fiadh* sites existing, unrecorded and undetected, throughout Irish landscape. Large numbers of burnt mound sites have also been recorded in England, Scotland and Wales (Hodder 1990; Halliday 1990; Williams 1990). *Fulachta fiadh* and burnt mound sites are normally situated close to a water source, such as a stream, streamlet or in wet marshy areas (Power *et al* 1997, 75). They sometimes occur in groups and clusters of two to six often occurring in quite a small area (Waddell 2000). Regional studies show that in Cork particular concentrations occur along streams and sandstone ridges and tend to occur below the 800ft contour (Power 1990). Particular concentrations and clusters of *fulachta fiadh* sites have also been identified in Co. Kilkenny and these occur throughout the county near streams and streamlets in limestone and sandstone rich areas (Condit 1990).

The majority of the mounds constitute burnt limestone and occasional sandstone, the former being a rock that was once initially thought to have been unsuited for cooking places (O'Kelly 1954).

### 5.4 Settlement Evidence

Paralleling the northern half of the scheme it is interesting to note that there was a considerable lack of Bronze Age settlement excavated along this section of the road scheme. The exception to this was E2816 / AR 2 which along with the burnt mound did produce a round house constructed of 16 postholes that measured 5.6 to 6m in diameter. It had one central posthole with a hint of an internal partition and a southeastern entrance. It also produced pits, hearths, pottery pit with multiply sherds of Bronze Age pottery and cremation pit (McKinstry 2004, Moore *et al forthcoming*). Sites E2378 / AR 35 and E2379 / AR 37 (Conboy *et al forthcoming*) were located c. 1km from site complex E2374 – E2376 / AR 31 - AR 33, which produced a large enclosure, pits, hearths, postholes and cremation pits. (Ó Droma *et al forthcoming*)

This evidence of settlement associated with the burnt mound sites appears to be repeated on recent excavations on the N4 Sligo Inner Relief Road and the *Bord Gáis Éireann* Pipeline to the West where it is suggested that they form an integral part of the domestic landscape and were in close spatial proximity to settlement sites (Grogan *et al* 2007; Danaher 2007).

## 5.5 Structural Features

Six burnt mounds and five burnt deposits/spreads were excavated on seven sites along the southern and central part of the road scheme. The main distinguishing factor of a Burnt Mound site was the presence of a trough or boiling pit, spread of heat shattered stone and charcoal. Sites without a trough were labelled 'burnt spreads', although both may in fact represent similar pyrolithic activity. In general there was an even distribution of trough shapes from the early to late Bronze Age with no one shape dominating from any one period. There were approximately 23 troughs excavated over the nine sites with 13 (57%) exhibiting rectangular/sub-rectangular shape, 6 (26%) exhibiting circular/sub-circular shape and 4 (17%) exhibiting oval-sub-oval shape. This would not tie in with the hypothesis that earlier site types consisted of troughs circular in shape and unlined while the rectangular trough usually lined with planks or wicker became more common from around 2000 BC (O'Neill 2000). The burnt mounds excavated and dated in the southern and central section of the road scheme indicate a random choice of circular and rectangular shaped troughs. This parallels the same pattern of trough shape exhibited within the Goul river valley along the northern extent of the road scheme with almost identical percentages (See Table 2).

Location	No. of troughs	Circular/ Sub-circular trough	Rectangular / Sub-rectangular trough	Oval/Sub oval trough
Goul River Valley	21	6 (29%)	12 (57%)	3 (14%)
Southern and central section	23	6 (26%)	13 (57%)	4 (17%)

Table 2: Trough shape comparison on the M8/N8

Variation in trough shape was evident from the early Bronze Age where a rectangular trough was excavated on AR 7/E2360, 3825±35BP (2460 – 2140 BC) (Poz-24992) and a circular trough was excavated on AR 35/E2378, 3923±29BP (2486 – 2299 BC) (UBA – 10197). Similar variation was evident through the middle and late Bronze Age with a rectangular trough excavated on AR 8/E2361, 2813±30BP (1052 – 896 BC) (UBA-10194) and a sub – circular trough on AR 29/E2818, 2793±30BP (1014 – 845 BC) (UBA-10358). Troughs excavated along the Sligo Inner Relief Road produced sub-oval troughs from the late Neolithic/early Bronze Age (Tonafortes 2 & Magheraboy 1) and rectangular trough with corner stake-holes from the late Bronze Age (Magheraboy 2) (Danaher 2007). Only five *fulachta fiadh* were uncovered along the 35km stretch of the roadtake of the M4 Kinnegad–Enfield–Kilcock motorway with all of the troughs exhibiting sub-rectangular shape. Early Bronze Age dates were returned for Kilmorebrannagh 1 (2130–1760 BC) and Ballynakill 1 (2460–1960 BC) while late Bronze Age dates were recorded from Rossan 1 (1100–790 BC and 1290–830 BC) (Carlin *et al* 2008). This variation in the trend in trough shape would seem to require more work before either theory can be taken as conclusive.



Site	No. of Burnt Mounds	No. of Burnt Spreads	No. of troughs	Circular/ Sub-circular trough	Rectangular / Sub-rectangular trough	Oval/Sub oval trough
AR 2: E2816	1		1		1	
AR 7:E2360	1		1		1	
AR 8:E2361			1		1	
AR 27:E2371		5				
AR 28:E2372	1		6	3	3	
AR 29:E2818	1		3	1	2	
AR 35:E2378	2		4	2		2
AR 37:E2379	1		7		5	2
<b>Total</b>	<b>7</b>	<b>5</b>	<b>23</b>	<b>6</b>	<b>13</b>	<b>4</b>

Table 3: Trough quantity and shape on the southern and central section of the M8/N8 road scheme

Only two (9%) troughs had evidence for wood remains still in situ, AR 7/E2360 and AR 35/E2378 with oak being the preference wood type on both sites. Stakeholes were evident in the base of the trough on AR 8/E2361 and linear slots in the base of trough [c50] on Site A of AR 37/E2379 although no wooden remains were identified. The only archaeobotanical evidence recovered from these sites was a single fragment of hazel nut shell from trough [c7] on AR 7/E2360 and provides little insight into activities taking place at the burnt mound. Charcoal analysis from AR 7/E2360 indicated a preference of elm in the sites fuel collection policy and on AR 8/E2361 a preference for hazel, hazel/alder, then oak and ash.

One recurring pattern of a number of these excavated sites on the southern and central section of the road scheme was the positioning of a rectangular/sub-rectangular trough adjacent to a large circular/oval pit or possible waterhole with a smaller pit also in close proximity. This positioning of three separate features is especially evident on AR 28/E2372. Similar patterns can be suggested on AR 7/E2360, AR 35/E2371, AR 37/E2379 and AR 49/E2391 the latter on the northern half of the scheme within the Goul valley.

Large pits/waterholes under burnt mounds have also been recorded at Site 5, Cherryville Co. Kildare (Breen 2001) and at Site G Ballyshaneduff or The Derries Co. Laois (Breen 2003). The former produced two deep pits c. 2m in diameter and 1.3m deep while at Ballyshaneduff the pit/well was 4.5m in diameter and 1m deep. Other sites that included large pits/wells/waterholes were Finniterstown, Co. Limerick (Hull & McKinstry 2002) with similar groupings of rectangular troughs and large oval pits/waterholes being excavated at Clonmeath, Co. Meath which produced two large, oval, pit-like troughs, two sub-rectangular troughs, two small pits and a large oval 'sump' or pit (Byrnes, 2002) and Rathbane South Co. Limerick (McLoughlin 1999). These pits/waterholes may have been wells or used as a cistern to store the water necessary for the cooking process in the adjacent trough.

Troughs excavated along the Sligo Inner Relief Road produced sub-oval troughs from the late Neolithic/early Bronze Age (Tonafortes 2 & Magheraboy 1) and rectangular trough with corner stake-holes from the late Bronze Age (Magheraboy 2) (Danaher 2007). Only five Burnt Mounds were uncovered along the 35km stretch of the roadtake of the M4 Kinnegad–Enfield–Kilcock motorway with all of the troughs exhibiting sub-rectangular shape. Early Bronze Age dates were returned for Kilmorebrannagh 1 (2130–1760 BC) and Ballynakill 1 (2460–1960 BC) while late Bronze Age dates were recorded from Rossan 1 (1100–790 BC and 1290–830 BC) (Carlin *et al* 2008).

Radiocarbon dates obtained from troughs of both sub-rectangular (including rectangular) and sub-circular (including circular and oval) forms have been obtained from 23 of the 44 troughs excavated on the M8N8 Cullahill to Cashel scheme. Table 4 shows the variety of forms of troughs which have been radiocarbon dated. The date blocks were assigned as well as the calculated radiocarbon date ranges allowed, and these blocks correspond loosely to accepted archaeological periods. Thus the late Neolithic / Early Bronze Age is represented by dates that fall within the block 2500-2200 BC, the Early Bronze Age proper as 2200-1500 BC, the Middle Bronze Age as 1500-1000 BC, the Late Bronze Age as 1000-500 BC and the Iron Age is represented by the range 500 BC-100 AD. The chart demonstrates that both forms were in use in the region from the late Neolithic / Early Bronze Age through to at least the Late Bronze Age, and sub-circular troughs continuing in use into the Iron Age.

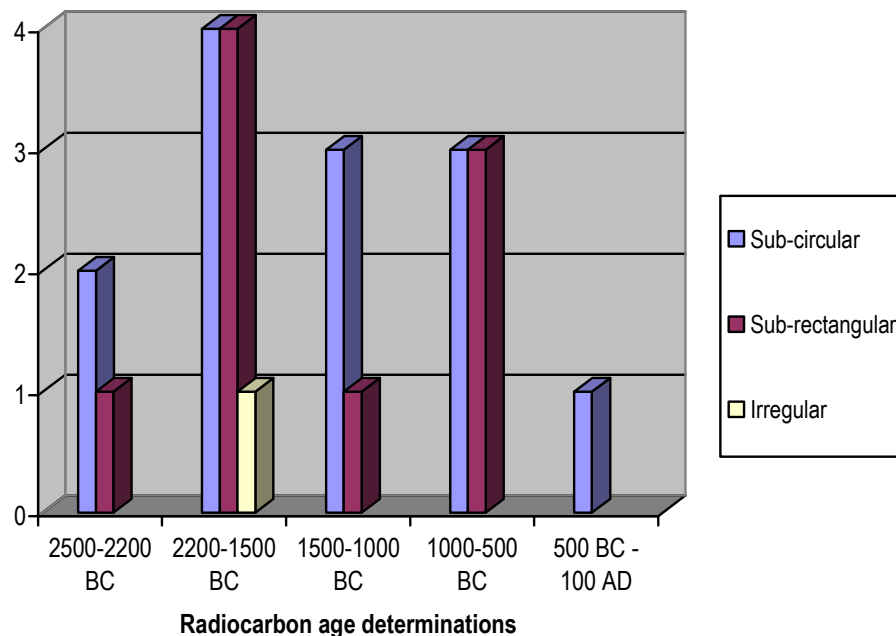


Table 4: Radiocarbon Dates for Trough across M8N8 Scheme

## 5.6 Environmental Evidence

The site lay in gradually undulating pasture with no evidence of nearby wetland. Seasonal flooding is a regular feature of the local environment despite land improvements and small turloughs are prone to form. A spring rises adjacent to the nearby excavated Burnt Mound in Rathcunikeen Site E2372 / AR 28 (Barker, Green & McCullough *forthcoming*) and it is not unfeasible that other springs would have risen in the local area in the past.

