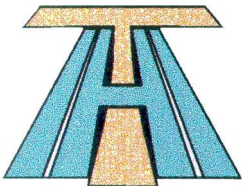


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N9/N10 KILCULLEN TO WATERFORD SCHEME, PHASE 4 – KNOCKTOPHER TO POWERSTOWN



Ministerial Scheme Reference No.	Direction	A032
Registration No.		E3461
Site Name		AR085, Danesfort 8
Townland		Danesfort
County		Kilkenny
Excavation Director		Richard Jennings
NGR		253020 148246
Chainage		36755–36795

FINAL REPORT

ON BEHALF OF KILKENNY COUNTY COUNCIL

APRIL 2012

IAC Irish Archaeological
Consultancy

PROJECT DETAILS

Project	N9/N10 Kilcullen to Waterford Scheme, Phase 4 – Knocktopher to Powerstown
Ministerial Direction Reference No.	A032
Excavation Registration Number	E3461
Excavation Director	Richard Jennings
Senior Archaeologist	Tim Coughlan
Consultant	Irish Archaeological Consultancy Ltd, 120b Greenpark Road, Bray, Co. Wicklow
Client	Kilkenny County Council
Site Name	AR085, Danesfort 8
Site Type	Field system
Townland(s)	Danesfort
Parish	Danesfort
County	Kilkenny
NGR (easting)	253020
NGR (northing)	148246
Chainage	36755–36795
Height OD (m)	63.772
RMP No.	N/A
Excavation Dates	5–26 June 2007
Project Duration	20 March 2007–18 April 2008
Report Type	Final
Report Date	April 2012
Report By	Richard Jennings and Tim Coughlan
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This final report has been prepared by Irish Archaeological Consultancy Ltd in compliance with the directions issued to Kilkenny County Council by the Minister for Environment, Heritage and Local Government under Section 14A (2) of the National Monuments Acts 1930–2004 and the terms of the Contract between Kilkenny County Council and Irish Archaeological Consultancy Ltd.

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ABSTRACT

Irish Archaeological Consultancy Ltd (IAC), funded by the National Roads Authority (NRA) through Kilkenny County Council, undertook an excavation at the site of AR085, Danesfort 8 along the proposed N9/N10 Kilcullen to Waterford Scheme, Phase 4 – Knocktopher to Powerstown (Figure 1). The following report describes the results of archaeological excavation at that site. The area was fully excavated by Richard Jennings under Ministerial Direction A032 and Excavation Registration Number E3461 issued by the DOEHLG in consultation with the National Museum of Ireland for IAC. The fieldwork took place between the 5 and 28 June 2007.

The excavation identified a pit and an adjacent posthole which both contained Beaker pottery. The pit was dated to the early Bronze Age through radiocarbon dating, which is contemporary with the pottery found. A nearby pit, that is possibly contemporary, contained some lithics including a possible pot-lid (Sternke, Appendix 2.1). A series of shallow linear ditches appeared to represent the remains of an earlier field system. While one of the ditch fills has been dated to the early Bronze Age, and another produced a single sherd of Beaker pottery, it is possible that this represents disturbance of additional Beaker pits and that the material is residual. However it must also be considered that the field system could be broadly contemporary with the Beaker pits. Gaps between the field system ditches may represent entrances and a number of postholes and stakeholes in the vicinity of one of these possible entrances may be the remains of a fence or a gate. Post medieval boundary ditches and drains were also recorded.

The site produced 46 pottery sherds (plus 55 fragments) representing at least 11 final Neolithic/ early Bronze Age Beakers. It is a very important extension to our understanding of this pottery type in Ireland. The bulk of the assemblage came from the fill of a single pit. There are three decorated vessels. Vessel 1 has the most common form of Beaker ornament consisting of bands of horizontal lines separated by blank zones. The more elaborate ornament on Vessel 2 also consists of bands of horizontal lines separated by blank zones but the decorative bands define rows of oval impressions and have hanging fringes of oblique thumbnail impressions. The precise decoration on this pot is unusual but a close parallel is provided by a pot or pots from concentration D at Knowth, Co. Meath.

A total of two samples were sent for AMS radiocarbon dating. A sample of charred hazelnut shell from the pit fill C45 was radiocarbon dated. The 2 sigma calibrated result was 2457–2205BC (UBA 11001). A sample of charred hazelnut shell from the ditch fill C46 was also radiocarbon dated. The 2 sigma calibrated result was 2476–2286BC (UBA 15558).

Danesfort 8 comprised a pit with Beaker pottery, which dates to the late Neolithic/early Bronze Age transition. Sites with Beaker pottery often consist of isolated pits with no discernable pattern or associated structures. Of additional interest at Danesfort 8 is the presence of a possibly contemporary field system, although there is some uncertainty about the validity of the dated evidence and the possibility of it being residual from further disturbed pits. Danesfort is a very important extension to our understanding of this pottery type in Ireland and is the first evidence of this pottery type in the wider area in conjunction with the evidence from Paulstown 2 (E3632) and AR053-54 Baysrath 1, both excavated along the route of the N9/N10.

