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M1 DUNDALK WESTERN BYPASS

SITE 131: DONAGHMORE 7
CHAINAGE 19.510
NGR: 302020 / 307125

FINAL REPORT

ON BEHALF OF
LOUTH COUNTY COUNCIL and the
NATIONAL ROADS AUTHORITY

LICENSEE: BRIAN Ó DONNCHADHA
LICENCE NUMBER: 02E1583

JULY 2009

IAC Irish Archaeological
Consultancy

NON-TECHNICAL SUMMARY

Irish Archaeological Consultancy Ltd. (IAC) undertook an excavation in the townland of Donaghmore in advance of road construction associated with the Dundalk Western Bypass (DWB). The excavation was undertaken to ensure all subsoil archaeological remains were preserved by record in advance of groundwork.

Prior to archaeological excavation a detailed geophysical and test trenching programme was carried out to define the extent, character and condition of the archaeological resource in this general area. These investigations revealed areas of intense archaeological interest, namely Donaghmore 1 and Donaghmore 7, along with other areas worthy of investigation.

Archaeological excavation at Donaghmore 7 began on Monday the 14th of October 2002 with a team of one Supervisor and four Assistant Archaeologists. It was completed Thursday the 17th of October. This revealed that the area investigated was a site containing probable prehistoric activity in the form of a ring ditch or barrow.

Environmental samples, which included charcoal which when sent for radiocarbon dating and returned a date of 2030 +/- 36BP. Which gives a calibrated date of Cal.120BC – 60AD, placing the site at Donaghmore 7 within the Iron Age period (Appendix 2.2).

ACKNOWLEDGEMENTS

The archaeological excavation at Site 131, Donaghmore 7, Co. Louth was carried out on behalf of Louth County Council and the National Roads Authority in advance of the construction of the M1 Dundalk Western Bypass.

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1 INTRODUCTION

This report refers to an archaeological excavation carried out at Site 131, Donaghmore 7 (Figure 1), in the townland of Donaghmore c.3km west of Dundalk, Co. Louth. It was carried out as part of an archaeological mitigation programme associated with the Dundalk Western Bypass (DWB). Archaeological fieldwork was directed by Brian Ó Donnchadha of Irish Archaeological Consultancy Ltd. (IAC Ltd.) and was funded by Louth County Council and the National Roads Authority.

1.1 Site location

The site (131), was located in the in the townland of Donaghmore, c.3km west of Dundalk (Louth OS sheet number 007) The site is:

- Site 131, Donaghmore 7, Excavation Licence 02E1583, Ch. 19.510, NGR 302020/307125.

The site was identified as a result of the test trenching exercise undertaken by IAC in March 2002 (Licence Ref.: 02E0373). The area comprised an undulating landscape with the site primarily focused on the top and west facing slope of a low ridge running east/west across the landscape.

1.2 The scope of the project

General

Louth County Council proposed to construct a motorway called the 'Dundalk Western Bypass – Northern Link'. The scheme also included ancillary roads and other structures.

The Dundalk Western Bypass – Northern Link connects the existing Dunleer-Dundalk Motorway, which terminated in the area of the N52 Ardee Road, to the N1 Ballymascanlan Roundabout in an arc situated c.2.5km - 3km to the west and north of Dundalk.

The scheme was divided into two sections. Section 1 (7.8km main centre line chainage (Ch) ran from Ch16.000 to Ch23.870 (the Armagh Road, R177). Work on the southern end of Section 1 was previously commenced so that the main cutting and rough surfacing for the road had been completed to chainage point Ch17.100. The chainage zone Ch16.000 – 17.100 had therefore not been investigated archaeologically under the present contract. Section 2 (2.08km main centre line chainage) ran from the Armagh Road Ch23.870 to the Ballymascanlan Roundabout, Ch25.950.

Therefore the archaeological potential of the route represented a distance of 8.49km (Ch17.100 – 25.950). The route corridor varied between 60m and 200m (not including side roads) and is on average 100m wide. The archaeological site area was thus approximately 85 hectares.

Specific

Five excavations were undertaken in the Donaghmore townland, spread out over a distance of c.250m with on average a distance of 30m separating the sites. The excavation areas were mainly intervisible, with three sites being visible from each other, namely Donaghmore 4, 5, and 6.

Background historical research undertaken as part of the test trenching programme revealed Donaghmore townland to contain sites listed in the Record of Monuments

and Places (RMP) including several souterrains, a ring-ditch and the local tradition of a church site. Records held by the National Museum of Ireland in the Topographical Files also record stray finds from the townland of Donaghmore including flint waste flakes, iron slag, iron fragments and undated pottery sherds.

Archaeological excavation has revealed the Donaghmore area to be part of a prehistoric landscape with material being recovered from the excavations dating from the Neolithic (4000BC-2500BC) and continuing into the Early Medieval period (AD500-1169AD).

1.3 Circumstances and dates of fieldwork

The excavation was undertaken to offset the adverse impact of road construction on known and potential subsoil archaeological remains in order to preserve the site by record.

Topsoil stripping of Site 131, Donaghmore 7 commenced on the 14th October 2002 with a team of one Supervisor and four Assistant Archaeologists and was completed on the 17th October 2002.

After initial bulk stripping the areas of excavation were hand cleaned in order to identify potential archaeological remains. All features were subsequently fully excavated and recorded by hand, using the single context recording system with plans and sections being produced at a scale of 1:50 or 1:20 (sections were recorded generally at 1:10) and photographs where necessary. All works were carried out in agreement with the Project Archaeologist the National Monuments Section of the Department of the Environment, Heritage and Local Government (formerly *Dúchas*-The Heritage Service). Samples were taken of charcoal for species identification and radio carbon dating analysis.

It was agreed in advance that adequate funds to cover excavation, post-excavation, conservation and dating analysis would be made available by Louth County Council. Dating of the site involved pottery analysis through typological study and radiocarbon analysis. The site archive, and any finds, samples *et cetera* were kept in safe storage by IAC Ltd. during the post-excavation stage.

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

The following archaeological and historical background refers to the wider archaeological landscape through which the DWB passes.

The town of Dundalk lies at the northern end of Dundalk Bay and is the administrative centre of County Louth, located in the northeast of Leinster. The area spans two geographical areas. To the west, the rural landscape surrounding the urban district is one of undulating topography, with low drumlins rising to 30-40m from the coastal plain. As is the case with much of Louth, this covers thick strata of Ordovician and Silurian slates, with some rock outcrops (Gosling 1993, 237) notable. To the east of the urban district, the flat, low lying coastal plain is comprised of recent estuarine and alluvial clays and silts, shaped by the sea level changes following the end of the Ice Age in Ireland c.10000 years ago.

At the time of the earliest habitation in Ireland (Early Mesolithic Period: c.7000BC), the sea submerged the area of the town to a depth of 4-5m, although it continued to retreat to its present level until the Late Neolithic/Early Bronze Age period (c. 2400BC), replacing the submerged area with salt marshes and tidal flats. At various stages from the 17th century onwards, these areas were improved by reclamation projects.

The proposed route for the Dundalk Western Bypass–Northern Link is located within an area that avoids the major recorded archaeological monuments in the vicinity. This is a particularly rich archaeological landscape but the great majority of known sites lie beyond the perimeter of the original study area. It is important to note, however, that a significant number of sites in this part of County Louth survive as crop marks, where the above ground indication of the monument has been destroyed. The recognition of such monuments has often been the result of chance discovery from ploughing and construction work, or by observation from the air where the distinctive traces of the buried features can sometimes be observed. The strong tradition of arable agriculture in the locality has been largely responsible for this occurrence.

2.1 Prehistoric Period (7000BC-AD500)

The archaeological record provides evidence that the locality was occupied from the Late Mesolithic period (c.4200BC), with the excavation of Mesolithic shell midden sites with flint material at Rockmarshall, c.5km northeast of the town of Dundalk.

There are a number of previously recorded RMP sites within the vicinity of Donaghmore 7 that can be dated to the prehistoric period. These consist of two standing stones (LH007-032 and 031), rock art (LH007-102), which is located c.1km from the site and a burial cist, which dates to the Bronze Age and is located 660m from the site.

2.1.1 The Neolithic Period (c.4000BC – c.2500BC)

Although we can say with confidence that a substantial Neolithic culture existed in Ireland shortly after 4000BC, which had many similar features with contemporary sites in Britain and West Europe, uncertainty still remains over how the culture arrived in Ireland and how the new economy altered the environment.

The origins of the Neolithic in Ireland are disputed. Pollen records reveal forest clearances occurring before our earliest dated Neolithic sites or monuments; however this may be a reflection that our dating methods are too crude to

discriminate between an early and a late Neolithic settlement rather than an indication of the true chronology (Mitchell & Ryan 1997). A debate rages over whether the culture evident in Ireland during the Neolithic was a product of a migrating people into Ireland or an indigenous development. The introduction of certain flora and fauna, management techniques, cultural traits in architecture and domestic crafts with a striking resemblance to those evident in Britain at the time has been suggested by Mitchell & Ryan (1997) to indicate colonisation from Britain.