Environmental analyses of the charred remains from the site did not find evidence (eg charred seeds) of either wild or cultivated varieties of non-wood species (See McClatchie, Section 9.1). The charred remains from the site showed that mixed deciduous species were chosen as fuel used at the site. The profile of selected species is dominated by hazel, birch, ash and alder with a number of other species marginally represented (See O'Carroll Section 9.3). These are likely to have been gathered or felled from the immediate environment.

## 5.7 Dimensions & Morphology

There were 19 burnt mounds and four burnt spreads (*i.e.* mounds without a trough or pit) recorded within the Goul Valley within the vicinity of Urlingford and Johnstown, compared to 27 burnt mounds and nine burnt spreads identified from the entire M8N8 road scheme. The largest of these was at Site G, AR 49, Foulkscourt, Co. Kilkenny on which measured 32m by 22m by 0.2m (Hardy *et al forthcoming*). The majority of the burnt mounds/spreads (10 / 37%) ranged from 10m – 14.99m in length. Three (11%) mounds were under 5m in size, while five (18.5%) were either between 5m – 9.99m or 15m – 19.99m each (See Table 5). The depths of the burnt mounds/spreads were quite shallow ranging between 0.08m (from Site B, AR 49) to 0.6m (from Site A, AR 44). This is not an unusual pattern given the intense nature of modern agriculture and land clearance. In general, there was an even distribution of trough shapes from the late Neolithic to the Iron Age with no one shape dominating from any one period.

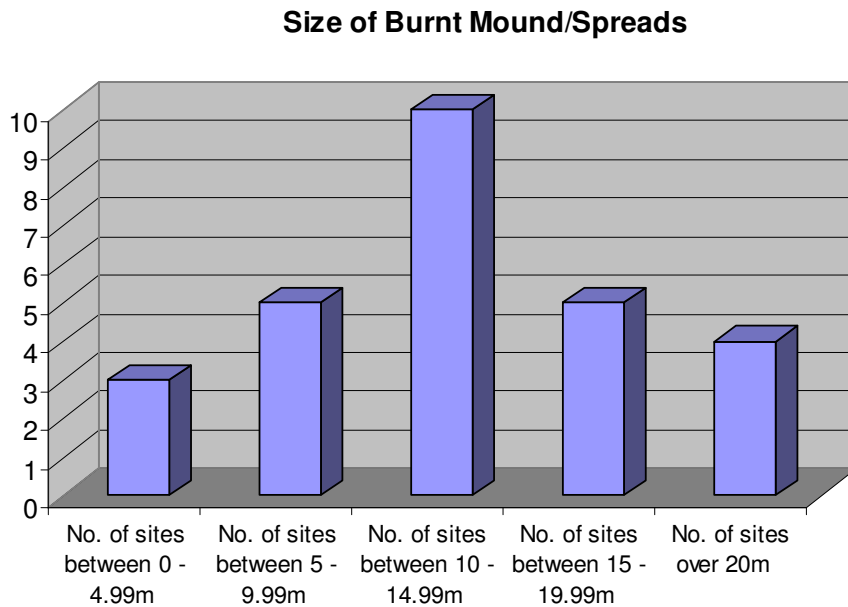


Table 5: Burnt mound/spread sizes on the M8/N8 road scheme

## 5.8 Artefactual Evidence

This site produced no artefactual evidence. The southern end of the scheme produced a single fine but weathered end of blade scraper (E2360:1) which was recovered from [c3] the main component of the burnt mound from E2360 / AR 7. A date in the Neolithic is suggestive, although they are not unknown in the Bronze Age. Its recovery in a deposit associated with a burnt mound would suggest the latter (Moore 2008a). A single piece of chert in the form of a simple modified flake (E2372:1) was recovered from a topsoil context on E2372 / AR28 in Rathcunikeen Townland Co. Tipperary. It is very undiagnostic and only a very general date in the Neolithic – Early Bronze Age can be assigned to the activity it represents (Moore 2008b).

A flint blade was also recovered from the burnt mound material at Clonymeth, Co. Meath (Byrnes 2002) while a convex scraper was recorded from a pit sealed beneath a burnt mound from Site 1 Newtown – Monasterboice (Ó Drisceoil 2000). A series of lithics in the form of worked flint and chert were also recorded from the mound material of Caltragh 1. Knapping debris from stone tool manufacture in the form of flint and chert cores and debitage was also recovered from a series of pits sealed beneath a burnt mound at Magheraboy 1 on the Sligo Inner Relief Road. The lithic assemblage on Mageraboy 1 suggested a final Neolithic/early Bronze Age date which was substantiated by the radiocarbon dates, 2630 – 2450 BC (Danaher 2007). Other finds recorded from burnt mound sites give a broad range of dates including flint flake from Ballycrenane, Co. Cork (NMI reg. no: 1972:354), a flanged axehead from Ballynatona Co. Cork (NMI reg. no: 1936:1780), a gold ring fragment from

Killeens Co. Cork, shale bracelet fragment from Ballycroghan Co. Down, a gold dress fastener from Dooros Co. Mayo (NMI reg. no: 1934:5600) and a stone axehead from Kiltrassy Co. Kilkenny (Cherry 1990).

## 5.9 Chronology & Dating

Suitable material was sampled and subject to post-excavation processing (flotation) initiated by Valerie J Keeley Ltd. Retrieval of a quantity of charred remains enabled subsequent specialist analyses including radiocarbon dating to be undertaken. Details of these analyses are provided in the following appendices. Following identification, a sample of hazel was sent to the <sup>14</sup>C Chrono Centre, Queens University Belfast, for radiocarbon date determination. The sample derived from a secure context from the sub-circular shaped Trough B. The returned date placed the site in the Late Bronze Age between 1014 – 845 Cal BC (See Section 9.3). It is unlikely that the sample represents an old wood effect, where older dead wood was selected or re-used, as hazel is an unlikely choice for re-used timber, and given the broad range of species represented in the charred fuel remains it would appear that the wood was available in the immediate environment.

Burnt stone activity has been shown to date from the Mesolithic to the 1st Millennium AD with a distinct concentration in the Bronze Age (Brindley *et al* 1990). In general the earliest sites in Ireland appear to date from the early third millennium BC with the majority of examples dating to the Bronze Age, surviving into the Iron Age and even later (O'Neill 2000) as seen with a medieval cooking trough from Waterford City (Walsh 1990). Generally the earlier site types exhibited troughs circular in shape and unlined while the rectangular trough usually lined with planks or wicker became more common from around 2000 BC (O'Neill 2000).

Burnt mound activity along the southern and central sections of the road scheme appears to have occurred over an approximate 1500 year period. The earliest dates, which also appear contemporary come from E2378 / AR 35 and E2360 / AR 7 date to the early Bronze Age. Dates of 3923±29 BP (2486 – 2299 BC) (UBA-10197) and 3825±35 BP (2460 – 2140 BC) (Poz-24992) were returned from each one respectively. These dates are just slightly later than the one returned from E2388 / AR 46 on the northern end of the road scheme within the Goul Valley which returned a final Neolithic/early Bronze Age date of 4100 ± 35 BP (2870 – 2490 BC) (Poz-25875). This is followed by an intense period of activity during the Middle Bronze Age between 1880 – 1129 BC on sites AR 28/E2372, AR 35/E2378 and AR 37/E2379 and only two sites returning later Bronze Age dates, E2361 / AR 8 and AR 29 / E2818. On closer examination of the sequence of dates one can see the contemporary use of sites AR 7 / E2360 and AR 35 / E2378 during the early Bronze Age, sites E2372 / AR 28 and E2379 / AR 37 on two occasions during the Middle Bronze Age between 1740 – 1520 BC and again between 1381 – 1129 BC and sites E2361 / AR 8 and E2818 / AR 29 during the late Bronze Age.

A number of sites also indicate the returning to the same location for the use of burnt mounds. Site E2378 / AR 35 exhibited a hiatus of c. 420 yrs between returned (datable) visits. During the Middle Bronze Age E2379 / AR

37 shows a break in activity of c. 513 yrs before returning while in contrast E2372 / AR 28 indicates an intense period of burnt mound activity between 1729 – 1212 BC.

Contemporary site usage over the entire length of the scheme is evident on closer examination of the radiocarbon dates. There is a slight overlap in the period around 2480 BC with the end of the primary phase at E2388 / AR 46 at the northern end of the scheme and the beginning of activity on E2360 / AR 7 and E2379 / AR 35 on the southern and central sections. During the Middle Bronze Age parallels can be seen between E2386 / AR 44 and E2379 / AR 37 which returned identical dates of (3340±35 BP) 1740 – 1520 BC (Poz-26531 & Poz-26534). This is followed no long after by simultaneous burnt mound activity on E2372 / AR 28 around 3348±23BP (1729 – 1534 BC) (UBA 10372) and E2391 / AR 49, 3330± 35 BP (1730 – 1510 BC) (Poz-26676). Site E2391 / AR 49 continues to have overlaps during the Middle Bronze Age. The next is with E2372 / AR 28, 3021±20 BP (1381 – 1212 BC) (UBA 10371) and E2379 / AR 37, 2994±20 BP (1367 – 1153 BC) (UBA 10369) with E2391 / AR 49 dating to 3025± 35 BP (1400 – 1130 BC) (Poz-26540). Into the late Bronze Age contemporary activity is recorded on E2361 / AR 8, 2813±30 BP (1052 – 896 BC) (UBA 10194) with E2389 / AR 47, 2810± 35 BP (1060 – 840 BC), (Poz-26538) and between AR 29/E2818, 2793±30BP, (1014 – 845 BC) (UBA 10358) and E2388 / AR 46, 2770 ± 35 BP (1010 – 830 BC) (See Table 6).

Although sites were being returned to none of the original burnt mounds or troughs appeared to have been re-used instead the construction of new burnt mounds was favoured. Unlike in Lisheen where troughs were re-used and deliberately backfilled and in turn was seen as part of a settlement pattern of an area rather than a transient cooking site (Gowen *et al* 2005) those excavated in the southern and central section of the road scheme were not reused or deliberately backfilled and would rather be seen as an indicator of a temporary or transient settlement and relate to a periodic or seasonal activity of hunting and gathering retracing the same route each time adjacent to the Arglo and Black rivers

Excavation No	Site Name	Lab Code	Years BP	98% Prob. (2σ)	Sample Material	Trough Shape
E2378	AR 35	UBA-10197	3923± 29	2486 – 2332 BC 2326 – 2299 BC	Fill [c11] of trough [c25]. Sample 8	Circular
E2360	AR 7	Poz-24992	3825± 35	2460 - 2190BC 2180 - 2140BC	Timber lining of trough [c7]: Sample 25 [c20]	Rectangular
E2378	AR 35	Poz-24993	3440± 35	1880 – 1660 BC	Fill [c47] of trough [c48]. Sample 17	Irregular
E2372	AR 28	UBA-10372	3348± 23	1729 – 1719 BC 1691 – 1604 BC 1587 – 1534 BC	Basal fill [c43] of sub-circular trough [c44]. Sample 9	Sub-Circular
E2391	AR 49	Poz-26676	3330± 35	1730 – 1710 BC 1690 – 1510 BC	Fill [c33] of pit/trough [c32] under burnt mound Site D	Oval
E2386	AR 44	Poz-26534	3345± 35	1740 – 1520 BC	Basal fill of trough	Sub-rectangular