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1 INTRODUCTION

1.1 General

This report presents the results of the archaeological excavation of Danesfort 8, AR085 (Figure 1), in the townland of Danesfort 8 undertaken by Richard Jennings of IAC, on behalf of Kilkenny County Council and the NRA, in accordance with the Code of Practice between the NRA and the Minister for Arts, Heritage, Gaeltacht and the Islands. It was carried out as part of the archaeological mitigation programme of the N9/N10 Kilcullen to Waterford Road Scheme, Phase 4, which extends between Knocktopher in Co. Kilkenny to Powerstown in Co. Carlow. 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.

The site measured 2704m² and was first identified during testing carried out in 2006 by Melanie McQuade (E3882) for Margaret Gowen & Co. Ltd on behalf of the National Roads Authority. Danesfort 8 was excavated between 5 and 28 June 2007 with a team of one director, one supervisor and ten assistant archaeologists.

1.2 The Development

For the purposes of construction, the N9/N10 Kilcullen to Waterford Road Scheme has been divided into separate sections, known as Phases 1–4. Phase 2 of the scheme extends from the tie-in to the Waterford City Bypass at Dunkitt, to Knocktopher in Co. Kilkenny (Ch. 2+000–Ch. 25+400). Phase 4 continues from Knocktopher to Powerstown in Co. Carlow (Ch. 25+400–Ch. 76+000) and includes the Kilkenny Link Road.

The roadway of the entire scheme includes approximately 64km of mainline high quality dual carriageway and 6.2km of the Kilkenny Link Road, which will connect the road development to the Kilkenny Ring Road Extension. The road development requires the realignment and modification of existing national, regional and local roads where the mainline intersects them. It requires the acquisition of 305 hectares of land for its construction. A further link road will connect the scheme to Paulstown in County Kilkenny, while six new grade separated junctions and three roundabouts are part of the road development.

1.3 Archaeological Requirements

The archaeological requirements for the N9/N10 Kilcullen to Waterford Road Scheme, Phase 4: Knocktopher to Powerstown, are outlined in the Archaeological Directions issued to Kilkenny County Council by the Minister for Environment, Heritage and Local Government under Section 14A (2) of the National Monuments Acts 1930–2004 and in the terms of the contract between Kilkenny County Council and Irish Archaeological Consultancy Ltd. These instructions form the basis of all archaeological works undertaken for this development. The archaeological excavation works under this contract are located between the townlands of Knocktopher, Co. Kilkenny, and Powerstown, Co. Carlow.

The proposed N9/N10 was subjected to an Environmental Impact Assessment, the archaeology and cultural history section of which was carried out by Valerie J. Keeley Ltd and published in February 2005. The Record of Monuments and Places, the Site Monument Record, Topographical files, aerial photography, the Kilkenny and Carlow County Archaeological Urban Survey, and literary sources were all consulted. Two phases of geophysical survey were also conducted by Target (post-EIS geophysics carried out by ArchaeoPhysica) and an aerial survey was carried out by Margaret Gowen & Co. Ltd. As a result of the paper survey, field inspections and geophysical

survey, 35 sites were recorded in proximity to this section of the overall route alignment.

A previous archaeological assessment of Phase 2 of the scheme (test trenching conducted by Margaret Gowen & Co. Ltd. in 2006) extended into the lands acquired for Phase 4 to a point at Ch. 37+100 in the townland of Rathclogh, Co. Kilkenny. Thirty-four archaeological sites were identified within this area between Knocktopher and Rathclogh and subsequently excavated by Irish Archaeological Consultancy Ltd. as part of this archaeological contract.

Advance archaeological testing of the area between Rathclogh (Ch. 37+100) and Powerstown (Ch. 76+000) was completed by IAC during March–May 2007 and excavation of the sites identified during this process was also conducted by IAC between August 2007 and April 2008.

1.4 Methodology

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

All archaeological features were fully excavated by hand and recorded on *pro forma* record sheets using a single context recording system best suited to rural environment, with multi context plans and sections being recorded at a scale of 1:50, 1:20 or 1:10 as appropriate.

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

An environmental strategy was devised at the beginning of the excavation based on IAC in-house post-excavation and site methodologies and guidelines. Features exhibiting large amounts of carbonised material were the primary targets.

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

All dating of samples from the site was carried out by means of AMS (Accelerator Mass Spectrometry) Radiocarbon Dating of identified and recommended charred plant remains samples. All calibrated radiocarbon dates in this report are quoted to two Sigma. Dating of the site also involved pottery analysis through typological study.

All excavation and post excavation works were carried out in accordance with the relevant approvals and in consultation and agreement with the National Roads Authority (NRA) Project Archaeologist, the National Monuments Section of the DoEHLG and the National Museum of Ireland. Where necessary licences to alter and export archaeological objects were sought from the National Museum of Ireland.