The vast majority of the archaeological evidence for this period is to be found at the 4-5m (25ft) contour, which reflects the coastline during the maximum post-glacial marine transgression, and it has been suggested that this settlement location would have facilitated the exploitation of the higher ground for farming and the lower ground for summer grazing (Gosling 1993, 242). There is a concentration of Megalithic tombs in the Flurry Valley to the north-east of the site at Donaghmore 7 (with the nearest example located at Faughart Lower (LH004-062), c.6km to the northeast) and scattered throughout the Cooley peninsula. Archaeological discoveries elsewhere on the DWB scheme revealed Late Neolithic/Early Bronze Age habitation activity at Site 115, Newtownbalregan 5 (Bayley, D. forthcoming (c)), located c.1.7km north of Site 131 and the truncated remains of a Late Neolithic/Early Bronze Age House identified at Site 101, Littlemill 1 (Ó Donnachadha, B. forthcoming (d)), located c.2km to the south of Site. A collection of pits dating to the Late Neolithic/Early Bronze Age were identified at Site 103, Littlemill 4 & 5 (Ó Donnachadha, B. forthcoming (c)), c.1.6km south of Site 131 (Donaghmore 7) and a number of Neolithic huts with associated pits were excavated at Site 124, Carn More 1 (Delaney, S. forthcoming (b)), located c.4.4km northeast of the site. Several pits containing Early Neolithic pottery were identified at Site 132, Faughart Lower 5 (Delaney, S. forthcoming (c)), located c.5.5 km north of the site. A middle Neolithic to Late Neolithic/Early Bronze Age Beaker habitation site was identified at Site 108, Donaghmore 1 (Ó Donnachadha, B. forthcoming (e)) which is located on a low ridge only c.700m north of Site 131 and may be directly associated with it.

Arguments for the Neolithic culture as a native evolution makes the observation that the Irish Mesolithic was a period of isolation rather than contact, and that if the Megalithic tombs were constructed by a migrating population a prolonged period of consolidation would be required in advance of their construction (Mitchell & Ryan). Thus, it is possible that the Mesolithic peoples gradually adopted new customs and practices through contacts with Britain and the continent leading to the incremental growth of a distinctive economy before a consolidated Neolithic culture emerged.

2.1.2 The Bronze Age (c.2500BC – c.500BC)

From the relatively scant prehistoric archaeological evidence, there are indications that the area in which the DWB is located was not densely settled until the beginning of the Bronze Age (2500 BC). The vast majority of the archaeological evidence for this period is to be found at the 4-5m (25ft) contour, which reflects the coastline during the maximum post-glacial marine transgression, and it has been suggested that this settlement location would have facilitated the exploitation of the higher ground for farming and the lower ground for summer grazing (Gosling 1993, 242).

Bronze Age discoveries along the DWB consist of an Early Bronze Age Beaker (2400-2200BC) habitation site at Site 112, Newtownbalregan 2 (Bayley, D. forthcoming (e)), located c.1.2km north of the site. A number of Bronze Age ring-barrows, a cist and a cairn were also excavated at Site 127, Carn More 5 (Bayley, D. forthcoming (g)), located c.4.7km northeast of Site 131. A total of 3 Bronze Age burnt mounds/*fulachta fiadh* were excavated along the route of the DWB at Site 111, Newtownbalregan 1.1, Site 113, Newtownbalregan 5 and at Site 128, Faughart 1, 2 &

3. The burnt mound excavated at Site 102, Littlemill 2 dated to the medieval period (890-1250AD). A further 6 burnt mounds/*fulachta fiadh* were excavated by Archaeological Development Services Ltd (ADS Ltd.) as part of the archaeological resolution of the Dunleer/Dundalk Motorway.

The burial evidence from this period is varied and complex, some of this diversity in grave form or content reflects changing fashions over a period of time, some variations are regional and others may denote differences in social status. Pottery vessels of different types are the commonest artefacts found.

During the Bronze Age single burials became the common form of burial though the communal tradition of multiple burial continued with the internment of more than one individual in graves and by the clustering of their graves into small cemeteries. Burials were placed either in pits or in cists constructed in the ground and often grouped in flat cemeteries, in cairns or mounds specially built for the purpose.

Barrows have been constructed in Ireland since the Middle Neolithic period and were in use until the early centuries A.D. They may cover or contain Megalithic Linkardstown type cists of the Neolithic; all of the burial types of the Bronze Age or cremations or inhumations of the Iron Age. In the east of Ireland the mounds of these sites have been levelled in large numbers. The Bronze Age period lasted in Ireland from about 2500 BC to about 500 BC and the burials of the period show a wide degree of variety with both pits and stone cists used. The pits can be simple holes or can be stone lined and range from circular to oval. More substantial stone built rectangular and polygonal cist graves, like at Keenoge, Co. Meath and Carn More 5 (DWB) were also used.

Bowl Barrows, often referred to as Tumuli or Moats, have a central dome-shaped mound, 2m or higher, usually enclosed by a fosse and one or more external banks. Where an enclosing fosse is not noted on the ground it is often found during excavation. Saucer barrows have low mounds, usually less than 1m, and range from 5-20m in diameter with one or more enclosing fosses and banks. Bell Barrows resemble bowls but have a berm between the mound and the fosse. Ring Barrows resemble Saucer Barrows but have a flat interior rather than a mound. It is most likely that the site at Donaghmore 7 originated as a ring barrow. Another type of barrow has a bank and a hollow interior, these are Pond Barrows. Excavation has revealed that a significant number of barrows belong to the Iron Age (c.300 BC- c.100AD), but many are of Bronze Age date as well. The barrows are often found in groups or cemeteries where a number of types can be found together. Sometimes they are found juxtaposed to Megalithic cemeteries as at Carrowmore, Co. Sligo or associated with ceremonial enclosures.

2.1.3 The Iron Age (c.500BC – c.500AD)

There is a marked lack of known Iron Age (500BC-AD500) activity within the surrounding area of Donaghmore 7 and the ring barrow identified at Site 131, Donaghmore 7 is the sole example of a definitive Iron Age site identified through the DWB archaeological investigations. The site consisted of a small ring barrow and a single piece of un-worked flint was found in the barrow with remains of three charred wooden planks found within the barrow ditch. These were taken for specialist analysis and were submitted for Carbon 14 dating. The dates returned confirmed that the ring barrow belongs to the Iron Age period, specifically the mid-Iron Age based on Cal. 120BC-60AD. .

2.2 Early Medieval Period (AD500-1169AD)

The early medieval period is depicted in the surviving sources as entirely rural characterised by the basic territorial unit known as *túath*. Byrne (1973) estimates that there were probably at least one hundred and fifty kings in Ireland at any given time during this period, each ruling over his own *túath*. During this sometimes violent period, roughly circular defensive enclosures known as ringforts were constructed to protect farmsteads. Although most of the ringforts that have been excavated are shown to date to this period, some have earlier origins and may have been originally constructed during the Iron Age, or even earlier.

Site 114 at Newtownbalregan 6 (Bayley, D. forthcoming (d)) located c.1.8km north of Site 131, Donaghmore 7 consists of a ringfort and souterrain. The ringfort or rath is considered to be the most common indicator of settlement during the early medieval period (c.400AD – c.1100 AD). The most recent study of the ringfort (Stout 2000) has suggested that there are a total of 45,119 potential ringforts or enclosure sites throughout Ireland. They are typically enclosed by an earthen bank and exterior ditch, and range from 25m to 50m in diameter. The smaller sized and single banked type (univallate) were more likely to be home to the lower ranks of society while larger examples with more than one bank (bivallate/trivallate) housed the more powerful kings and lords. At Site 124, Carn More 1 (Delaney, S. forthcoming (b)), (Area 1) a ringfort identified in the RMP as LH004-067 was excavated in advance of the motorway's construction, with the RMP originally listing the monument as a circular enclosure.

Souterrains are artificial underground structures, usually built of dry stone walling and comprising of passages and chambers with creeps connecting them. Souterrains are generally regarded as having had a defensive or protective function, as evidenced by the complex construction of many of the sites, with narrow winding passages, deliberate obstructions and small chambers. Raiding was endemic to early medieval society, and souterrains are thought to have served to house portable valuables and non-combatants during a raid. There is a previously recorded souterrain located 30m to the east of the CPO line at Ch17.640 (LH007-071). A further two enclosures with associated souterrains were also excavated by Archaeological Development Services Ltd (ADS Ltd) in advance of the construction of the Dunleer/Dundalk Motorway

The historical sources for the early medieval period indicate that the main population group in north Louth was the *Conaille Muirtheimne*. They controlled the areas of *Cuailgne* (Cooley) and *Mag Muirtheimne* (Plain of Muirtheimne) –corresponding to the area south of Dundalk, roughly equating with the modern baronies of Lower and Upper Dundalk. It has been suggested (Gosling 1993, 46) that the ancient boundaries of this kingdom may coincide with the dense concentration of souterrains in north Louth. Though nominally a branch of the *Ulaid*, who had their capital at *Eamain Mhaca* or Navan Fort, Co. Armagh. The *Conaille Muirtheimne* appear to have been subject to the kingdom of *Brega*, which had its capital at *Cnógbha* or Knowth in Co. Meath at the time of its greatest political cohesion, during the first half of the 7th century AD. Their earliest appearance in the annals is in 688 AD, as allies of the Knowth branch of the *Síl nÁeda Sláine* at the battle of *Imblech Pich* (Emlagh, Co. Meath), which was a key event in the political fragmentation of the *Síl nÁeda Sláine* dynasty. They were subsumed by the *Airgialla* or Oriel in the early 12th century.