Excavation No	Site Name	Lab Code	Years BP	98% Prob. (2σ)	Sample Material	Trough Shape
					[c72] under burnt mound Site B	
E2379	AR 37	Poz-26531	3340± 35	1740 -1710 BC 1700 -1520 BC	Fill [c31] of trough [c32]. Sample 5.	Rectangular
E2372	AR 28	UBA-10373	3200± 20	1505 – 1428 BC	Fill [c107] of sub-circular trough [c109]. Sample 14	Sub-Circular
E2391	AR 49	Poz-26540	3025± 35	1400 – 1130 BC	Fill [c71] of pit [c72] under burnt mound Site G	Sub-circular
E2372	AR 28	UBA-10371	3021± 20	1381 – 1334 BC 1323 – 1212 BC	Basal fill [c31] of rectangular trough [c32]. Sample 6	Rectangular
E2379	AR 37	UBA-10369	2994± 20	1367 – 1363 BC 1313 – 1187 BC 1184 – 1153 BC 1146 – 1129 BC	Fill [c49] of trough [c47]. Sample 31.	Sub-oval
E2361	AR 8	UBA-10194	2813± 30	1052 – 896 BC	Fill [c30] of stakehole [c29] in west corner of trough [c15]. Sample 6	Rectangular
E2361	AR 8	UBA-10194	2813±30	1052 – 896 BC	Fill [c30] of stakehole [c29] in west corner of trough [c15]. Sample 6	Rectangular
E2389	AR47	Poz-26538	2810± 35	1060 – 840 BC	Fill [c6] of pit/trough [c5] adjacent to burnt mound	Sub-oval
E2818	AR 29	UBA-10358	2793± 30	1014 – 890 BC 881 – 845 BC	Fill [c16] of trough [c18] Sample 1	Sub-circular
E2388	AR 46	Poz-24997	2770±35	1010 – 830 BC	Site B: Ash wood from trough A [c22] under burnt mound	Rectangular

Table 6: Sequence of Bronze Age dates indicating contemporary sites on the northern and southern sections of the road scheme

## 6.0 CONCLUSIONS

The relationship between sub-circular troughs and rectangular troughs has been argued elsewhere to be a mutually dependent unit, whereby a sub-circular trough would serve as a water source, from which water would be brought to a rectangular trough, within which water would be heated using *pyrolithic technology* (McCullough, Barker & Green *forthcoming*). The occurrence of three episodes of identical activity close by in Rathcunikeen dating to throughout the Middle Bronze Age along with a single episode evidenced at this site AR 29 and dating to the Late Bronze Age indicates a continuing tradition. This pattern appears to be a regional phenomenon seen across North Tipperary and Kilkenny which lasted from the late Neolithic period through to the Iron Age.

The denuded Burnt Mound at AR 29 was made up of a mound of burnt pyrolithic waste material located in the remnant spreads [c3], [c5] and [c16]. The burnt material forming the mound was directly associated with the adjacent pit and trough features. Part of the mound itself [c16] appears to have slipped into the Trough B from the north side, suggesting at least that the mound was high enough to naturally slump into the trough. It is likely that the mound may have covered an area approx equal to the total area covered by the surviving thin deposits, but the degree of transformation brought about by relatively recent ploughing is harder to judge, as lateral movement of the deposits is also a possibility (it is not certain, for example, that the small patches like [c7] surrounding the larger deposits are in their original location or whether they have suffered secondary deposition). The original volume of the burned deposits is equally difficult to judge, as regular ploughing might have mixed much of the material into the topsoil itself.

Excavations at the site are complete and no further work is recommended. All post excavation archaeological work is now complete for this site and this report constitutes the final report on this excavation. A digital copy of the archive is available at the post excavation offices of Valerie J Keeley Ltd., Brehon House, Kilkenny Road, Castlecomer, Co. Kilkenny. The original paper archive for this excavation will rest with the Road Design Offices of Kilkenny County Council.

## 7.0 ACKNOWLEDGEMENTS

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## **9.0 SPECIALIST APPENDICES**

### **9.1 Non Wood Plant Remains By Meriel McClatchie**

#### **9.1.1 Non-technical summary**

One deposit associated with a trough was presented for archaeobotanical analysis. Non-wood plant macro-remains were absent from this deposit, which is somewhat typical of deposits associated with burnt mounds.

#### **9.1.2 Introduction**

An archaeological excavation was carried out at Site AR29 under the direction of Dave McCullough of Valerie J. Keeley Ltd (Licence number E2818). The site was excavated as part of works associated with the M8/N8 Cullahill-Cashel road scheme. One deposit [c16] associated with a trough [c18] was presented for archaeobotanical analysis.

#### **9.1.3 Methodology**

The soil sample had previously been processed under the supervision of Riona McMorow of Valerie J. Keeley Ltd. The sample was processed using conventional flotation methods, with the smallest sieve mesh-aperture measuring 250µm. The flot and retent were then presented to the author for analysis. Examination of the flot was carried out using a stereo-microscope, with magnifications ranging from x6.3 to x50. The retent was examined without the use of magnification. The flot and retent were scanned in order to confirm the presence of archaeobotanical material, which was then extracted. The archaeobotanical material was identified by comparison to reference material in McClatchie's collection of modern diaspores. Botanical names follow the nomenclature of *Flora Europaea* (Tutin *et al.* 1964-83), and common names follow those provided in *New flora of the British Isles* (Stace 1991).

#### **9.1.4 Non – Wood Plant Macro – Remains Recorded**

Non-wood plant macro-remains were not recorded in the examined deposit (Sample 1). The absence of material from a deposit associated with a burnt mound is not unusual. Burnt mounds often produce very few, if any, charred non-wood plant macro-remains. Where material is recorded, it often reflects the background environment, rather than foodstuffs (McClatchie *et al.* 2007).

#### **9.1.5 References**

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## **9.2 Wood & Charcoal Identification By Ellen O Carroll**

### **9.2.1 Introduction**

Charcoal for analysis was recovered from one context [c16]; Sample No. 1 which provided evidence for a variety of native taxa. A total of forty four charcoal fragments were analysed to species. Samples sent for radiocarbon dating provided evidence for human activity in the landscape during the Middle Bronze Age, 1014 – 845 BC, cal. BC.

Wood and its by-product, charcoal, was a vital and widely used material from prehistoric to medieval times, although its importance is rarely reflected in the analysis of archaeological assemblages mainly due to its perishable nature. It is important to note that people in prehistoric, Early Christian and medieval communities were mainly dependant on woodland resources for the construction of buildings, for the manufacture of most implements and for fuel for wood-burning and metalworking activities. The woods in a surrounding catchment area were exploited and often managed to provide an essential raw material for the community. A study of the range of species on an archaeological site offers an indication of the composition of local woodland in its period of use and any selection policies for particular species at any given time and place.

The analysis of charcoal can provide information on two different levels. Charcoal analysis is an important component of any post-excavation environmental work, as it can help in re-constructing an environment hitherto lost. However, this must be done with caution, as sufficient sample numbers are required for a complete and full understanding of the immediate environment. Keepax (1988) suggests 50 samples in a European temperate climate. Charcoal is also analysed and identified to determine what species are used and selected for particular functions on site i.e. post-holes, wall-posts, burnt remains of wattle and so on. In summary, charcoals are excellent indicators of exploited environments and the vegetation that developed within them. Large assemblages of wood and charcoal from the numerous road schemes currently under excavation and subsequent analysis of the sampled wood and charcoal are ongoing in Ireland. The analysis completed from the charcoal excavated from AR29 and indeed from the whole road scheme will contribute to the rapidly expanding database of environmental indicators particularly in relation to the prehistoric period in the area. This area of work is especially important in Ireland where there are very little written records up to the 18th century relating to the amount and type of woodland in Ireland (McCracken 1971, 15). Charcoal results from the hundreds of burnt mounds or fulachta fiadh that have been analysed throughout Ireland with regard to species selection for fuel show that a wide variety of taxa are identified from these assemblages. This may suggest that the inhabitants were collecting fuel from whatever trees and branches were closest at hand.

The analysis presented here concentrates on species identification, species selection and the composition of the local woodland during the Late Bronze Age in the townland of Coolcree, Co. Tipperary.

### 9.2.2 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). A wood reference collection from the Botanical Gardens in Glasnevin, Dublin was also used.

**Charcoal:** The soil samples were processed on-site. The flots were sieved through a 250 micron or a 1mm sieve, while the retent was put through a 2mm or 4mm sieve. All of the charcoal remains from the soil samples were then bagged and labelled.

The identification of charcoal material involves breaking the charcoal piece along its three sections (transverse, tangential and radial) so clean sections of the wood pieces can be obtained. This charcoal is then identified to species under a universal compound microscope reflected and transmitted light sources at magnifications x 10-400. By close examination of the microanatomical features of the samples, the charcoal species are determined.

The purpose of the charcoal identifications was two-fold. In some cases the identifications were carried out prior to 14C dating in order to select specific species for dating. In other cases the charcoal was analysed to determine fuel selection policies and selection of wood types for structural use. Each species was identified, bagged together and then weighed. Insect channels were noted on the charcoal fragments identified, as this may indicate the use of dead or rotting wood used for fuel or other such functions. The distinction can sometimes be made between trunks, branches and twigs if the charcoal samples are large enough. This was noted where possible. When charcoal samples showed indications of fast or slow growth this was also recorded. The samples identified for environmental reconstruction and wood usage were counted per fragment and then weighed. The smaller sample amounts with less than 50 fragments were all identified while 50 fragments were identified from the larger samples.

A number of wood taxa cannot be identified to species or sub-species level anatomically. Sessile oak (*Quercus petraea*) and pedunculate oak (*Quercus robur*) are both native and common in Ireland and the wood of these species cannot be differentiated on the basis of their anatomic characteristics. Hairy birch (*Betula pubescens Ehrh*) and silver birch (*Betula pendula Roth*) cannot be distinguished microscopically and are listed here as *Betula* spp. It is also sometimes difficult to tell the difference microscopically between blackthorn (*Prunus spinosa*) and cherry (*Prunus avium/padus*), which are referred to as *Prunus* spp in this report.

### 9.2.3 Feature Type & Receiving Environment

Site AR29 represented the remains of a denuded burnt mound or fulacht fiadh comprising a spread of burnt or heat-affected stone and charcoal, found in association with three troughs, which were rectangular and sub-circular in shape. A series of post-medieval plough furrows were also recorded. The burnt mound was identified initially during centreline archaeological testing by Valerie J Keeley. Ltd. in 2006.

Charcoal for analysis was recovered from one context ([c16]; Sample No. 1) which provided evidence for a wide variety of native taxa. Samples sent for radiocarbon dating provided evidence for human activity in the landscape during the Middle Bronze Age.

#### 9.2.4 Results

Six taxa were identified from the charcoal assemblage retrieved from the site and features excavated at AR29, E2818 Coolcroo townland, Co. Tipperary NR. Charcoal was identified from [c16] (fill of sub-circular trough [c18]; Sample No.1).

Hazel (*Corylus avellana*) was the dominant taxa in the assemblage (18 fragments out of a total of 44), followed by birch (*Betula* sp; 15 fragments), ash (*Fraxinus excelsior*; 5 fragments), alder (*Alnus glutinosa*; 4 fragments), with one fragment each of *Prunus* spp (blackthorn/cherry) and oak (*Quercus* sp), present. The weight and fragment count identified from each taxon type at each site is represented below in Tables 11 & 12.