References to other sites excavated as part of the N9/N10 Phase 4: Knocktopher to Powerstown are referenced throughout this report only by their site name e.g.

Paulstown 1. A list of these sites and details including director's name and National Monuments Excavation Reference Number can be referenced in Appendix 4.

Final Report Date Ranges

The following date ranges for Irish prehistory and medieval periods are used for all final reports for the N9/N10 Phase 4: Knocktopher to Powerstown excavations.

Mesolithic: 7000–4000BC

Neolithic: 4000–2500BC

Early Bronze Age: 2500–1700BC

Middle Bronze Age: 1700–1200BC

Late Bronze Age: 1200–800BC

Iron Age: 800BC–AD500

Early medieval period: AD500–1100

Medieval period: AD1100–1600

Post-medieval: AD1600–1800

Source:

Carlin, N., Clarke, L. & Walsh, F. 2008 *The M4 Kinnegad-Enfield-Kilcock Motorway: The Archaeology of Life and Death on the Boyne Floodplain*. NRA Monograph Series No. 2, Wordwell, Bray.

2 EXCAVATION RESULTS

Parts of an ancient field system and some associated features were discovered under a pastured field with a gentle south-east aspect. The low-lying nature of the surrounding landscape meant that the site had prominent views of the Blackstairs Mountains 30km to the east and Slievenamon 30km to the south-west. The site was 100m south-west of a prehistoric structure at Danesfort 9 and 250m south-west of two Bronze Age sites set within a low lying basin at Danesfort 10 and Danesfort 11. It was 180m north-east of a group of Bronze Age pits at Danesfort 7, 380m north-east of further prehistoric activity at Danesfort 6 and 630m north-east of a Bronze Age settlement at Danesfort 5. It was also within 1km of three RMP sites but none of them are thought to be prehistoric (Figure 2).

2.1 Phase 1 Natural Drift Geology

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C2	N/A				Light greyish yellow, compact sandy clay.	Subsoil

2.2 Phase 2 Prehistoric Activity

2.2.1 Pit with Beaker Pottery

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C25	N/A	1.27	1.10	0.40	Irregular oval cut	Cut of pit
C45	C25	1.24	1.10	0.38	Dark grey silty clay	Fill of pit
C64	C25	1.27	1.10	0.07	Brown and dark brown silty clay	Fill of pit

Finds

Context	Find Number	Material	Period	Description
C45	E3461:045:1	Pottery	Late Neolithic/EBA	Base angle sherd of Beaker ware
C45	E3461:045:2	Pottery	Late Neolithic/EBA	Beaker ware (Vessel 2)
C45	E3461:045:3	Pottery	Late Neolithic/EBA	Belly sherd of Beaker ware (Vessel 2)
C45	E3461:045:4	Pottery	Late Neolithic/EBA	Body sherd of Beaker ware
C45	E3461:045:5	Pottery	Late Neolithic/EBA	Neck sherds of Beaker ware (Vessel 1)
C45	E3461:045:6	Pottery	Late Neolithic/EBA	Belly sherds of Beaker ware (Vessel 1)
C45	E3461:045:7	Pottery	Late Neolithic/EBA	Neck sherd of Beaker ware (Vessel 1)
C45	E3461:045:8	Pottery	Late Neolithic/EBA	Body sherd of Beaker ware
C45	E3461:045:9	Pottery	Late Neolithic/EBA	Rim sherd of Beaker ware (Vessel 2)
C45	E3461:045:10-11	Pottery	Late Neolithic/EBA	Neck sherds of Beaker ware
C45	E3461:045:12	Pottery	Late Neolithic/EBA	Body sherd of Beaker ware (Vessel 2)
C45	E3461:045:13-14	Pottery	Late Neolithic/EBA	Body sherds of Beaker ware
C45	E3461:045:15	Pottery	Late Neolithic/EBA	Neck sherd of Beaker ware (Vessel 3)
C45	E3461:045:16	Pottery	Late Neolithic/EBA	Body sherd of Beaker ware
C45	E3461:045:17	Pottery	Late Neolithic/EBA	Base angle sherd of Beaker (Vessel 3)
C45	E3461:045:18	Pottery	Late Neolithic/EBA	Body sherd of Beaker ware (Vessel 1)
C45	E3461:045:19	Pottery	Late Neolithic/EBA	Body sherd of Beaker ware (Vessel 3)
C45	E3461:045:20	Pottery	Late Neolithic/EBA	Body sherd of Beaker ware
C45	E3461:045:21	Pottery	Late Neolithic/EBA	Base angle sherd of Beaker ware
C45	E3461:045:22	Pottery	Late Neolithic/EBA	Body sherd of Beaker ware
C45	E3461:045:23	Pottery	Late Neolithic/EBA	Base angle sherd of Beaker (Vessel 1)
C45	E3461:045:24	Pottery	Late Neolithic/EBA	Body sherd of Beaker ware (Vessel 1)
C45	E3461:045:25	Pottery	Late Neolithic/EBA	Base angle sherd of Beaker (Vessel 1)
C45	E3461:045:26-27	Pottery	Late Neolithic/EBA	Neck sherds of Beaker ware
C45	E3461:045:28-29	Pottery	Late Neolithic/EBA	Body sherds of Beaker ware
C45	E3461:045:30	Pottery	Late Neolithic/EBA	Body sherd of Beaker ware (Vessel 3)
C45	E3461:045:31-32	Pottery	Late Neolithic/EBA	Body sherds of Beaker ware (Vessel 1)
C45	E3461:045:33	Pottery	Late Neolithic/EBA	Body sherd of Beaker ware
C45	E3461:045:34	Pottery	Late Neolithic/EBA	Body sherd of Beaker ware (Vessel 1)
C45	E3461:045:35	Pottery	Late Neolithic/EBA	Body sherd of Beaker ware