The *fulacht fiadh* identified at Site 102, Littlemill 2 (Ó Donnachadha, B. forthcoming (f)) was Radiocarbon 14 dated to Cal. 890AD - 1250AD (968 \pm 85BP). Site 102, Littlemill 2 was roughly circular in shape and it is suggested that these sites, which are identified as early medieval and medieval in date, tend to be circular to oval in

shape with no evidence for pit lining (O'Neill, pers.comm, 2007). The example at Littlemill 2 however was wood-lined.

2.3 Medieval Period (AD1169-1700)

The motte and bailey at Castletown (LH007-11807) located c.2km northeast of Donaghmore 4, represents the initial phase of Anglo-Norman activity in the area. Although there are some suggestions that John de Courcy was responsible for this development, it is generally accepted that it represents the initial headquarters of the de Verdon family in their new territory. The Anglo-Normans were responsible for the construction of a network of towns throughout the Ireland with Louth being the most urbanised county.

The lands in and around Castletown and Dundalk environs were granted to the Anglo-Norman Bertram de Verdon following his arrival in 1185, and corresponds to the modern barony of Upper Dundalk (Gosling, 1993, 252). The de Verdon estate passed onto the Bellews with many of the tower houses constructed at this time. The Bellews constructed two large examples in 1472 and 1479, of which only the later one survives in the grounds of St. Louis convent (LH007-11801). The earlier tower house is believed to have stood at Castletown cross (LH007-11803) but no traces of it survive above ground. In 1429, Henry IV introduced a £10 subsidy to encourage the King's 'liege men' to build tower houses within the Pale, under the condition that they were built within ten years. This venture was so successful that twenty years later a limit was imposed on their construction. In Counties Louth, Kildare and Meath, the towers were mostly concentrated along the borders of the Pale (Davin 1982). The surviving tower house at Castletown (LH007-11801), most likely functioned as the centre of the Bellew manor of Dundalk during the 15th century. Garstin's map of 1655 shows it protected by a bawn wall, which also enclosed outhouses.

For information of the Anglo-Norman land ownership we are reliant on documentary sources, and in Co. Louth this information is recorded in the 'Dowdall deeds'. The lack of documentary sources and archaeological excavations in the area has led to large gaps in the record regarding the size of the Anglo-Norman settlement and how it was laid out. By the 13th century it seems that Castletown had its own church and burgesses. Garstin's map does point out the existence of burgage plots and streets in the vicinity of Mill road and Castletown cross. A watermill, most likely attached to the manor, is known from documentary sources although its precise location is not known.

At this time the new town of Dundalk, which lies c.2km to the east of the Castletown, developed as the major urban centre. This was due to its market centre and port in addition to its more strategic sitting on the major routeway linking Dublin with Ulster. It is probable that another factor influencing the move of the de Verdons was the nature of the topography of the general area. The unsatisfactory nature of the river at the Castletown location must have made it inaccessible to shipping even in the late 12th century. The new town also had the advantage of considerable natural defences. The site of the new town, which was to grow into the modern town of Dundalk, was thus better situated than Castletown from a commercial and defensive perspective. As Dundalk developed and became the focus for Anglo-Norman settlement in the area, Castletown fell into decline and Dundalk became the economic heart of the Lordship. The precise date for the foundation of the "*Newtown*" of Dundalk is unclear. However by the late 13th century surviving property deeds make the distinction between the late 12th century settlement at Castletown and the Newtown or '*nove ville de Dundalc*'. As a result of the low-lying nature of the surrounding landscape and

the form of the gravel ridge on which the Newtown (Dundalk) was located, the town developed a markedly linear aspect, which is still apparent today.

2.4 Post-medieval (1700-1900)

Post-medieval remains identified in the study area relate to industrial structures particularly mills and kilns using the Castletown and Kilcurry River waters, with these structures usually being fed by a mill race. Two mills and associated races occur near to the Castletown-Kilcurry confluence. A quarry for limestone is situated to the north of the corridor. Small scale extraction cuts are also known sunk into natural rock outcrops such as the one at Ch19,200.

Site 102 at Littlemill 2 (Ó Donnachadha, B. forthcoming (f)) contained the remains of a post-medieval structure, which cartographic evidence demonstrates supports its existence at this location since the first edition OS map dating to 1836. It is probable that this structure was a small vernacular style residence accompanied by a small farmyard as was typical of the area and indeed most of Ireland during the 19th century.

At Site 119, Balregan 3 & 4 (Delaney, S. forthcoming (d)), the subsurface remains of a north-south oriented masonry structure was recorded. The foundations measured 21m in length and 6.5m in width and consisted of two rooms. The building appears to have been of 19th century construction based on the artefactual evidence and identifiable construction methods, however, the structure is not depicted on the 1835 or the 1908-9 1:10, 560 scale Ordnance Survey editions. Anecdotal evidence from a local landowner notes that a structure formerly located at this site was demolished around the mid 20th century; it is likely the building dates from the later 19th century and fell out of use at the same time as the Scotch Green Mill.

Site 118, Balregan 5 & 6 (Delaney, S. forthcoming (e)), contained the remains of a post-medieval water mill, which even in its ruinous condition showed a complete example of this form. Millrace, millpond, main sluices, internal wheel race and a number of main rooms along with the access road and access road and yard for the mill buildings were present.

3 THE EXCAVATION

3.1 Introduction

Excavation of Site 131, Donaghmore 7 was undertaken as part of the resolution excavations for the DWB. It began on Monday the 14th of October 2002 and was completed on Thursday the 17th of October 2002 using a team of one Supervisor and four Assistant Archaeologists.

3.2 Methodology

The topsoil was removed by a machine equipped with a flat toothless bucket under strict archaeological supervision. After initial bulk stripping the area of excavation was hand cleaned in order to identify potential archaeological remains. All features were subsequently fully excavated and recorded by hand, using the single context recording system with plans and sections being produced at a scale of 1:50 and 1:20 (sections were recorded generally at 1:10) and photographs where necessary. All works were carried out in agreement with the Project Archaeologist and The National Monuments Section in the Department of Environment, Heritage and Local Government (DoEHLG) (formerly *Dúchas* - The Heritage Service). All contexts are described in Appendix 1.

3.3 Legends and Brackets

In the following text, the authors have used three types of brackets:

- { } = These enclose Subgroup numbers.
- () = These enclose Deposit numbers.
- [] = These enclose both Cut and Masonry Structure numbers.

CONTEXT KEY:

- prof = profile
- NSEW = Compass points, Eg; 'N-S' = North-South oriented feature
- All dimensions are given in metres
- d/l/w = depth/width/length
- s/m/lg = small/medium/large
- ang/sub-ang/rou/sub-rou = refer to stones, Eg; 's sub-ang' = small sub-angular stone
- mixed = ang + sub-ang + rou + sub-rou
- Dk/Lt = dark/light
- mod = moderate/moderately
- freq/occ = frequent/occasional
- ch = charcoal
- Hb/Ht = Human bone/teeth
- Ab/At = Animal bone/teeth
- frags/fls = fragments/flecks
- vert = vertical
- constr = construction
- sk = skeleton
- t'd/unx/s'd = truncated/unexcavated/segmented
- w/- = with
- pres = preservation

PERIOD KEY:

- PH: Prehistoric
- EM: Early Medieval
- MD: Medieval
- PM: Post-medieval
- MOD: Modern

4 EXCAVATION RESULTS

Stratigraphy

4.1 GROUP 1: Natural Drift Geology

4.1.1 SUBGROUP {1001}: Natural Drift Geology

Contexts:

C	Area	Fill of	Filled by	Interpretation	Description
1	Site	N/A	N/A	Natural subsoil	Natural subsoil

Interpretation:

Natural subsoil cut by features.

GROUP 1 DISCUSSION: Natural Drift Geology

The site was located on a well drained northeast facing gentle slope. While an outcrop of bedrock to the northwest of the site (the same outcrop that lay to the south of Donaghmore 1) afforded some protection from the elements, it was largely exposed to the northern and eastern winds from the Cooley Mountains and the Irish Sea. The glacial nature of the sand and stone-strewn natural sub-soil ensures the area is well drained. This area of activity was missed by the narrowest of margins during the initial phase of testing but was discovered during supervised topsoil clearance that occurred as part of this phase of archaeological exploration of the Donaghmore landscape.

4.2 GROUP 2: Iron Age activity

4.2.1 SUBGROUP {1002}: Barrow Ditch

Contexts:

C	Area	Fill of	Filled with	Interpretation	Description
4	D7	C8	N/A		Brown, loose gritty silty sand, areas of burning throughout, freq sm ang stones
6	D7	C8	N/A		Dark brown silty sand in quads 2+3 of ring-ditch, occ ch, similar to (4) but darker
8	D7	N/A	C4,C 6	Ditch cut	Circular ditch, 0.35-0.60m wide x 0.05-0.28m deep

Finds:

C	Find No	Material	Period	Pottery form	Artefact type	Comments
6	02E1483:6:1	Flint				Unworked

Interpretation:

The ditch [C8] was located in the centre of the site and was filled with two layers of loose, brown silty sands (C4) and (C6). The base of the ditch may have silted up naturally with (C6) followed by the deliberate deposition of (C4). The ditch was extremely shallow along its southern edge indicating that the site was heavily truncated, probably as a result of extensive agricultural activity during the medieval and post-medieval period. Several burnt wooden planks (C9), (C10), (C12) and (C13) in subgroup {1004} were situated above the top fill of the ditch (C4) which may represent the remains of some kind of wooden structure which collapsed into the ditch once it had been destroyed by fire.