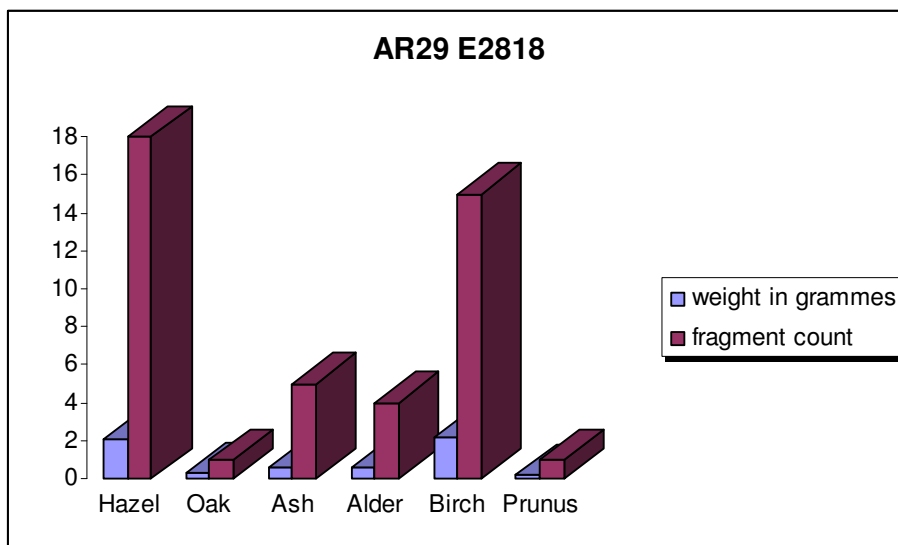


Table 11: All taxa identified

Sample No.	Context	Feature Description	Identifications	Date
1	[c16]	Fill of sub-circular trough [c18]	Hazel (2.1g*; 18f*); Oak (0.3g; 1f). Ash (0.6g; 5f); Alder (0.6g; 4f); Birch (2.2g; 15f); Prunus (0.2g; 1f).	1014-845 BC (cal. QUB 2 Sigma).

Table 12: Wood taxa present in the charcoal assemblage

\*g = weight in grammes \*f = fragment counts

#### 9.2.5 Discussion of the Charcoal Assemblage

**Aims of the study:** To determine the types of wood selected for use either as fuel or as structural wood.

- To re-construct the environment that the charcoal and wood was selected from.



- To determine use and function of particular features and their associated charcoal through the identification of taxa types
- Wood types identified from charcoal and wood assemblages

Botanical Name	Species
<i>Alnus glutinosa</i>	Alder
<i>Betula</i> spp	Birch
<i>Corylus avellana</i>	Hazel
<i>Fraxinus excelsior</i>	Ash
<i>Prunus</i> spp	Blackthorn/cherry
<i>Quercus</i> spp	Oak

Table 13 Taxa types identified from the charcoal and wood assemblage

Forty four charcoal fragments from one context relating to a burnt mound with associated troughs were analysed from excavations at AR29, E2818, Coolcroo townland, Co. Tipperary NR, as part of the M8-N8 Cullahill to Cashel Road Improvement Scheme. The identified charcoal was in poor condition and iron stained as well as containing some fungal hyphae and insect channels. This indicates the use of dead or rotten wood.

Charcoal was identified from [c16] (fill of sub-circular trough [c18]; Sample No. 1). Hazel (*Corylus avellana*) was the dominant taxa in the assemblage followed by birch (*Betula* spp), ash (*Fraxinus excelsior*), alder (*Alnus glutinosa*), with equal amounts of *Prunus* spp (blackthorn/cherry) and oak (*Quercus* sp) also present.

The charcoal is mainly representative of fuel collection policies and is not likely to be associated with structural wood at the site. As the dominant taxa identified in the samples submitted for analysis, hazel charcoal was collected and used for activities associated with the burnt mound sites with associated features at E2818 / AR29, Coolcroo townland, Co. Tipperary, during the Middle Bronze Age.

Oak and ash are tall woodland canopy trees. Other taxa present in the fill of the sub-circular trough associated with AR29 include hazel and *Prunus* spp. These are normally associated with scrub type woodlands, understory trees or small trees located at the margin of woodlands (see Appendix). Alder is associated with more wetland terrain. The primary woodland trees and scrub type trees would most likely have grown in woods on the nearby dryland margins and slopes while alder and birch would have grown in the wetter margins.

**Comparative Material:** The analysis completed for the Coolcroo area of Co. Tipperary NR adds to the growing amount of information obtained from the analysis of wood and charcoal from burnt spreads, fulachta fiadh and troughs excavated in Ireland and in particular in Co. Tipperary. The author has carried out a large number of charcoal identifications from excavated fulachta fiadh or burnt mound sites and a range of species are generally identified from these cooking places.

Charcoal analysis at E2818 / AR29 produced evidence for oak, hazel, alder, ash, birch and *Prunus* growing in Coolcroo townland during the Middle Bronze Age. These results compare favourable to analysis completed at a

burnt mound site excavated at nearby Rathcunikeen townland (AR28 / E2372) where hazel, pomoideae, oak, cherry, ash, alder, blackthorn, willow, birch, holly and elm were all identified, with hazel being the dominant taxon (O Carroll 2009a). Charcoal analysed from a similar site at Aughnagomaun/Ashill townlands (AR8 / E2361) as part of this same project provided evidence for the use of hazel, hazel/alder, ash and oak, with hazel once again identified as the dominant taxon (O Carroll 2008c). The sites are all similar in date, spanning the Early to Middle Bronze Age.

Charcoal identified from Lisheen, Co. Tipperary, is broadly categorised into the Bronze Age periods therefore direct comparisons with regards the timeframe of analysed sites between Lisheen and the M8/N8 is somewhat difficult. Notwithstanding the above facts, one can see similar results from the charcoal analysed from fulachta fiadh sites in the nearby Lisheen bogs, which showed evidence for the frequent use of hazel and ash charcoal as well as alder and oak. Stuijts notes that oak was identified in low quantities and the larger quantities of ash and hazel charcoal identified reflects a more open environment (Gowen *et al* 2005). The results at Lisheen may be indicative of the different landscape which the burnt mound sites were constructed and used in which included peat bogs interspersed and their margins where alder and hazel would have proliferated.

Charcoal analysis from fulachta fiadh sites along the M7/M8 Portlaoise to Cullahill produced mainly oak, hazel and ash charcoal in that order (O Carroll 2008).

Charcoal analysed from excavated fulachta fiadh sites along the N11 Wicklow bypass (A022-46, 41, 43 and 45) produced a similar array of charcoal taxa, although alder was more dominant than ash, oak or hazel at these sites. Oak, ash, hazel, alder, willow, holly, birch and Pomoideae are among the main taxa present within the fulachta fiadh assemblages.

In Charlesland, Co. Wicklow, charcoal and wood were analysed from four fulachta fiadh dating from the Early and Late Bronze Age. Troughs, hearths, mounds, and a burnt spread were analysed from these sites. The charcoal assemblage was dominated by ash, alder, willow and hazel. The wood from two of the fulachta fiadh sites was identified as mainly alder with some hazel.

Work carried out along the gas pipeline to the west show that the main woods used for firewood at 44 analysed fulachta fiadh were alder, ash, oak and hazel (O' Donnell 2007, 32).

#### **9.2.6 Summary & Conclusions**

Six taxa were identified from the charcoal assemblage retrieved from excavations in the townland of Coolcree, Co. Tipperary NR. The charcoal is mainly representative of fuel collection policies at the *fulachta fiadh*/burnt mound site and is an indication of the wood selected for fuel at the site and the local environment of the site during the Late Bronze Age.

Hazel (*Corylus avellana*) was the dominant taxa in the assemblage (18 fragments out of a total of 44), followed by birch (*Betula spp*; 15 fragments), ash (*Fraxinus excelsior*; 5 fragments), alder (*Alnus glutinosa*; 4 fragments), with one fragment each of *Prunus spp* (blackthorn/cherry) and oak (*Quercus sp*), present.

The wood types identified include primary woodland trees such as oak and ash and scrub type woodlands containing *Prunus spp* (blackthorn/cherry) and hazel. Alder and birch are wetland type trees indicative of a wetter landscape. The charcoal identifications are broadly comparable with nearby analysed sites (AR 8 and AR 28) also along the M8/N8 road scheme, where hazel fragments are frequent.

#### 9.2.7 Appendix 1

Information relating to wood taxa identified from the assemblage

**Alder (*Alnus glutinosa*):** Alder (Fearnóg) is a widespread native tree and occupies wet habitats along stream and riverbanks. It is an easily worked and split timber and therefore quite commonly manufactured into planks. This deciduous tree grows up to half a metre a year, quickly reaching its maximum height of 20 to 25 metres. *Alnus Glutinosa* is very tolerant of waterlogged situations, preferring a heavy soil and damp conditions. Alder charcoal was present in Sample No.1 [c16].

**Birch (*Betula sp*):** Hairy birch (*Betula pubescens* Ehrh) and silver birch (*Betula pendula* Roth) cannot be distinguished microscopically. Silver birch requires light and dry soil while hairy birch grows on wet-marginal areas. Birch more often occurs on wet marginal areas and is one of the first trees to establish itself on raised bogs. The wood from birch trees is strong but it rots quickly when exposed to outdoor conditions. Birch was present in Sample No. 1 [c16].

**Hazel (*Corylus avellana*):** Hazel (An Coll) was present in Sample No. 1 [c16]. Hazel is a native species and was very common up to the end of the 17th century. 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 broadleaf woods dominated by oak. It also occurs as pure copses on shallow soils over limestone as seen today 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. Hazel also makes good fuel.

**Ash (*Fraxinus excelsior*):** Fragments of ash charcoal were identified in Sample No. 1 [c16]. Ash (An Fhuinseoig) is a native species to Ireland preferring lime rich freely draining soils. It is not a very durable timber in waterlogged conditions but has a strong elastic nature and is easily worked. Ash appears to have colonized the open land after the first farmers removed much of the native woodland therefore it is frequently used as structural timber in the Later Bronze Age. Ash is also abundant in native hedgerows and was quite common in the later Historic Period.

**Blackthorn/cherry (*Prunus sp*):** It is difficult to differentiate between cherry and blackthorn (An Draigeán), particularly in relation to charcoal. Therefore, the identified charcoal has been classified as *Prunus spp*, which could be either blackthorn or cherry. It was present in Sample No. 1 [c16]. The sloe bush, as blackthorn is commonly referred to, is a very durable wood and is as strong as oak. It is a thorny shrub found in woods and scrubs on all soil types. In a woodland situation, it is more likely to occur in clearings and at the woodland edges.

**Oak (*Quercus spp*):** A single fragment of Oak was identified in the sample analysed. Sessile oak (*Quercus petraea*) and pedunculate oak (*Quercus robur*) are both native and common in Ireland and the wood of these species can not be differentiated on the basis of their anatomic characteristics. Pedunculate oak is found growing in areas of heavy clays and loams, particularly where the soil is alkaline. Sessile oak is found on acid soils and often in pure stands. Unlike pedunculate oak, it thrives on well-drained soils but is tolerant of flooding (Beckett 1979, 40-41). Both species of oak grow to be very large trees (30-40m high).

Oak was one of the most prevalent trees growing in Ireland throughout the medieval period. The anglicised form of the Irish name for oak (*derry*) is included in many townland names today. Out of 62,000 townlands in Ireland about 1,600 contain the word '*derry*' in one form or another, either as a prefix or suffix (McCracken 1971, 23).