Context	Find Number	Material	Period	Description
C45	E3461:045:36	Pottery	Late Neolithic/EBA	Neck sherd of Beaker ware
C45	E3461:045:37-39	Pottery	Late Neolithic/EBA	Body sherd of Beaker ware
C45	E3461:045:40	Pottery	Late Neolithic/EBA	Rim sherd of Beaker ware
C45	E3461:045:41	Pottery	Late Neolithic/EBA	Rim sherd of Beaker ware (Vessel 2/3)
C45	E3461:045:42-53	Pottery	Late Neolithic/EBA	Fragments of Beaker ware (Vessel 1)
C45	E3461:045:54-67	Pottery	Late Neolithic/EBA	Fragments of Beaker ware (Vessel 2)
C45	E3461:045:68-72	Pottery	Late Neolithic/EBA	Fragments of Beaker ware
C45	E3461:045:73-74	Pottery	Late Neolithic/EBA	Body sherds of Beaker ware
C45	E3461:045:75-95	Pottery	Late Neolithic/EBA	Fragments of Beaker Ware
C45	E3461:045:96-100	Flint	EBA	Flint debitage

Pit C25 was located to the west of the centre of the site. It was located c. 4m south of pit C57 (Section 2.2.3) and to the west of Ditch C (Section 2.3.1.3). Five pieces of flint debitage was retrieved from C45 and they probably date to the early Bronze Age (Sternke, Appendix 2.1) (Figure 6).

Forty three sherds and fifty two fragments of prehistoric pottery were recovered from C45 (fill of pit C25) (Figure 6). These sherds belong to three vessels; Vessel 1 has a gently curved S shaped profile, Vessel 2 has a simple rounded rim and a gently concave neck and Vessel 3 has a gently concave neck and flat base with a slight upright foot. The sherds consisted of three rim sherds, eight necksherds, five base angle sherds, two belly sherds and 25 body sherds. All three vessels have been identified as fine Beaker pottery and can be dated to the late Neolithic/early Bronze Age period (Grogan and Roche, Appendix 2.2).

Charcoal analysis of fill C45 (fill of pit C25) indicated a predominance of oak (*Quercus* sp.), pomaceous fruitwood (*Pomoideae*), hazel (*Corylus avellana*), elm (*Ulmus* sp) and ash (*Fraxinus excelsior*). Oak may have been used as post material and the results suggest the presence and the exploitation of primary woodlands comprising specifically oak, with ash and elm also present and exploited to a lesser extent. Scrub type taxa which includes pmoideae and hazel was also present and exploited in the surrounding landscape (O'Carroll, Appendix 2.4).

A sample taken from the fill of C25, C45 produced evidence for plant remains. The sample contained small amounts of charred hazelnut shell fragments (*Corylus avellana* L.), oat grains (*Avena* L. sp.), possible oat grains (cf *Avena* sp.), some barley grains (*Hordeum vulgare* L.) and some indeterminate cereal grains. Barley was the most common cereal type found, although a small quantity of oat grains was also identified. Barley was a common cereal type in the assemblages from other sites also excavated in the area (Johnston, Appendix 2.5).

A small fragment (1.4g) of charred hazelnut was chosen for AMS dating from C45 and returned a result of 3846±27. The 2 Sigma calibrated result for this was 2457–2205BC (QUB, Appendix 2.7) dating this feature to the early Bronze Age.

2.2.2 Posthole with Beaker Pottery

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C39	N/A	0.21	0.17	0.12	Oval cut	Cut of posthole
C40	C39	0.21	0.17	0.12	Dark greyish brown sandy clay	Fill of posthole

Finds

Context	Find Number	Material	Period	Description
C40	E3461:040:1	Pottery	Late Neo/EBA	Neck sherd of Beaker ware
C40	E3461:040:2-3	Pottery	Late Neo/EBA	Body sherds of Beaker ware
C40	E3461:040:4-5	Pottery	Late Neo/EBA	Fragments of Beaker ware

A small possible posthole was identified adjacent pit C25 and is possibly contemporary. While it was not radiocarbon dated, it also contained Beaker pottery within its fill.