4.2.2 SUBGROUP {1003}: Possible pit burial

Contexts:

C	Area	Fill of	Filled with	Interpretation	Description
7	D7		C9	Deposit of burnt mat.	Dark brown black clayey sand, in quad 1 of ring ditch, freq ch+ burnt bone
9	D7	C7		Cut of possible pit burial	Oval in plan, sides irreg+shallow, base irreg concave, 0.14d x 0.45l x 0.32w, N-S

Finds:

None

The oval shaped pit [C9] in subgroup {1003} was located close to the internal edge of the barrow-ditch along its eastern side. The fill (C7) contained a considerable quantity of charcoal and a small amount of burnt bone and may be evidence of a heavily truncated burial. Other burials may have existed in the centre of the enclosure but all trace of them has since been removed.

4.2.3 SUBGROUP {1004}: Possible wooden structure

Contexts:

C	Area	Fill of	Filled with	Interpretation	Description
0014	D7		N/A	Structure	Plank of burnt wood, 1.10m long x max 0.29m wide
0010	D7		N/A	Structure	Plank of burnt wood, 0.90m long x 0.25m wide
0012	D7		N/A	Structure	Plank of burnt wood, 0.15m long x 0.08m wide
0013	D7		N/A	Structure	Plank of burnt wood, 0.58m long x 0.06m wide

Finds:

None:

Several burnt wooden planks (C10), (C12), (C13) and (C14) in subgroup {1004} were situated above the top fill of the ditch (C4) along the western and northern

edges of the ditch which may represent the remains of some kind of wooden structure, possibly a platform, constructed once the ditch had been backfilled and then subsequently destroyed by fire. However, no evidence of any postholes or stakeholes were found cut into the upper fill of the ditch or in the surrounding subsoil. The site was considerably disturbed by extensive agricultural activity and it is possible that the wooden structure, once it had been destroyed, collapsed into the ditch when it was only partially backfilled. The burnt wooden planks were identified as oak (*Quercus sp*) (Appendix 2.1) and the charcoal retrieved from this sample returned a date of 2030 +/- 36 BP (WK-18564) (Appendix 2.2). The 2 Sigma calibrated results produced a date of Cal 120 BC – AD 60. This dates this structure to the Iron Age.

4.2.4 SUBGROUP {1005}: Pit

Contexts:

C	Area	Fill of	Filled with	Interpretation	Description
5	D7	C11	N/A	Charcoal fill	Brown Black clayey silt, freq ch.
11	D7	N/A	5	Cut of pit	Pit circular in plan, 0.07d x 0.26dia, sides + base concave

Finds:

None

Interpretation:

The pit [C11] was located to the north of the barrow-ditch [C8] in subgroup {1002} and partially truncated the external edge of the ditch. It was circular in shape and quite shallow and filled with a charcoal-rich clayey silt (C5). The pit contained no datable finds and it was not possible to establish a function for this feature.

GROUP 2 DISCUSSION: Iron Age activity

Group	Subgroup	Subgroup type	Period by finds/ stratigraphy	Period by interpretation	Group Interpretation
2	{1002}	Ditch	Mid Iron Age	Mid Iron Age	Mid Iron Age
2	{1003}	Possible pit burial	Mid Iron Age	Mid Iron Age	Mid Iron Age
2	{1004}	Burnt wooden planks	Mid Iron Age	Mid Iron Age	Mid Iron Age
2	{1005}	Pit	Iron Age	Iron Age	Iron Age

Phase 2 consisted of the ditch of a ring-barrow {1002}, a possible pit burial {1003}, a possible wooden structure {1004} and a pit {1005}.

The interior of the enclosure measured 8.6m in diameter and only contained a single possible pit burial {1003} which was located close to the internal edge of the barrow-ditch along its eastern side. The pit contained only a small quantity of burnt bone but may have been disturbed as a result of extensive agricultural activity in the medieval and post-medieval period. Other burials may have existed in the centre of the enclosure but all trace of them has since been destroyed.

The burnt wooden planks, (C10), (C12), (C13) and (C14) in subgroup {1004} situated above the top fill of the ditch (C4) along the western and northern edges of the ditch and may represent the remains of some kind of wooden structure, possibly a platform, constructed once the ditch had been backfilled and then subsequently destroyed by fire. However, no evidence of any postholes or stakeholes were found cut into the upper fill of the ditch or in the surrounding subsoil. The site was considerably disturbed by extensive agricultural activity and it is possible that the wooden structure, once it had been destroyed, collapsed into the ditch when it was only partially backfilled. The burnt wooden planks were identified as oak (*Quercus sp*) (Appendix 2.1) and the charcoal retrieved from this sample returned a date of

2030 +/- 36 BP (WK-18564) (Appendix 2.2). The 2 Sigma calibrated results produced a date of Cal 120BC – 60AD. This dates this structure to the Middle Bronze Age.

The function of the pit [C11] in subgroup {1005}, which truncated the external edge of the ditch on its northern side, remains unknown. No finds or any other datable material were retrieved from the fill of this pit to indicate either a date or a function but it was clearly later than the ring-barrow.

4.3 GROUP 3: Topsoil

4.3.1 SUBGROUP {1006}: Topsoil

Contexts:

C	Area	Fill of	Filled with	Interpretation	Description
1	Site	N/A	N/A	Topsoil	Topsoil

Interpretation:

An assortment of post-medieval finds were retrieved from the topsoil including 18th and 19th century Blackware, 20th century transfer-printed ware, fragments of 18th and 19th century clay pipes and modern glass bottles.

4.4 Synthesis

Open Area 1: Geology and topography

The site was located on a well drained northeast facing gentle slope. While an outcrop of bedrock to the northwest of the site (the same outcrop that lay to the south of Donaghmore 1) afforded some protection from the elements, it was largely exposed to the northern and eastern winds from the Cooley Mountains and the Irish Sea. The glacial nature of the sand and stone-strewn natural sub-soil ensures the area is well drained. This area of activity was missed by the narrowest of margins during the initial phase of testing but was discovered during the supervised topsoil clearance that occurred as part of this phase of archaeological exploration of the Donaghmore landscape.

Open Area 2: Iron Age activity

Phase 2 consisted of an enclosure ditch {1002}, a possible pit burial {1003}, a possible wooden structure {1004} and a pit {1005}. Only a single piece of unworked flint was found in the basal fill of the ditch. The burnt wooden planks, (C10), (C12), (C13) and (C14) in subgroup {1004} situated above the top fill of the ditch (C4) along the western edge of the ditch and may represent the remains of some kind of wooden structure, possibly a platform, constructed once the ditch had been backfilled and then subsequently destroyed by fire. The burnt wooden planks were identified as oak (*Quercus sp*) (Appendix 2.1) and the charcoal retrieved from this sample returned a date of 2030 +/- 36 BP (WK-18564) (Appendix 2.2). The 2 Sigma calibrated results produced a date of Cal 120BC – 60AD. This dates this structure to the Middle Iron Age.

The interior of the enclosure contained a single possible pit burial {1003} which was located close to the internal edge of the barrow-ditch along its eastern side. The pit contained only a small quantity of burnt bone but may have been disturbed as a result of extensive agricultural activity in the medieval and post-medieval period. Other burials may have existed in the centre of the enclosure but all trace of them has since been destroyed.

Other ring-barrow sites along the DWB include the site at Carn More 5 (D. Bayley. Forthcoming (g)). The site consisted of two small ring barrows that had collapsed stone in the ditch instead of the wooden planks. One of the barrows contained a (disturbed) central, stone-lined burial chamber and finds consisted of scattered cremated bone, a few fragments of an encrusted urn, a copper alloy pin, four small copper alloy ornaments or fastenings and three pieces of struck/worked flint indicating that this feature was Bronze Age and not Iron Age in date.

Open Area 3: No discernable activity.

From site use during the Iron Age period through to activity in the post-medieval period there is no evidence for archaeological activity at Site 131. This is despite Site 131 being in an area of concentrated early medieval activity.

Open Area 4: Post-medieval and modern activity

An assortment of post-medieval finds were retrieved from the topsoil including 18th and 19th century Blackware, 20th century transfer-printed ware, fragments of 18th and 19th century clay pipes and modern glass bottles.

5 DISCUSSION

5.1 Realisation of the original research aims

This section examines the extent to which preliminary assessment of the results of the excavation reveal how the original research aims have been or can be answered.

Original Research Questions (**ORQ**) were prepared after the results of the test-trenching exercise were known and before the rescue excavations began. The following are the Original Research Questions relating to the excavation at Site 131 Donaghmore 7 and Responses (**R**) based on preliminary assessment of the site data.

ORQ 1: *How many buildings are present, what were the construction methods and are there different phases of construction and use?*

R: No buildings were present

ORQ 2: *What are the dates of occupation and how does the site change through time?*

R: The burnt wooden planks were identified as oak (*Quercus* sp) (Appendix 2.1) and the charcoal retrieved from this sample returned a date of 2030 +/- 36 BP (WK-18564) (Appendix 2.2). The 2 Sigma calibrated results produced a date of Cal 120 BC – 60 AD. This dates this structure to the Middle Iron Age.

ORQ 3: *Are there areas where different activities were undertaken?*

R: No

ORQ 4: *What is the nature of the finds and the environmental evidence? What type of evidence is present here and do they give indications for specific activities?*

R: The only samples recovered from this site were the remains of four charred wooden planks found above the top fill of the barrow ditch.

ORQ: *Is there any evidence for burial or ritual activity?*

R: It is possible that this barrow once contained more than one burial, but these have since been removed, probably as a result of intense agricultural activity during the medieval and post-medieval period.