Oak is a dense wood and is very suitable for charcoal production. It also makes good firewood when dried and will grow in wetland areas when conditions are dry. Charcoal was important in prehistoric and medieval Ireland, as it burned hotter and cleaner than wood and was considered superior to wood in that respect.

Oak also has unique properties of great durability and strength and was frequently used in the manufacture of posts and wooden plank.

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### 9.3 Radiocarbon Dating

One radiocarbon determination was submitted for analysis by the  $^{14}\text{C}$  Chrono Centre, Queens University Belfast, N. Ireland. Results of calibration of the radiocarbon dates are detailed below:

Lab Code	Sample Ref	Radiocarbon Age	Calibrated Age Ranges		Calibrated Age Ranges	
			68.2% probability (1 sigma)		95.4% probability (2 sigma)	
UBA-10358	Fill [c16] of Trough [c18]. Sample 1	2793 $\pm$ 30 BP	(993 – 906 Cal BC)		(1014 – 845 Cal BC)	
			993- 989	0.039%	1014- 890	0.925%
			980- 906	0.961%	881- 845	0.075%

Table 13: Radiocarbon Dates. Calibration data set: intcal 04.14c Reimer *et al.* 2004

NOTE: Cal ages and ranges are rounded to the nearest year which may be too precise in many instances. Users are advised to round results to the nearest 10 yr for samples with standard deviation in the radiocarbon age greater than 50 yr.

#### 9.3.1 References

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## 10.0 EXCAVATION RECORD

### A. CONTEXT REGISTER

C #	Type	Interpretation	Description	Dimensions
1	Deposit	Topsoil	Dark brown clayey silt with occasional small stones. Occasional burnt stone.	(Extends across the whole site) 0.35m in depth
2	Deposit	Subsoil	Mid orangey grey sandy silt with occasional stones.	(Extends across the whole site – unknown depth)
3	Deposit	Irregular deposit of stony material.	Mid blackish brown silty sand with frequent stones and occasional charcoal.	8.00m by 4m and a thickness of 0.05m.
4	Deposit	CANCELLED	CANCELLED	N/A
5	Deposit	Irregular deposit of burnt material.	Mid blackish brown sandy silt with occasional charcoal and occasional heat-shattered stones.	9.25m by 6.05m and a thickness of 0.13m.
6	Deposit	Single fill of small rectangular trough [c9].	Mid brownish grey clayey sand with frequent decayed stones and occasional flecks of charcoal.	1.46m by 1.03m and a thickness of 0.21m.
7	Deposit	Subcircular deposit of stony material.	Mid blackish grey silt with moderate amount of heat-affected medium-sized stones.	0.24m by 0.14m and a thickness of 0.03m.
8	Deposit	N/A	CANCELLED	N/A
9	Cut	Cut of small rectangular trough.	Rectangular shaped cut with steep concave sides that break gradually to a flat base.	1.46m by 1.03m and 0.21m in depth.
10	Deposit	CANCELLED	CANCELLED	N/A
11	Deposit	Upper fill of rectangular trough [c14].	Mid brown sandy silt with occasional burnt clay and occasional stones, most of them decayed and burnt.	2.70m by 2.14m and a thickness of 0.14m.
12	Deposit	Fill of rectangular trough [c14].	Mid grey silty clay with frequent stones and moderate flecks of charcoal.	2.70m by 2.14m and a thickness of 0.14m.
13	Deposit	Basal fill of rectangular trough [c14].	Dark bluish black silty clay with frequent heat-shattered stones, a moderate amount of chunks and frequent flecks of charcoal.	2.70m by 2.00m and a thickness of 0.14m.
14	Cut	TROUGH B.	Rectangular shaped cut with steep sides that break gradually to a flat base.	2.7m by 2.14m and 0.31m in depth.
15	Deposit	Upper fill of subcircular trough [c18].	Dark brown sandy silt with occasionally clay patches.	2.97m by 2.7m and a thickness of 0.35m.
16	Deposit	Fill of subcircular trough [c18].	Black sandy silt with moderate heat-shattered stones.	2.10m by 0.73m and a thickness of 0.22m.
17	Deposit	Basal fill of subcircular trough [c18].	Light to mid bluish grey silty clay with frequent decayed stones and occasional charcoal flecks.	3.60m by 2.40m and a thickness of 0.11m.
18	Cut	TROUGH A.	Subcircular shaped cut with shallow convex sides that break imperceptibly to a flat base.	3.60m by 3.00m and 0.50m in depth.
19	Deposits	Fills of various cultivation furrows [c20].	Underlying deposits mixed with whatever overlying deposits the furrow cut through.	Various lengths. Max width 0.05m. Max depth 0.05m.



C #	Type	Interpretation	Description	Dimensions
20	Cuts	Cuts of various N-S orientated cultivation furrows.	A group of narrow based cuts that may have been caused by machine or drawn plough.	Various lengths. Max width 0.05m. Max depth 0.05m.

#### B: FINDS REGISTER

Artefact No.	Context	Cut No.	Material	Type	Description
E2818:1	c1		Ceramic	Pottery	Base sherd of Irish medieval hollow ware. Sherd is composed of red-grey earthen ware fabric with internal and external speckled green glaze decoration.
E2818: 2	c1		Ceramic	Pottery	Base sherd of Irish medieval hollow ware. Sherd is composed of red-grey earthen ware fabric with internal and external speckled green glaze decoration.

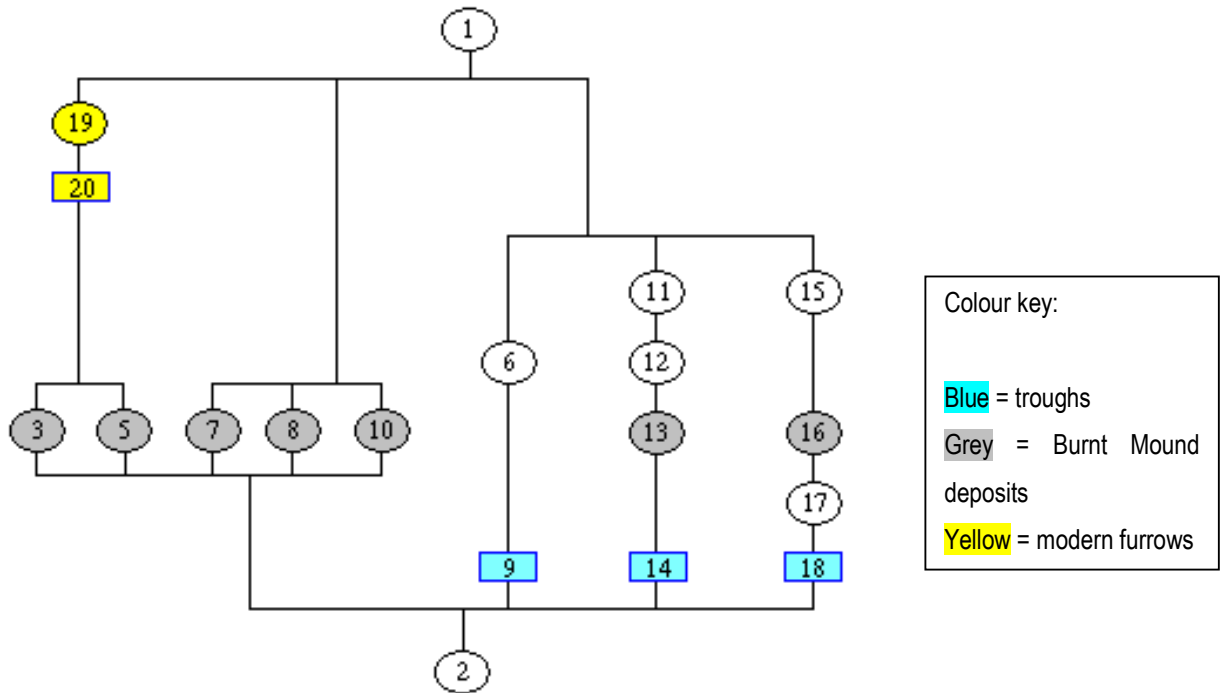
#### C: SAMPLE REGISTER

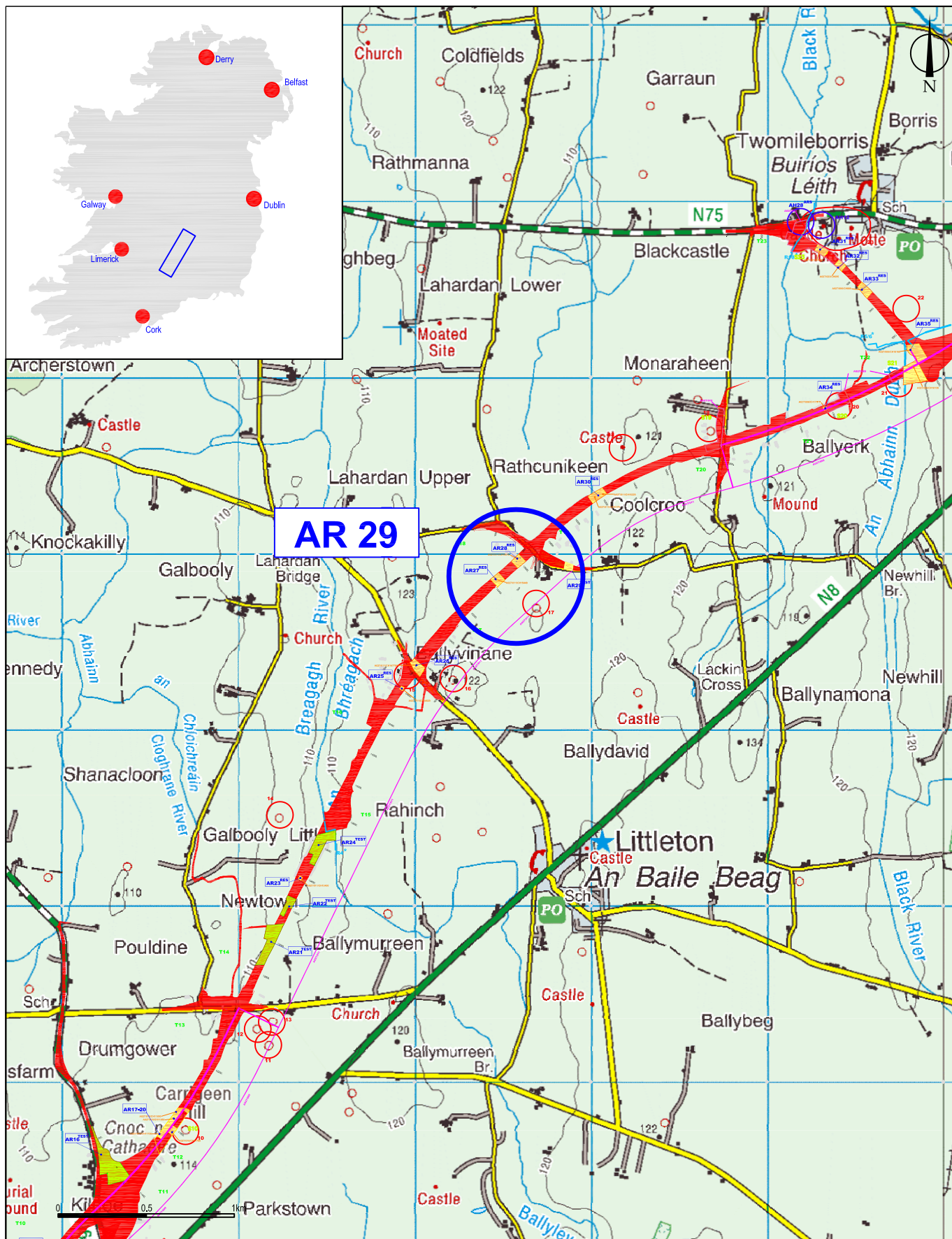
Sample	Context	Type/purpose	Specialist Analysis	No. of Bags	Feature Type	Cut
1	[c17]	Charcoal, and charred seeds.	Radiocarbon dating. Species ID (charcoal and seeds)	2	Trough	c18