Three sherds and two fragments of prehistoric pottery were recovered from C40 (fill of posthole C39). The sherds consisted of two body sherds and one neck sherd and have been identified as fine Beaker pottery that can be dated to the late Neolithic/early Bronze Age period (Grogan and Roche, Appendix 2.2).

2.2.3 Pit with Lithics

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C57	N/A	1.55	1.55	0.43	Sub-circular pit	Cut of pit
C58	C57	1.55	1.55	0.30	Mid greyish brown clayey silt	Upper fill of pit
C59	C57	0.75	0.75	0.25	dark greyish brown clayey silt	

Finds

Context	Find Number	Material	Period	Description
C58	E3461:058:1+3	Flint	Early Mesolithic	Flint blade (broken in to 2 pieces)
C58	E3461:058:2	Flint	EBA	Flint potlid

Pit C57 was located to the north-west of the centre of the site, 4m to the north of pit C25 (Section 2.2.1) and 4m west of Ditch C (Section 2.3.1.3). It was sub-circular in plan with vertical sides and a flat base. Two lithics were retrieved from C58. One of these lithics is a broken flint blade in two pieces and the remaining lithic has been identified as a flint pot lid. The blade has been identified as early Mesolithic and the pot lid is probably early Bronze Age in date (Sternke, Appendix 2.1).

Charcoal analysis of fill C59 (fill of C57) indicated a predominance of hazel (*Corylus avellana*), oak (*Quercus* sp.) and blackthorn/cherry (*Prunus* sp.). Oak may have been used as post material and the results suggest the presence and the exploitation of primary woodlands comprising specifically of oak. Scrub type taxa which includes hazel and blackthorn/cherry was also present and exploited in the surrounding landscape. O'Carroll suggests the dominance of brushwood taxa in this pit suggest it may have been wattle lined or have been built to hold a removable basket (Appendix 2.4).

2.3 Phase 3 Field System ditches

A field system was identified consisting of three narrow, shallow linear boundary ditches.

Ditches A, B and C comprised field system boundaries. Ditches A and B formed a southern boundary and were separated by a small gap/entrance at the west end of the site. Ditch C was at right angles to Ditch B and separated from it by a small gap/entrance. The gap between the south end of Ditch C and Ditch B was 2.1m wide while the gap between Ditch A and Ditch B was 1.9m wide. The gaps between the ditches probably served as access between fields and would have been wide enough for any farm animals to pass through. Ditch B was formed from two cuts, C7 and C18; C18 was a possible earlier alignment of the ditch which was cut and replaced by C7. The upper fill of C18 contained animal bone. Ditches A and B were U-shaped in profile while Ditch C was more V-shaped. Ditches A and B were dug so that water would have drained away from their terminal ends. Ditch C was more undulating. Ditch B was cut by a modern drain, C13.

The similarity in shape of Ditches A–C, and the fact they respected each other and contained similar fills, suggests that they were part of the same field system.

2.3.1 Ditch A

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C9	N/A	7.60	1.13	0.47	Linear cut	Cut of ditch
C10	C9	7.60	1.13	0.47	Mid yellowish brown silty sand	Fill of ditch

This ditch was orientated northwest–southeast. Only a small section of this ditch was identified within the excavation area.

2.3.1 Ditch B

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C7	N/A	60.4	1.00	0.30	Curved linear cut	Cut of ditch
C8	C7	60.4	1.00	0.30	Dark brown sandy silt	Fill of ditch
C18	N/A	12.4	1.10	0.28	Curved linear cut	Cut of ditch
C19	C18	12.1	0.60	0.28	Mid brownish silty clay	Upper ditch fill
C20	C18	12.1	0.48	0.25	Yellowish brown grey clay	Lower ditch fill
C46	C7	9.1	0.57	0.19	Dark grey clayey sand	Fill of ditch

This ditch was orientated roughly east-west and was slightly curved. Its east end was recorded as two separate contexts – C18 to the north and C7 to the south. It is possible that C7 represented a re-cut or re-alignment of the ditch although this is not conclusive. It was separated from Ditch A by a 1.9m gap which may have been an entrance. The ditches ended in distinct termini. The fill of the ditch contained some hazelnut shell which was dated to the early Bronze Age period (see below). While this may indicate an early Bronze Age date for the ditches it is also possible that the ditch cut disturbed a Beaker pit and that the hazelnut shell fragment is residual.

Charcoal analysis of fill C46 (fill of C7) indicated a predominance of oak (*Quercus* sp.) and ash (*Fraxinus excelsior*). Oak may have been used as post material and the results suggest the presence and the exploitation of primary woodlands comprising specifically of oak with ash also present and exploited to a lesser extent (O'Carroll, Appendix 2.4).

A soil sample taken from the fill of C7, C45, produced evidence for plant remains. The sample contained small amounts of charred hazelnut shell fragments (*Corylus avellana* L.), oat grains (*Avena* L. sp.) and some indeterminate cereal grains. Small amounts of hazelnut shell are not indicative of site diet (Johnston, Appendix 2.5).