5.2 Conclusions

A ring-barrow is usually described as a low mound of earth, surrounded by a ditch and outer bank, with the bank and mound being of a similar height. They can date anytime between the Late Neolithic and the Iron Age. The average size varies from c.10m to 15m in diameter and sometimes more than one internment is present. They often occur in groups, such as the cluster of Bronze Age ring-barrows excavated at Site 127, Carn More 5 (D. Bayley, forthcoming (g)), located c.4.4km northeast of Site 131. However, the ring-barrow excavated at Donaghmore 7 appears to be isolated although associated sites may lie beyond the limit of the road-take.

During the Iron Age both cremation and inhumation were practised in Ireland and ring-barrows are the earliest recognisable Iron Age form of burial although their origins lie firmly in the Bronze Age (B. Raftery, 1994, 189). There is a very strong degree of continuity and the persistence of Late Bronze Age traditions, established in the Middle Bronze Age, can be observed in the frequent reuse of individual sites. For

example of the three barrows excavated at Cush, Co. Limerick, two of the barrows were dated to the Iron Age while the third was dated to the Early Bronze Age. One of the ten barrows excavated at Carrowjames, Co. Mayo, yielded finds associated with the Iron Age. Pieces of iron were also found in a barrow at Pollacorrage, near Tuam, Co. Galway and this site is said to be “post-Bronze Age in date” (O’Riordain, 1979, 140). According to Cooney and Grogan (1994, 200) ‘the relatively simple nature of the funerary rites in the Iron Age and the associated ceremony shows a persistence in the separation of statements of social standing from the final burial rite which can be observed from the Middle Bronze Age onwards’.

Unlike burials associated with Bronze Age ring-barrows, few burials from the Iron Age are accompanied by pottery although there is an increase in the number and range of other associated grave goods such as beads and other personal ornaments. No grave-goods were recovered from the burial within the ditch at Donaghmore 7 but the site was heavily truncated by intense agricultural activity and objects associated with the burial may have been removed as a result.

While cremations and inhumations were found in association with many excavated examples, the former was the more dominant practice and it is probable that the human remains were cremated close by in pits or on wooden pyres. There is evidence, particularly from the Bronze Age, that samples of burnt wood found associated with burial enclosures may represent the remains of wooden funeral pyres and an excavation of a Late Bronze Age ring-ditch at Ballaghfadda, Co. Clare (B. Halpin, 2002) produced a possible pit burial associated with pyre debris. Although the ring-barrow at Donaghmore 7 is Iron Age, it is feasible that the wooden planks located above the top fill of the ditch were the remains of a pyre that was possibly associated with the pit burial located close to the internal edge of the ditch on its eastern side.

According to O’Carroll (Appendix 2.1), oak may have been deliberately selected for use as plank material associated with the construction of the ring-barrow or alternatively the oak plank may have been associated with the cremation ritual connected with these sites. Ring-barrows are generally regarded as funerary monuments therefore the charcoal present in the ditch of the ring-barrow was possibly associated with the rituals of the dead and the cremation process. It is not surprising then that oak is the dominant species identified from this ditch as oak was nearly always used for the purpose of cremating bodies. She suggests that this may be due to the excellent properties of oak as a fuel or the body may have lain on an oak platform which was later burnt with the body. Charcoal analyses at other cremation sites Bettystown, Co. Dublin (98E072), Ballybrowney Lower 1 (03E1058), Ballynapark, Co. Wicklow (A022-33) and Hermitage, Limerick (01E0319) revealed that oak is the dominant species identified from within these features. Charcoal from a ring ditch analysed from site D, Morett (03E0461) produced mainly oak fragments from the fill of its ditch.

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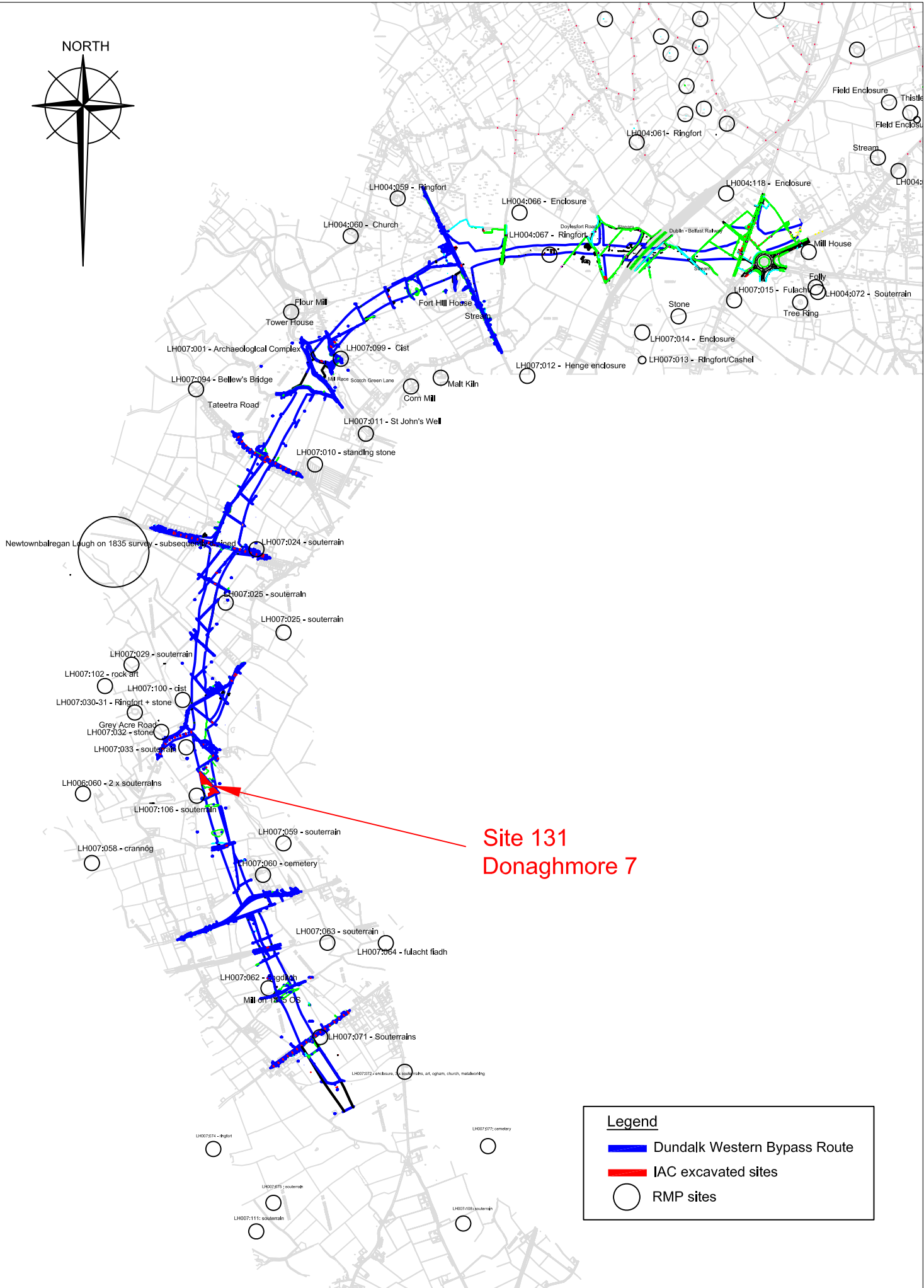
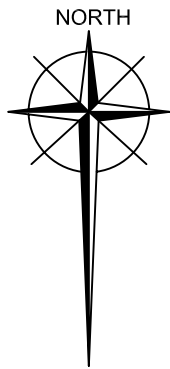
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Irish
Archaeological
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Title: Site 131, Donaghmore 7 Site location
Project: M1 Dundalk Western Bypass
Client: Louth County Council

Scale: N.T.S.
Date: 16/11/07
Produced by: P Higgins
Job No: J2041
Figure No: 1



Site 131
Donaghmore 7

Legend

- Dundalk Western Bypass Route
- IAC excavated sites
- RMP sites



Irish
Archaeological
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Title: Extract from RMP map
showing location of Site 131, Donaghmore 7