#### D: LIST OF QUANTITIES

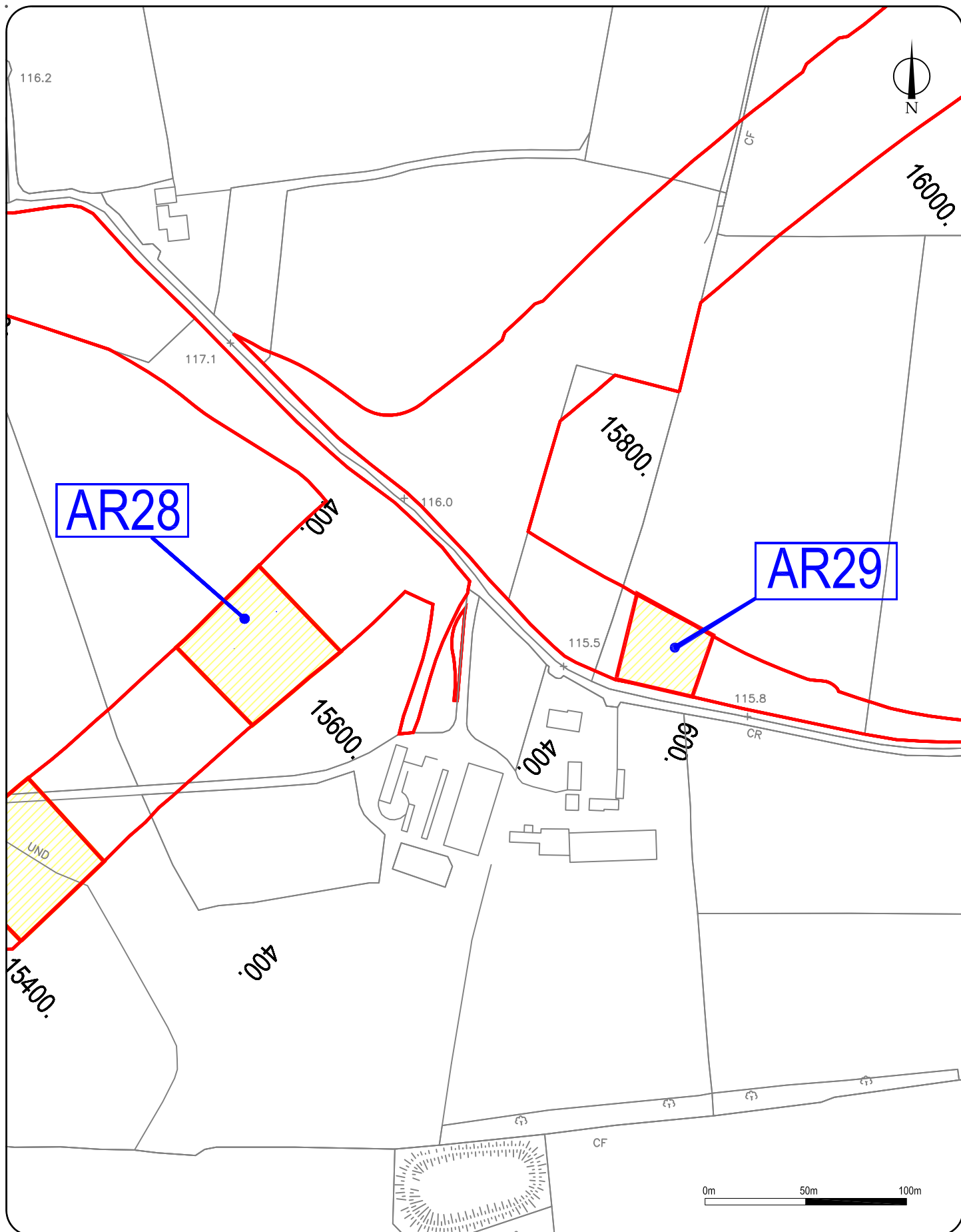
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**E: STRATIGRAPHIC MATRIX**



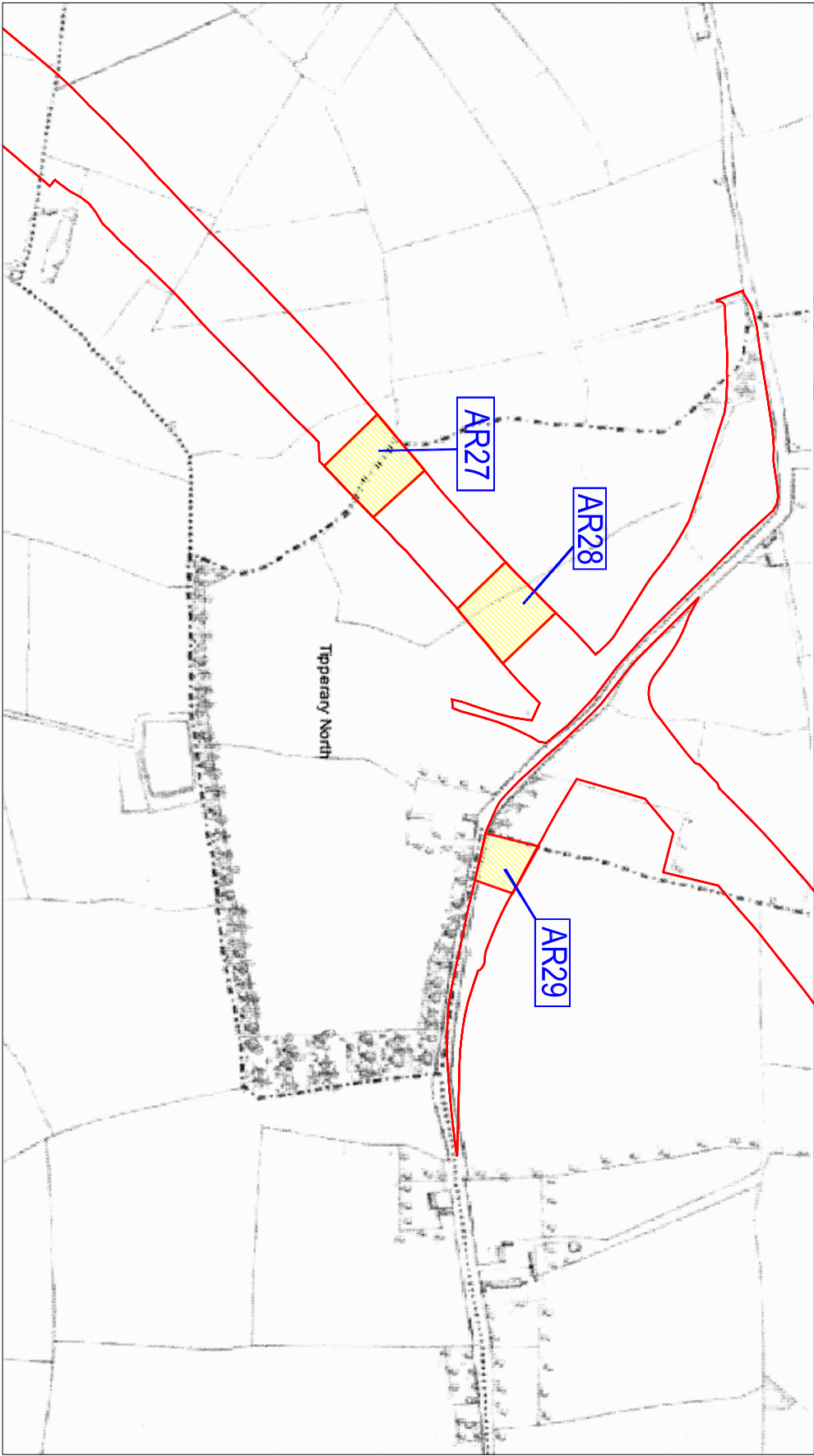
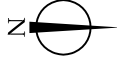



<b>Title</b> AR 29 Location Map(Discovery)			<b>Notes</b>			 Brehon House Kilkenny Road Castlecomer Co. Kilkenny. Tel: (+353) 056 4440236 Fax: (+353) 056 4440237 Email: vjk@vjk.ie Website: www.vjk.ie
<b>Works/Exc no.</b> A027/000 E2818	<b>Drawn by</b> A.Burke	<b>CAD reference</b> 1269-06-400 Tera 3	<b>Date</b> June 09	<b>Scale</b> 1:30000	<b>Drawing No.</b> Figure 1	
<b>Client</b> Kilkenny County Council						<b>Project</b> M8/N8 Cullahill to Cashel Road Improvement Scheme

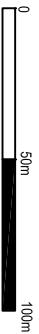
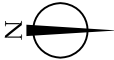
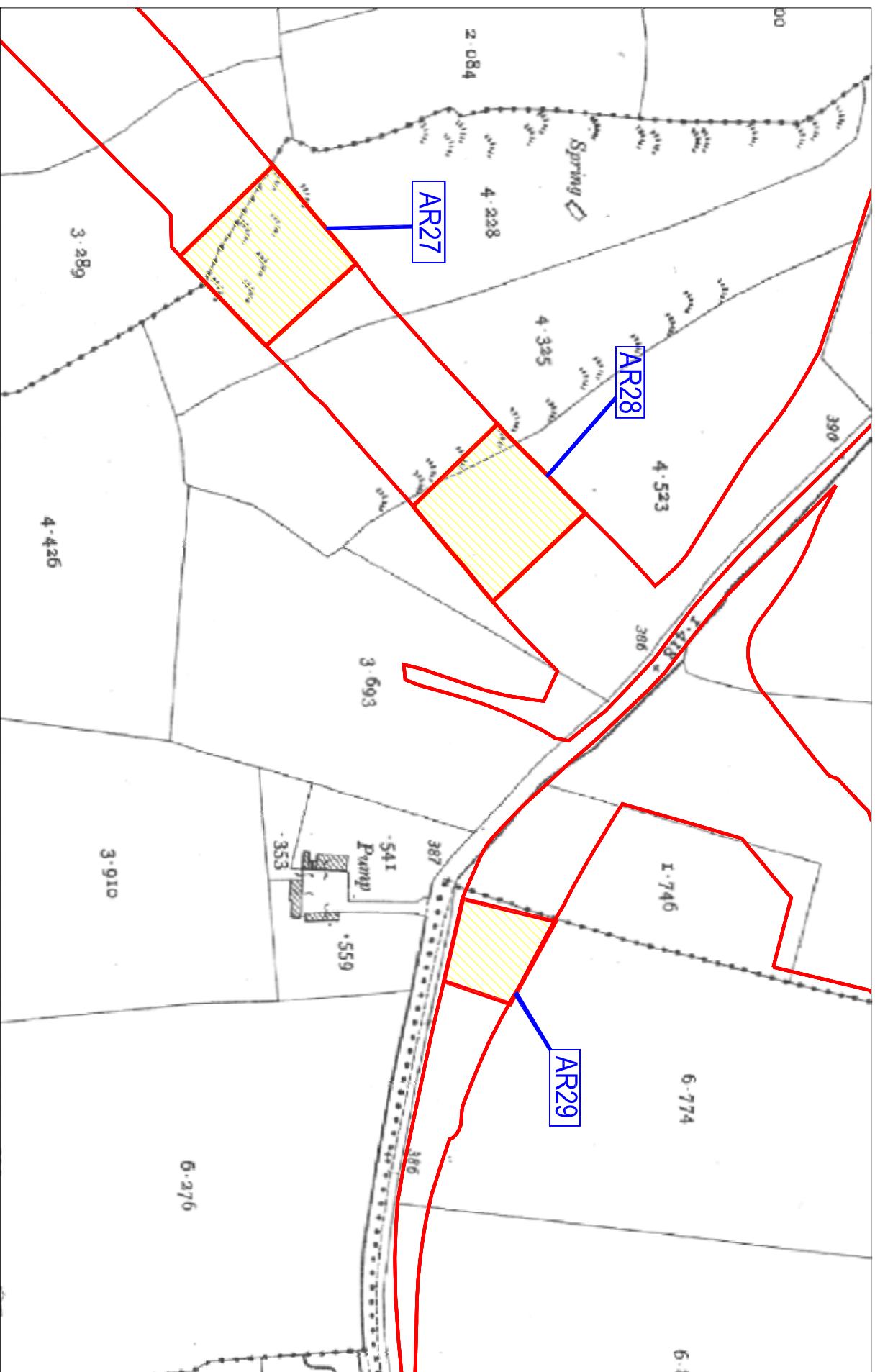