Animal bone fragments were recovered from C19, upper fill of ditch 18. Ninety-eight bone fragments were submitted for examination. From these a total of 71 bone fragments were unidentifiable to species due to small fragment size, poor preservation and fragmentation of the bone. The remaining 27 fragments were identified and divided into species and the faunal remains contained bones from species of dog (*Canis*), pig (*Sus*), sheep (*Ovis*) and goat (*Caprinae*). The faunal remains, unusually, did not display any evidence of gnawing, butchery or exposure to heat. No definite or statistically detailed conclusions could be drawn from the faunal remains assemblage retrieved due to its limited size and poor degree of bone preservation. (McCarthy, Appendix 2.6)

A small fragment (0.05g) of hazelnut shell was chosen for AMS dating from C46 and returned a result of 3904±35 (UBA 15558). The 2 Sigma calibrated result for this was 2476–2286BC (QUB, Appendix 2.7) dating this feature to the early Bronze Age.

2.3.1.3 Ditch C28

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C28	N/A	29.8	0.80	0.49	Curved linear cut	Cut of ditch

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C37	C28	29.8	0.80	0.49	Mid brown sandy silt	Fill of ditch
C38	C37	0.20	0.20	0.04	Dark brown silt	Fill of ditch

Finds

Context	Find Number	Material	Period	Description
C37	E3461:037:1	Pottery	Late Neo/EBA	Fragment of Beaker ware

This ditch was orientated roughly north–south and ran at right angles to the other ditches.

One fragment of prehistoric pottery was recovered from C37 (fill of ditch C28). It has been identified as fine Beaker pottery that dates to the late Neolithic/early Bronze Age period (Grogan and Roche, Appendix 2.2). It is possible that the single sherd of Beaker pottery represents disturbance of nearby Beaker pits to the west of the ditch and that the artefact may be residual.

2.4 Phase 4 Undated Pits, postholes and stakeholes with no finds

2.4.1 Group of six postholes and stakeholes

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C23	N/A	0.16	0.15	0.23	Irregular cut	Cut of stakehole
C24	C23	0.16	0.15	0.23	Dark brown with greyish hue silty clay	Fill of stakehole
C26	N/A	0.19	0.16	0.08	Circular cut	Cut of posthole
C27	26	0.19	0.16	0.08	Silty dark brown clay	Fill of posthole
C29	N/A	0.31	0.23	0.13	Oval cut	Cut of poss. posthole
C30	C29	0.31	0.23	0.13	Light reddish brown silty clay	Fill of poss. posthole
C31	N/A	0.17	0.13	0.07	Oval cut	Cut of poss. stakehole
C32	C31	0.17	0.13	0.07	Dark brown clay	Fill of poss. stakehole
C33	N/A	0.13	0.13	0.13	Circular cut	Cut of poss. stakehole
C34	C33	0.13	0.13	0.13	Mid greyish brown silty clay	Fill of poss. stakehole
C35	N/A	0.18	0.13	0.22	Circular cut	Cut of poss. stakehole
C36	C35	0.18	0.13	0.22	Dark brown clayey sand	Fill of stakehole

A cluster of postholes and stakeholes were located adjacent to an entrance gap between field system ditches A and B (Figure 4). It is possible that they were supports for a gate or a small fence entrance made of wattle fencing but this is tentative. By themselves they do not seem to form any type of definitive structure.

Charcoal analysis of fill C30 (fill of possible posthole C29) indicated a predominance of oak (*Quercus* sp.). Oak may have been used as post material and the results suggest the presence and the exploitation of primary woodlands comprising specifically of oak (O'Carroll, Appendix 2.4).

2.4.2 Isolated pits, postholes and stakeholes

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C11	N/A	0.25	0.25	0.26	Circular cut	Cut of posthole
C12	C11	0.25	0.25	0.26	Mid brownish yellow sandy clay	Fill of posthole
C15	N/A	1.01	1.00	0.34	Oval cut	Cut of pit
C16	C15	0.7	0.42	0.14	Dark yellowish brown sand	Upper fill of pit
C17	C15	1.01	1.00	0.34	Greyish brown clayey sand	Bottom fill of pit
C21	N/A	1.00	0.5	0.40	Irregular cut	Cut of pit
C22	C21	1.00	0.5	0.40	Mid greyish brown silty clay	Fill of pit
C41	N/A	0.8	0.6	0.18	Oval cut	Cut of pit
C42	C41	0.40	0.40	0.09	Mid greyish brown silty sand	Upper fill of pit
C43	C41	0.25	0.22	0.09	Light yellowish brown clay	Fill of pit
C44	C41	0.80	0.50	0.18	Light brown grey silty clay	Bottom fill of pit