Project: M1 Dundalk Western Bypass

Client: Louth County Council

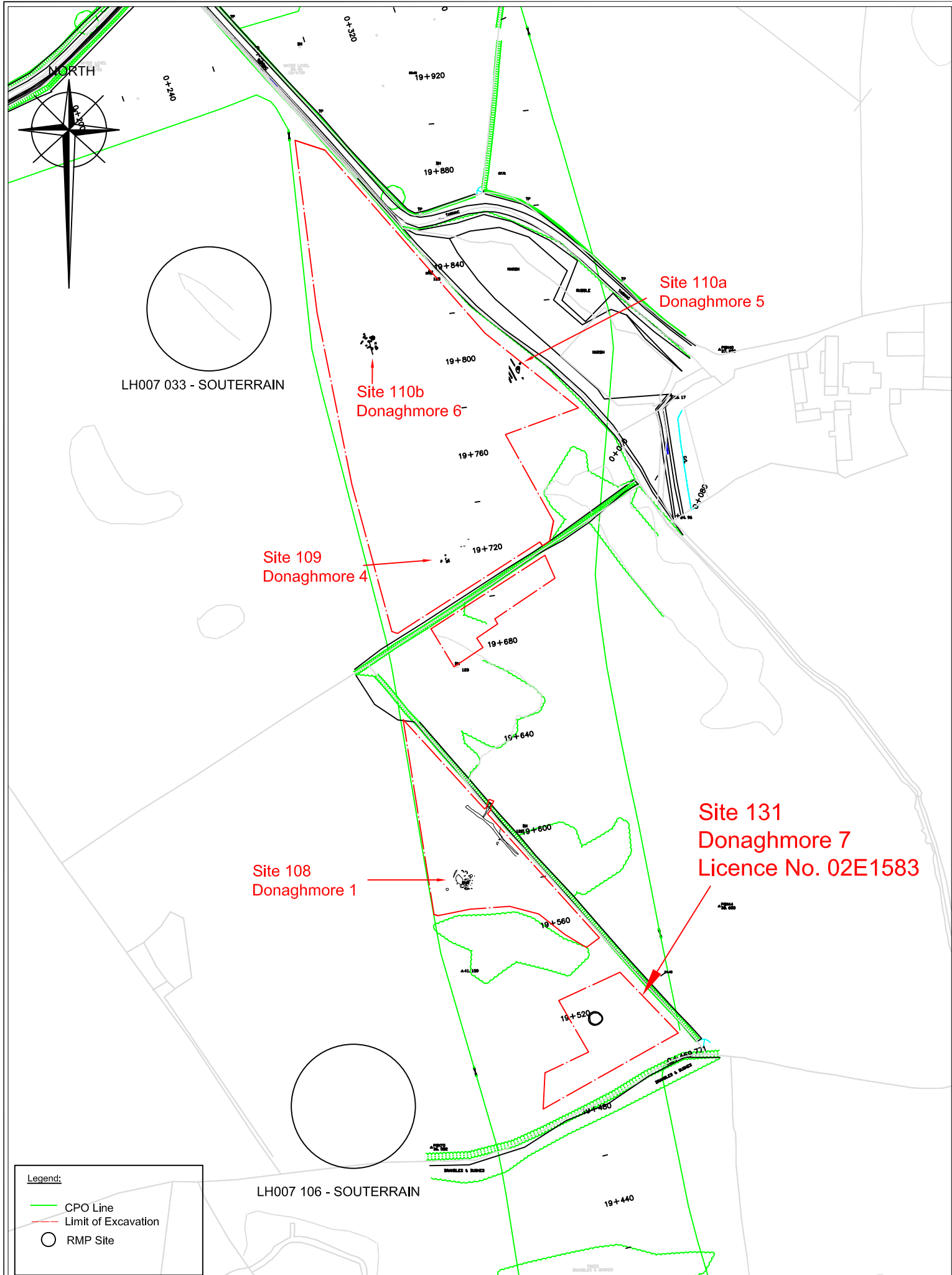
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Date: 27/11/07

Produced by: P Higgins

Job No: J2041

Figure No: 2



Irish
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Title: Location of Site 131, Donaghmore 7 within the Dundalk Western Bypass Road Scheme

Project: M1 Dundalk Western Bypass

Client: Louth County Council

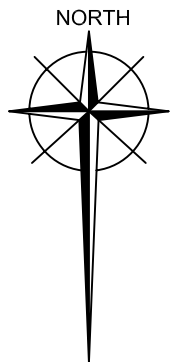
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Date: 24/11/07

Produced by: P Higgins

Job No: J2041

Figure No: 3



302020E
307125N

35.79

C12

C13

C11

A

35.18

B2

35.38

35.25

C8

C14

35.41

35.17

Location of
wooden planks

35.35

35.42

A

35.29

B3

C10

B8

A

A

B5

35.00

35.49

C9

34.26

35.17

34.93

34.90

34.96

B4

A

C8

302020E
307115N

302025E
307125N

Legend

C## Cut number
- - - Section line
- - - Limit of excavation
^ OD Levels

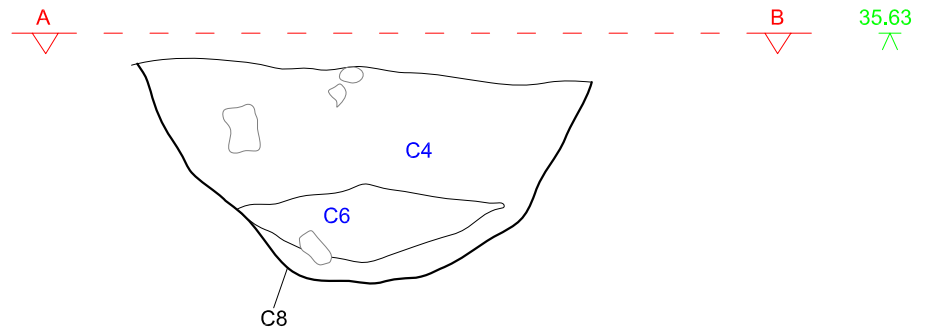


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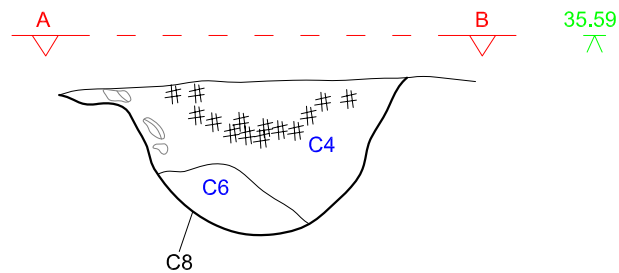
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Project: M1 Dundalk Western Bypass
Client: Louth County Council

Scale: 1:50
Date: 21/11/07
Produced by: P Higgins
Job No: J2041
Figure No: 4

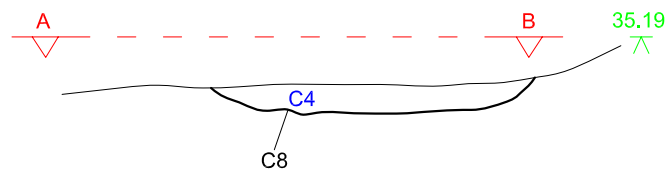
Donaghmore 7
East Facing Section #2 of C1



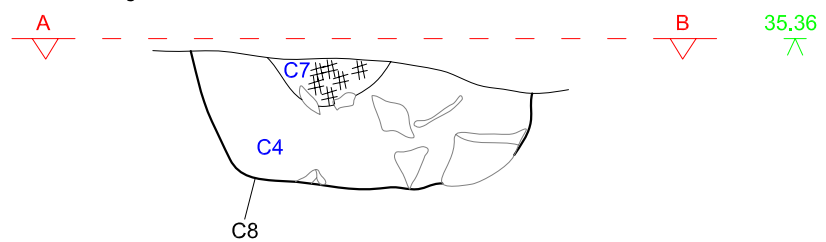
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South Facing Section #3 of C1



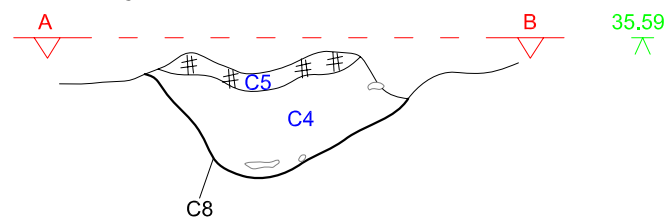
Donaghmore 7
East Facing Section #4 of C1



Donaghmore 7
South Facing Section #5 of C1



Donaghmore 7
North Facing Section #8 of C1



Legend

- C## Fill numbers
- C## Cut number
- Stone
- OD Level
- Charcoal



Irish
Archaeological
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Title: Sections of Group 2 (Barrow ditch)

Project: M1 Dundalk Western Bypass

Client: Louth County Council

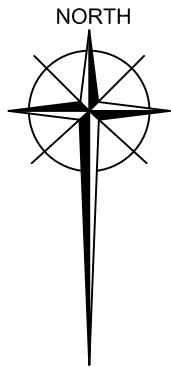
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Date: 27/11/07

Produced by: P Higgins

Job No: J2041

Figure No: 5



302020E
+307125N

35.79

C11

A

35.18

B2

35.25

C8

35.38

35.35

35.41

35.17

A

35.29

B3

A

B5

35.00

B8

A

35.42

35.49

C9

34.26

35.17

34.93

34.90

A

34.96

B4

C8

302020E
+307115N

302025E
+307125N

Legend

- C## Cut number
- - - Section line
- - - Limit of excavation
^ OD Levels



Irish
Archaeological
Consultancy Ltd.