<b>Title</b> Scheme map with excavation area denoted			<b>Notes</b>			 <b>Client</b> Kilkenny County Council	Brehon House Kilkenny Road Castletomer Co. Kilkenny. Tel: (+353) 056 4440236 Fax: (+353) 056 4440237 Email: vjk@vjk.ie Website: www.vjk.ie
<b>Works/Exc No.</b> A027/000 E2818	<b>Drawn by</b> A.Burke	<b>CAD reference</b> 1269-06-400 Tera 3	<b>Date</b> June 09	<b>Scale</b> 1:2500	<b>Drawing No.</b> Figure 2		

**Project**  
M8/N8 Cullahill to Cashel Road Improvement Scheme



Title		Notes	
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Date E2818		CAD reference 1269-06-400 Tera 3	
June 09		Scale 1:5000	
		Drawing No. Figure 3	
Client Kilkenny County Council		Project M6/N8 Cullinill to Cashel Road Improvement Scheme	
		Archaeological Consultancy	
Bridon House Kilkenny Road Castlecarn Co. Kilkenny.		Tel: (+353) 056 4440236 Fax: (+353) 056 4440237 Email: vjk@vjk.ie Website: www.vjk.ie	



**Title**  
2nd edition Ordnance Survey map

**Notes**

**Works/Exc. No.**  
A027/000

**Date**

E2818  
June 09

**Compiled by**  
A. Burke

**Scale**

1:2500

**CAD reference**  
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**Drawing No.**

Figure 4

**Client**  
Kilkenny County Council

**Project**

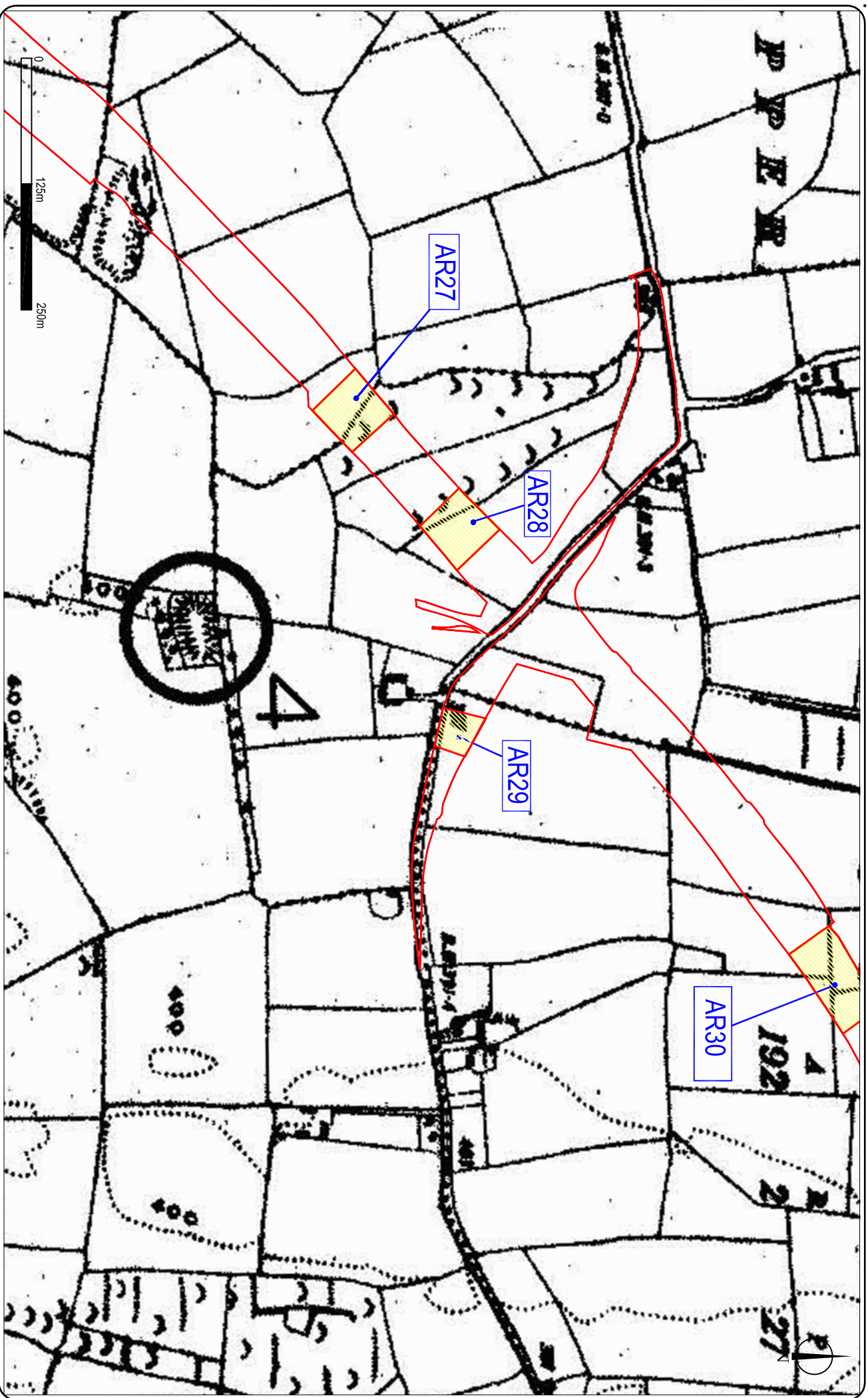
M6/N8 Culahill to Cashel Road Improvement Scheme




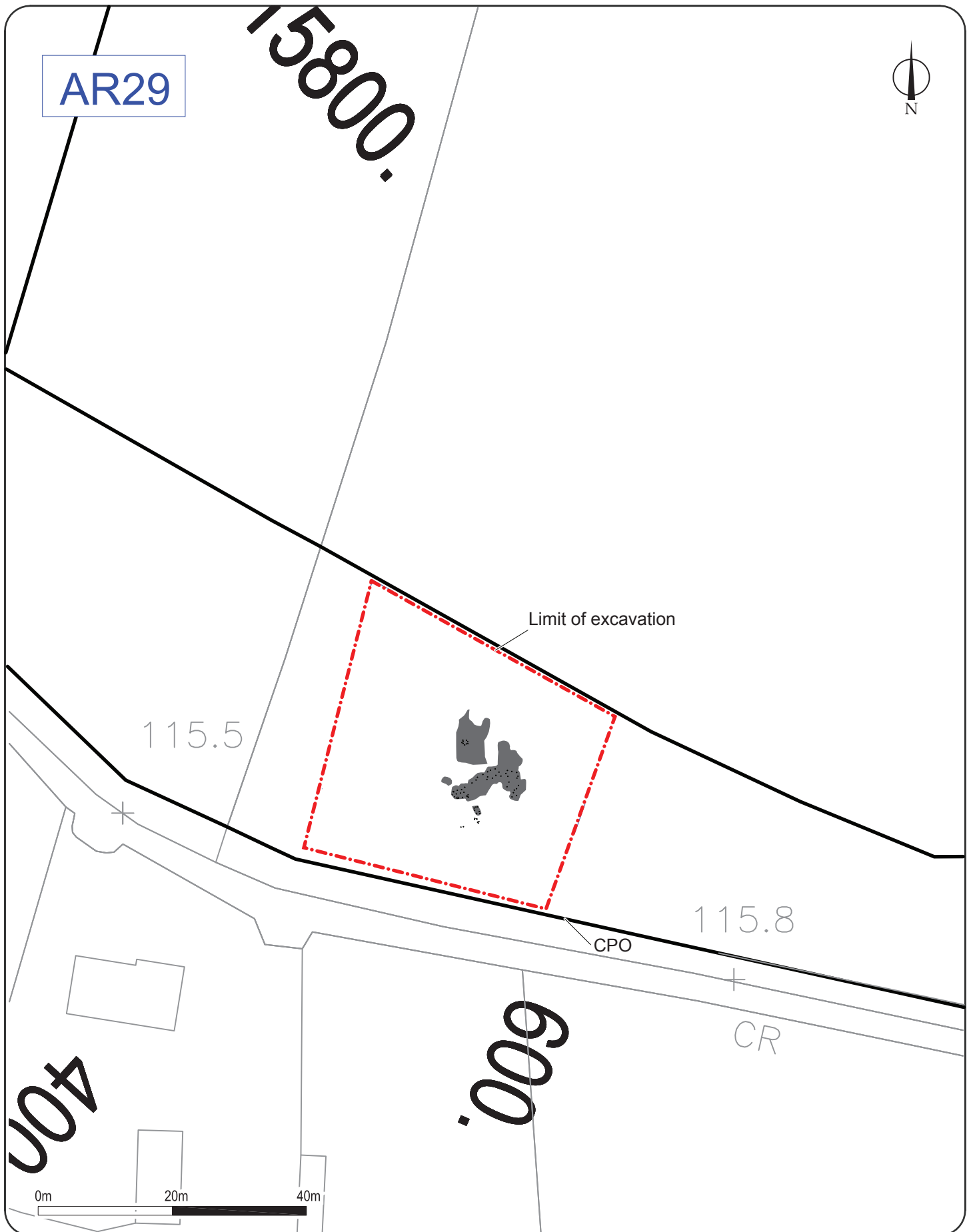
Barton House  
Kilkenny Road  
Castlecanner  
Co. Kilkenny.