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C47	N/A	0.60	0.52	0.26	Irregular cut	Cut of pit
C48	C47	0.60	0.52	0.26	Brown silty sand	Fill of pit
C49	C60	1.50	0.95	0.09	Dark greyish brown clayey silt	Bottom fill of pit
C50	N/A	0.30	0.20	0.13	Oval cut	Cut of poss. posthole
C51	C50	0.30	0.20	0.13	Brownish grey silty clay	Fill of poss. posthole
C52	N/A	0.70	0.10	0.15	Oval cut	Cut of poss. pit
C53	C52	0.60	0.40	0.15	Dark brown clay	Fill of poss. pit
C54	C52	0.10	-	0.06	Pale grey/ orange sandy silt	Fill of poss. pit
C55	N/A	0.15	0.13	0.15	Circular cut	Cut of stakehole
C56	C56	0.15	0.13	0.15	Mid greyish brown silty clay	Fill of stakehole
C60	N/A	2.20	1.50	2.20	Sub-rectangular cut	Cut of pit
C61	C60	2.20	1.50	2.20	Brownish silty clay	Upper fill of pit

Due to the charcoal present in their fills and their regular shapes, pit C47 (located to the east of Ditch C) and the pit and posthole combination of C11 and C15 (to the south of Ditch B) were the most significant of the remaining features of the site. The remaining features were scattered and isolated and their archaeological significance is unclear.

Charcoal analysis of fill C12 (fill of posthole C11) indicated a predominance of oak (*Quercus* sp.). Oak may have been used as post material and the results suggest the presence and the exploitation of primary woodlands comprising specifically of oak (O'Carroll, Appendix 2.4).

2.5 Phase 5 Post-medieval Activity

2.5.1. Ditch

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C3	N/A	12.3	2.90	0.38	Linear cut	Cut of ditch
C4	C3	12.3	1.65	0.09	Dark brown sandy clay	Top fill of ditch
C5	C3	12.3	1.45	0.34	Dark grey sandy clay	Fill of ditch
C6	C3	12.3	1.24	0.31	Dark brown sand	Fill of ditch

Finds

Context	Find Number	Material	Period	Description
C5	E3461:005:1-3	pottery	Modern	willow pattern decorated plate fragment

Ditch C5 ran roughly northwest–southeast at the very east of the site cutting through Ditch B. It had steep sides at the west but more gradual to the east and a concave base. It was considered to be post medieval due to three sherds of post medieval pottery that were recovered from C5. These have been reassembled to represent one rim sherd of a willow patterned plate that dates to the nineteenth century (McCutcheon, Appendix 2.3).

2.5.2 Post-medieval Drain

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C13	N/A	12.5	0.66	0.23	Linear cut	Cut of ditch
C14	C13	12.5	0.66	0.23	Mid brown clay	Fill of ditch

Drain C13 was part of a linear field boundary that has been removed within the last 100 years. This ditch was evident on the third edition OS map. Drain C13 respects the alignment of ditch C3 (Section 2.5.1). Both cut the possibly prehistoric field system.

2.6 Phase 6 Topsoil

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
C1	N/A			0.3	Mid brown sandy silt	Topsoil

Finds

Context	Find Number	Material	Period	Description
Unknown	E3461:1	Chert	Early Mesolithic	Chert blade

The topsoil was a mid brown sandy silt that covered the whole site to an average depth of 0.3m. One remaining lithic was recorded as a stray find and has been identified as a chert blade that dates to the early Mesolithic (Sternke, Appendix 2.1).

3 SYNTHESIS

The synthesis presents the combined results of all of the archaeological analysis carried out at Danesfort 8. This includes the analysis of the physical and archaeological landscape, the compilation of information gathered during research into the site type, date, and function, and the results of the excavation and specialist analysis of samples taken during the course of on-site works.

3.1 Landscape Setting

3.1.1 The General Landscape

The topography of the region through which the route passes is generally flat with an average height of 70m O.D. The southern periphery of the route is bordered by Kilmacoliver (261m) and Carricktriss Gorse (314m), with Slievenamon (721m) further west. The Slieveardagh hills (340m) are visible on the western horizon in the south of the route and with the exception of Knockadrina Hill (140m), the enclosed landscape is made up of minor undulations. In the centre of the route Freestone Hill (130m) and Knocknagappoge (334m) further north are the significant uplands. A number of hills and mountains are visible in the distance to the east and west of this area of the landscape but the topography remains generally flat. To the north the Castlecomer Plateau influences a rise in the overall topography of the region. This expanse of terrain stretches along the north-east margins of Kilkenny, crosses the county border into Carlow and stretches northwards into Laois. This plateau consists of a variety of hills and peaks including Mounnugent Upper (334m), Baunreagh (310m), Knockbaun (296m), Brennan's Hill (326m) and Fossy Mountain (330m). These hills contain seams of anthracite coal as a result of millions of years of compression, and consequently Shales and Sandstones were formed which are evident throughout the plateau. Mining in the region began in the 17th century, continued for over 300 years and it is for what Castlecomer is best known. According to the Environmental Protection Agency soil maps of Ireland, the underlying bedrock of the entire region primarily consists of Carboniferous Limestone. However there is also a small amount of surface bedrock, sands, gravels, shales and sandstone Tills present along the route. The soil cover of the region is primarily composed of Grey Brown Podzolics, Renzinas and Lithosols. Additional soil types also present along the route include Brown Earths, surface Water Gleys and Ground Water Gleys.