Title: Post- Excavation Plan of Site 131, Donaghmore 7

Project: M1 Dundalk Western Bypass

Client: Louth County Council

Scale: 1:50

Date: 21/11/07

Produced by: P Higgins

Job No: J2041

Figure No: 6



Plate 1: Overhead view of Site 131, Donaghmore 7 (Studiolab)



Plate 2: Curvilinear ditch [C8] under excavation, facing north



Plate 3: Post-excavation shot of curvilinear ditch [C8], facing north



Plate 4: Post Excavation shot of curvilinear ditch [C8], facing south

APPENDIX 1: CATALOGUE OF PRIMARY DATA

Context Register:

C	Area (E/N)	Fill of	Filled by	Interpretation	Description
1	Site	N/A	N/A	Topsoil	Topsoil
3	Site	N/A	N/A	Subsoil	Subsoil
4	D7	8	N/A	Ditch fill	Brown, loose gritty silty sand, areas of burning throughout, freq sm ang stones
5	D7	11	N/A	Fill of pit	Patches of charcoal at various spots throughout the ring ditch
6	D7	8	N/A	Ditch fill	Dark brown silty sand in quads 2+3 of ring-ditch, occ ch, similar to (4) but darker
7	D7	9	N/A	Fill of poss pit burial	Dark brown black clayey sand, in quad 1 of ring ditch, freq ch+ burnt bone
8	D7	N/A	4, 6	Ditch cut	Circular ditch, 0.35-0.60m wide x 0.05-0.28m deep
9	D7		7	Cut of poss pit burial	Oval in plan, sides irreg+shallow, base irreg concave, 0.14d x 0.45l x 0.32w, N-S
10	D7		N/A	Structure	Piece of burnt wood, 0.90m long x 0.25m wide
11	D7	N/A	5	Cut of burnt spread	Dub circular in plan, 0.07d x 0.26dia, sides + base concave
12	D7		N/A	Structure	Piece of wood, 0.15m long x 0.08m wide
13	D7		N/A	Structure	Piece of wood, 0.58m long x 0.06m wide
14	D7		N/A	Structure	Piece of wood, 1.10m long x max 0.29m wide

Finds Register

C	Find No	Material	Period	Pottery form	Artefact type	Comments
0006	02E1583:0006:1	Flint				Flint - unworked

APPENDIX 2: SPECIALIST REPORTS

APPENDIX 2.1: SPECIES IDENTIFICATION OF CHARCOAL SAMPLES.

SPECIES IDENTIFICATION OF CHARCOAL SAMPLES FROM DONAGHMORE 7 (02E1583), CO. LOUTH

ELLEN OCARROLL
January 2006

1. INTRODUCTION

One charcoal sample was submitted for analysis from Donaghmore 7, Dundalk by-pass. Donaghmore 7 was located in Donaghmore townland c.3km west of Dundalk town. The sample received for analysis was taken from a charred wooden plank (**C10**) located above the top fill of the ditch associated with an Iron Age ring-barrow.

The charcoal was sent for species identification prior to ^{14}C dating and also to give an indication of the range of tree species which grew in the vicinity. Charcoal and wood analyses may also provide information on the utilization of certain species for various functions. Wood used for fuel at pre-historic sites would generally have been grown at locations close to the site. Therefore species identifications may, but do not necessarily, reflect the composition of the local woodlands.

2. METHODS

The process for identifying wood, whether it is charred, dried or waterlogged is carried out by comparing the anatomical structure of wood samples with known comparative material or keys (Schweingruber 1990). The identification of charcoal material involves breaking the charcoal piece so that a clean section of the wood can be obtained. This charcoal is then identified to species under an Olympus SZ3060 zoom stereomicroscope. By close examination of the microanatomical features of the samples the species are determined. The diagnostic features used for the identification of charcoal are micro-structural characteristics such as the vessels and their arrangement, the size and arrangement of rays, vessel pit arrangement and also the type of perforation plates.

3. QUANTIFICATION/RESULTS

Site no.	Context No and type	Sample No	Identification	Weight and comment
Donaghmore 7, 02E1583	C10, Charred plank from ditch of Ring-barrow	8	Oak (<i>Quercus</i> sp)	200 grams +

Table 1: Results from charcoal identifications

4. PROVENANCE

One charcoal sample from the charred remains of a plank (**C10**) was analysed with respect to identification and function. The charred plank was associated with a ring-barrow of Iron Age date. The excavated site was located on an agriculturally productive area of land that undulates between c.20m OD and c.33m OD that surrounds Dundalk town. Archaeological excavation has revealed that the Donaghmore area is part of a prehistoric and early historic landscape with material being recovered from associated excavations dating from the Neolithic (4000-2000BC) and continuing into the early medieval period (AD500-1169). Five excavations were undertaken in Donaghmore townland, spread out over a distance of 250m with an average distance of 30m separating the sites.

Over 200 grams of oak was identified from the charred plank which probably represents the remains of the plank which once stood in the ditch prior to its burning

or may have been associated with ritual aspects or the funerary rites that these ditches or ring-barrows are renowned for.

Throughout all periods of prehistory and history oak has been used for structural timbers. The oak identified suggests that there was a supply of oak in the surrounding environment. Oak also has unique properties of great durability and strength. Sessile oak (*Quercus petraea*) and pedunculate oak (*Quercus robur*) are both native and common to Ireland. The wood of these species cannot be differentiated based on its microstructure. Pendunculate oak is found on heavy clays and loams particularly where the soil is of alkaline pH. Sessile oak is found on acid soils often in pure stands and although it thrives on well-drained soils it is also tolerant of flooding (Beckett 1979, 40-41). Both species of oak grow to be very large trees (30-40m) and can live to an age of about 400 years. The oak could have been selected from mixed woodlands nearby.

5. CONSERVATION

As oak can grow to be a very old tree (300-400 years) it is generally unsuitable for ¹⁴C dating. The oak samples represent the inner part of a tree of unknown age and it was not possible to tell from identification how much larger, if at all, the whole piece was. As a result «The old-wood effect» may need to be taken into consideration when ¹⁴C dates are returned (Warner 1979, 159-172). The samples identified could be of a more recent date than the rings represented on the original tree. The old wood effect is particularly important in relation to later dated sites such as the transition from Early Christian to Viking to medieval. Since the time span of pre-historic periods are wider and less transparent it is my belief that the old wood effect is not as significant when the ¹⁴C dates are returned.

6. COMPARATIVE MATERIAL

Wood was a vital and widely used raw 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 and for the manufacture of most implements. The woods in a surrounding catchment area were exploited and often managed to provide an essential raw material for the community. The economic importance of wood cannot be overestimated.

A study of the range of species on an archaeological site offers an indication of the composition of a local woodland in its period of use. When some trees are felled the stool left in the ground will produce several new stems, which will grow rapidly. This type of management is known as coppicing. In many woodland areas a number of species of wood are suitable for the production of crops of long narrow stems used for fences, brushwood, hurdle trackways and wattle walls.

From the preliminary studies mentioned above it is clear that oak was the most common species used for wall-posts and planks, hazel was preferred for wattle structures and species such as ash, willow, alder, birch and holly were utilised for a variety of other structural requirements. The work carried out on species selection suggests that availability around a given catchment area was probably the main factor which influenced choice of timber.

Oak may have been deliberately selected for use as plank material associated with the construction of the ring-barrow or alternatively the oak plank may have been associated with the cremation ritual connected with these sites. Ring-barrows are generally regarded as funerary monuments therefore the charcoal present in the ditch of the ring-barrow was possibly associated with the rituals of the dead and the cremation process. It is not surprising then that oak is the dominant species identified from this ditch as oak was nearly always used for the purpose of cremating bodies. This may be due to the excellent properties of oak as a fuel or the body may have lain on an oak platform which was later burnt with the body. Charcoal analyses at other cremation sites Bettystown, Co. Dublin (98E072), Ballybrowney Lower 1 (03E1058), Ballynapark, Co. Wicklow (A022-33) and Hermitage, Limerick (01E0319) revealed that oak is the dominant species identified from within these features. Charcoal from a ring ditch analysed from site D, Morett (03E0461) produced mainly oak fragments from the fill of its ditch.

7. DISCUSSION

Oak was probably consciously selected for use as plank/fuel material associated with the ritual cremations of the ring ditch/barrow. The oak identified indicates that a supply of such material was available in the area during the Iron Age. The oak would have grown in drier conditions preferring free-draining and nutrient rich soils, although it can grow on wetter areas during dry periods.

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APPENDIX 2.2: RADIOCARBON DATING REPORT

The University of Waikato Radiocarbon Dating Laboratory
One C 14 date was established for the site at Site 131, Donaghmore 7.

The un-calibrated result is as follows:

Wk18564 Donaghmore 7; 02E1583: (**C10**), oak (*Quercus sp*) (200g)

<u>d 14 C</u>	<u>-228.8+/-3.4</u>
d 13 C	-24.7+/-0.2
<u>D 14 C</u>	<u>-223.3+/-3.4</u>
% modern	77.7+/-0.3
Result	2030+/-36 BP

The calibrated results were processed using the Intcal 04 calibration curve. The result (90.0% probability) was as follows:

Wk18564 Donaghmore 7; 02E1583: (**C10**), oak (*Quercus sp*) (200g)
Cal BC 120BC-60AD (90.0% probability)

Intcal 04 reference: Reimer, P. J., Baillie, M. G. L., Bard, E., Bayliss, A., Beck, J. W., Bertrand, C. J. H., Blackwell, P. G., Buck, C. E., Burr, G. S., Cutler, K. B., Damon, P.E., Edwards, R. L., Fairbanks, R. G., Friedrich, M., Guilderson, T. P., Hogg, A. G., Hughen, K. A., Kromer, B., McCormac, G., Manning, S., Bronk Ramsey, C., Reimer, R. W., Remmele, S., Southon, J. R., Stuiver, M., Talamo, S., Taylor, F. W., van der Plicht, J., Weyhenmeyer, C. E., IntCal04 Terrestrial Radiocarbon Age Calibration, 0 - 26 ka cal BP, *Radiocarbon* 46 (nr 3, 2004).

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Report on Radiocarbon Age Determination for Wk- 18564

Submitter Li Johnston
Submitter's Code Donaghmore 7/10/8
Site & Location Dundalk Western Bypass, Ireland
Sample Material Quercus
Physical Pretreatment Possible contaminants were removed. Washed in ultrasonic bath.
Chemical Pretreatment Sample washed in hot 10% HCl, rinsed and treated with hot 0.5% NaOH. The NaOH insoluble fraction was treated with hot 10% HCl, filtered, rinsed and dried.