Tel: (+353) 056 4440236  
Fax: (+353) 056 4440237  
Email: vjk@vjk.ie  
Website: www.vjk.ie



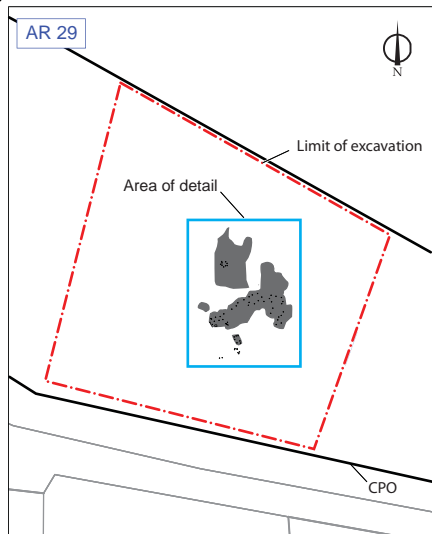


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RMP map showing site location			
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CAD reference		Drawing No.	
1269-06-400 Tera 3		Figure 5	
Client		Project	
Kilkenny County Council		M6/N8 Cullinill to Cashel Road Improvement Scheme	
 Valerie A. Kealey Ltd. ARCHITECTURAL CONSULTANTS		Brillon House Kilkenny Road Castlecomer Co. Kilkenny.	
Tel: (+353) 056 4440236		Fax: (+353) 056 4440237	
Email: vjk@vjk.ie		Website: www.vjk.ie	

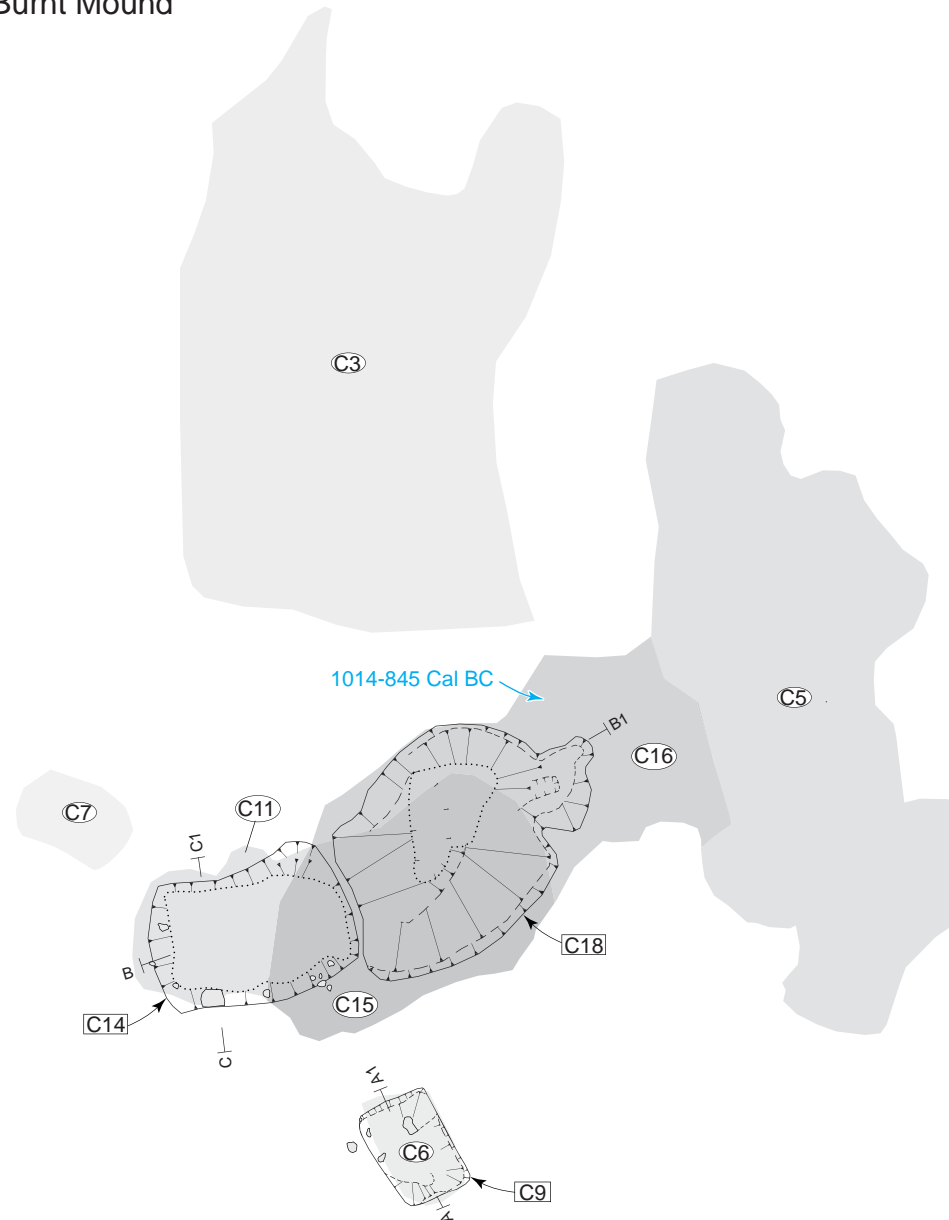


<b>Title</b> AR 29 Site Overview			<b>Notes</b>			 Brehon House Kilkenny Road Castlecumber Co. Kilkenny. Tel: (+353) 056 4440236 Fax: (+353) 056 4440237 Email: vjk@vjk.ie Website: www.vjk.ie
<b>Works No.</b> A027/000/E2818	<b>Drawn by</b> L. Wilson	<b>CAD reference</b> 1269-06-400/TERA3	<b>Date</b> June 09	<b>Scale</b> 1:750	<b>Drawing No.</b> Figure 6	
<b>Client</b> Kilkenny County Council						<b>Project</b> M8/N8 Cullahill to Cashel Road Improvement Scheme





## Burnt Mound



0 2m 4m

**Title**  
Plan of Burnt Mound

**Notes**

**Works/Exc. No.**  
A027/000/E2818

**Compiled by**  
L. Wilson

**CAD reference**  
1269-06-400 Tera 3

**Client**  
Kilkenny County Council

**Date**  
June 09

**Scale**  
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**Drawing No.**  
Figure 7

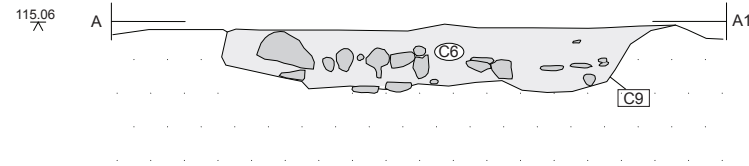
**Project**  
M8/N8 Cullahill to Cashel Road Improvement Scheme



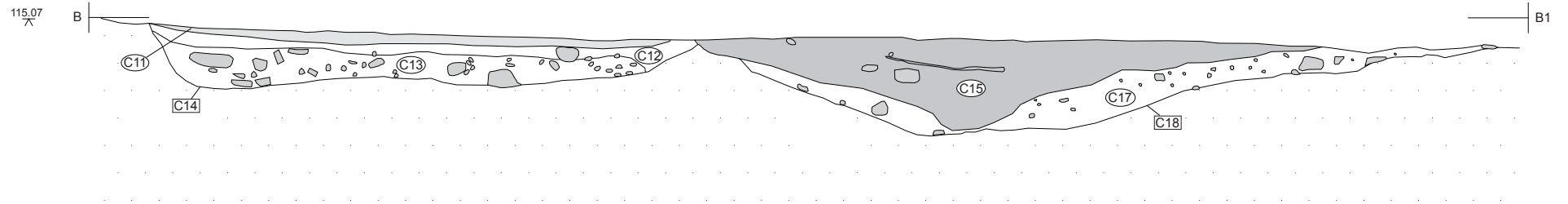
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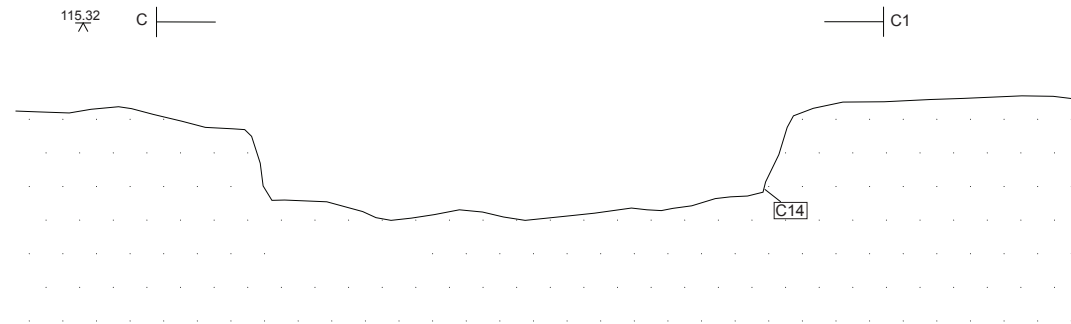
Northeast facing section



Southeast facing section



Southeast-Northwest running profile



0 0.5m 1m

**Title**  
Site sections & profile

**Notes**

**Works/Exc. No.**  
A027/000/E2818

**Compiled by**  
L. Wilson

**CAD reference**  
1269-06-400 Tera 3

**Client**  
Kilkenny County Council

**Date**  
June 09

**Scale**  
1:25

**Drawing No.**  
Figure 8

**Project**  
M8/N8 Cullahill to Cashel Road Improvement Scheme



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## PLATES



Plate 1: Post-excavation view of trough [c14]. Looking northwest.



Plate 2: Mid-excavation, showing section through trough [c14]. Looking north.





Plate 3: Post-excavation view of subcircular troughs [c18] (foreground) and [c14]. Looking west.



Plate 4: east-facing section through trough [c18]. Looking west.





Plate 5: Working sections through the two features [c14] and [c18]. Looking west.



Plate 6: Post-excavation view of troughs [c9] (foreground), [c14] (left) and [c18]. Looking northwest.





Plate 7: Pre-excitation view of trough [c6]. Looking northwest.



Plate 8: Pre-excitation of [c3] (foreground) and [c5] showing plough furrows. Looking southeast.

## NRA DATABASE CONTENTS SHEET

Database entry	Comment
<b>Excavation number</b>	Ministerial Direction: A027/000 Registration No.: E2818
<b>Townland</b>	Coolcroo townland
<b>Site name</b>	AR 29
<b>County</b>	Tipperary
<b>Project reference</b>	M8/N8 Cullahill to Cashel KK/00/140
<b>Year of excavation</b>	2006
<b>Grid reference (Easting)</b>	217795E
<b>Grid reference (Northing)</b>	155961N
<b>OD Height (m)</b>	115m OD
<b>Landscape setting</b>	Low lying, improved land used extensively for arable, close to spring.
<b>Project Archaeologist</b>	James Eogan/Richard O'Brien
<b>Site Director</b>	D. McCullough
<b>Archaeological consultancy</b>	Valerie J Keeley Ltd
<b>Identification technique</b>	Test Trenching (VJK 2006) E2395
<b>Site type</b>	Burnt Mound
<b>Site activity</b>	Burnt Mound
<b>Dating period</b>	Bronze Age
<b>Radiocarbon dates</b>	2793± 30 BP (1041 – 845 Cal BC 2 s.d.) (UBA-10358)
<b>Dendro-chronological dates</b>	N/A
<b>Descriptions</b>	Excavation of the site produced the remains of a denuded Burnt Mound. This comprised two troughs and a smaller pit that were dug into the underlying subsoil and filled with charcoal rich soil mixed with some heat-affected stone. The later of the two troughs produced a late Bronze Age radiocarbon date of 1041 – 845 Cal BC. Later plough furrows crossed the site truncating the upper burnt deposits. Two sherds of medieval pottery were also recovered from topsoil.
<b>Artefacts</b>	Residual Medieval Pottery sherds x 2 Hollow Ware (topsoil)
<b>Environmental evidence</b>	Charcoal Hazel (2.1g); Oak (0.3g). Ash (0.6g); Alder (0.6g); Birch (2.2g); Prunus (0.2g).
<b>Additional information</b>	None
<b>Publication</b>	Excavations Bulletin 2006.