$\delta^{14}\text{C}$	-222.8 ± 3.4	‰
$\delta^{13}\text{C}$	-24.7 ± 0.2	‰
D^{14}C	-223.3 ± 3.4	‰
% Modern	77.7 ± 0.3	%

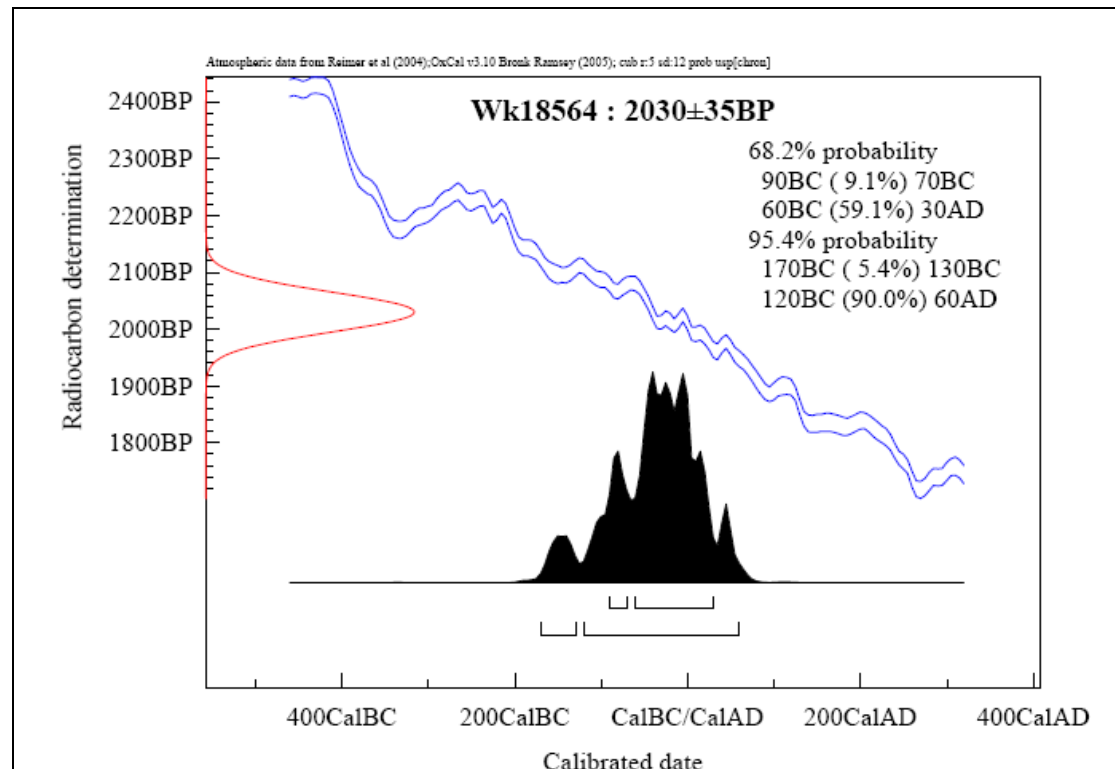
Result 2030 ± 36 BP

Comments

Alan Hogg

3/5/06

- Result is *Conventional Age or % Modern* as per Stuiver and Polach, 1977, Radiocarbon 19, 355-363. This is based on the Libby half-life of 5568 yr with correction for isotopic fractionation applied. This age is normally quoted in publications and must include the appropriate error term and Wk number.
- Quoted errors are 1 standard deviation due to counting statistics multiplied by an experimentally determined Laboratory Error Multiplier of 1.
- The isotopic fractionation, $\delta^{13}\text{C}$, is expressed as ‰ wrt PDB.
- Results are reported as % Modern when the conventional age is younger than 200 yr BP.



APPENDIX 2.3: OSTEOLOGICAL REPORT

**OSTEOARCHAEOLOGICAL REPORT OF
CREMATED BONE FROM
DUNDALK WESTERN BYPASS, DONAGHMORE 7
COUNTY LOUTH**

**MOORE GROUP
ANIMAL BONE REPORT PREPARED FOR IAC LTD
LICENCE NO: 02E1583**

**AUTHOR: CAMILLA LOFQVIST,
OSTEOARCHAEOLOGICAL SERVICES SECTION
DATE: NOVEMBER 2007**

NON TECHNICAL SUMMARY

This report describes the results of the osteoarchaeological analysis of bones retrieved during excavation carried out at Donaghmore 7, Co. Louth. The author undertook the bone analysis for the Osteological Services Section of Moore Archaeological & Environmental Services Ltd (Moore Group) on behalf of the client, IAC Ltd.

The bone analysis was commissioned in order to provide an osteoarchaeological aspect of the development site and to see if the bone material could provide additional information on the interpretation of the site.

The bone analysis only entailed a total of four small burnt fragments. The bones were in a very poor condition with a total weight of only 0.5g. None of the four fragments from the bone sample could be identified.

1. INTRODUCTION

The Osteoarchaeological Services Section of Moore Group was commissioned to undertake an osteoarchaeological analysis of disarticulated burnt bones retrieved during an excavation at Donaghmore 7, Co. Louth. The excavation was carried out by IAC Ltd under licence no. 02E1583 and was part of the archaeological work along the Dundalk Western Bypass.

The osteoarchaeological analysis was carried out on behalf of IAC Ltd and this report details the result of this analysis.

2. METHODOLOGY

During analysis of the material, all fragments were counted and weighed. Quantification was based on two methods:

NISP: Number of Identified Specimens. Indicates the total number of fragments found. The NISP is decided by different factors like the age of the animal, the size of the animal and how well the preservation was at the place where the bones were deposited.

MNE: Minimum Numbers of Elements. Indicates the minimum number of anatomical units that are present and what side they are from. MNE is used to calculate MNI and is used in the Fusion data tables. To allow for a young individual to grow the bones from a juvenile at birth are made up of several different parts. When the individual gets older the different parts grow together and form one bone. The parts of the bone grow together at different age-stages and this makes it possible to estimate the age of an animal. This means that three bone fragments can be part of the same bone element. For example: Proximal and distal epiphyses fused with the diaphysis. To avoid getting a higher MNE all loose epiphyses have to be paired with all unfused diaphysis.

The bones were searched for traces of gnawing, cut marks and pathology. The gnaw marks give information about how exposed the bones were after being discarded. A high percentage of bones with traces of gnawing indicates that the bones were left exposed so animals like dogs, rats and other scavengers had access to the bones. Pathology is the study (logos) of suffering (pathos) or better defined as “the study of disease processes”.

Animal bone

The cut marks can give valuable information about how animal carcasses were butchered. These marks can also give information about if the animals were kept for their milk, as a source of meat, or if they played an important part in industrial production of for example hide or bone objects.

Human bone

Human skeletal remains can provide a wide range of information, e.g. demography, sex and age profile, stature and diseases. Furthermore the analysis can provide details of diet, occupation, general state of health and traumas caused to individuals.

Paleopathology is the study of disease in *ancient* populations as revealed by skeletal remains. The skeletal remains of an individual can record events in this person's life, events like diseases, trauma, metabolic disorders, circulatory disturbances, tumours and mechanical stress and so on. Trauma is the second most common pathology and can be defined as any bodily injury or wound. An analysis of skeletal trauma in a population can reveal a lot of information about the society in which the individuals have lived, such as lifestyle, economy, occupation, violence and healing of injuries indicating the level of medical ability, treatments and so on.

3. RESULT

The total weight of the bone sample from Donaghmore 7 was only 0.5g. There were a total of four fragments (NISP) from four bone elements (MNE). The bone was white in colour and very fragmented. Three fragments from bone sample 5 (context 4) was smaller than 5mm while the remaining fragment were between 5-10mm (Table 1, Plate 1).

Sample No.	No. of fragment	Fragment size	Weight
4:5	3	<5mm	0.2g
4:5	1	5-10mm	0.3g

Table 1. Fragment size and weight of the burnt bone.

None of the burnt bones could be identified due to the high degree of fragmentation. Bones change their structure and composition through heating. Moisture is driven off and the organic component (chiefly collagen) combusted, leaving only the mineral portion. The result is fragmented and distorted bone which is usually reduced in size. The temperature during the firing also affects the colour of the bone, where red/orange coloured bones indicate a low temperature while white coloured bone indicates a high temperature. The white colour and the high fragmentation of the Donaghmore 7 bones indicated a high heat during burning, with temperatures reaching at least 6450C or higher. Cremated bone tends to survive better and longer than unburnt bone. However, just after cremation the bone is very brittle and prone to breaking. The high fragmentation of the bone sample from Donaghmore 7 suggests the bones were disturbed while still hot and/or that they might have been exposed to weathering and trampling. (Plate 2)



Plate 1: Bone sample from Donaghmore 7.



Plate 2: Close up of burnt bone sample from Donaghmore 7.

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Bone Database

Donaghmore 7

Bag	Conte xt	Samp le	Animal	Element	Part of element	NIS P	MN E	Sid e	Pr epi	P 1/3	M 1/3	D 1/3	Di epi	J	M/ F	C	G	P	Bur nt	Descr C/P/G	Me as	Comment	Weigh t
1	4	5	Unid	Unid	Burnt frag	4	4	-	-	-	-	-	-	-	-	-	-	-	4	-	-	White	0.5