The prevailing water courses within the landscape of the N9/N10 Phase 4 are the Rivers Nore and Barrow. The River Nore rises on the east slopes of the Devil's Bit in Co. Tipperary and flows eastwards through Borris-in-Ossory and then south through Co. Kilkenny, passing through the towns of Durrow (Laois), Ballyragget, Kilkenny, Bennettsbridge and Thomastown to join the River Barrow upstream of New Ross, Co. Wexford. It is 140 kilometres long and drains a total catchment of 1572 square kilometers and runs through the central and southern sections of the route. In the south of the route three main tributaries of the River Nore are evident. The Kings River flows east through Callan and Kells. It is joined by the River Glory which meanders on a north-south axis towards the western margins of the route landscape and the Little Arrigle River flows along the southern fringes. These rivers are flanked by low-lying valleys that are characterised by wet, marshy land. The condition of the soil improves further north beyond the King's River where the influence of these waterways declines. In the northern area of the route the River Dinin is a tributary of the River Nore flowing south-west from Brennan's Hill through the Castlecomer Plateau. The Plateau is the tableland that is the watershed between the Rivers Nore and Barrow (Lyng 1984). The River Barrow is the second longest river (193 kilometres) in Ireland after the River Shannon. It rises in the Slieve Bloom Mountains in Co Laois and flows east across bogs and lowlands and then turns south into the lowland immediately east of the Castlecomer Plateau. It passes through

Portarlinton, Athy, Carlow, and Graiguenamanagh and runs through northern section of the route. It is joined by the River Nore at New Ross. The Maudlin River is the notable tributary of the River Barrow within the landscape of the route and flows east from Old Leighlin, with minor tributaries of it flowing through Banagagole. There are also streams and minor watercourses present throughout the entire landscape and these waterways would have been a valuable resource to past communities and would also have had a major influence on settlement and the surrounding land use.

The physical landscape through which the N9/N10 Phase 4 passes can be divided into three principal areas defined by the main rivers and their catchments. The southern area is located in the undulating landscape on the western flanks of the Nore Valley. The central area is dominated by the fertile watershed between the Barrow and Nore systems in the hinterland of Kilkenny City. The northern area is located on the western flanks of the Barrow Valley overlooked by uplands to the north and west. Danesfort 8 is located in the central landscape area.

3.1.2 The Central Landscape

The central landscape of the route encompasses the environs of the Nore Valley and the hinterland of Kilkenny City. It includes 35 sites discovered during the Phase 4 excavations stretching from Danesfort 1 north-east to Dunbell Big 1 and along the Kilkenny Link Road from Rathgarvan or Clifden 1 west to Leggetsrath East 1. The underlying bedrock of the region is made up of Carboniferous Limestone sands and gravels, Carboniferous Limestone Tills, Shale's and Sandstone Tills. According to the EPA the natural soils of the region consist of Renzinas and Lithosols in areas dominated by underlying bedrock of Carboniferous Limestone sands and gravels. Soil cover consisting of Grey Brown Podzolics and Brown Earths is present in areas of underlying Carboniferous Limestone Tills and Surface Water Gleys and Ground Water Gleys are the soils present where the underlying bedrock is made up of Shale's and Sandstone Tills. This landscape is underlain not only by the Butlersgrove geological formation but also by the Ballyadams formation (thick-bedded calcarenitic wackestone on erosional surfaces). A large number of quarries in the area, some of which produced the distinctive blue 'Kilkenny limestone' that was used to construct the medieval and later city, occur around the city itself and extend southward into the dolomite formations along the Nore around Dunbell (Tietzsch-Tyler, 1994).

The glacial drift around the Kilkenny City hinterland, along the Kilkenny Link Road, comprises sandy (50–60%), gravely clay with a noticeably higher sand content than along the southern plain of the River Nore. As this section crosses existing watercourses, areas of granular deposits and several isolated sand and gravel lenses were noted. The floodplain of the Nore extends c. 80m on the western side and c. 50m on the eastern side, creating marsh and wet grassland within the immediate area. The nature of the glacial drift and geology, combined with the water sources and floodplains in the area, has resulted in the high quality of the local pastoral and arable agricultural landscape. The topography in this section remains between 50m and 80m OD creating open and expansive views over the confluence of the Nore and Kings Rivers. Mountains are visible on the horizon to the north, east and south-east. Freestone Hill (130m) is located directly to the North and Knocknaguppoge beyond this rises to 334m. Outside the parameters of this landscape lies Brandon Hill (513m) to the south-east and further to the east are the Blackstairs Mountains (735m) and Mount Leinster (795m). The River Nore is the prevailing water course of the region and the River Barrow flows along the margins to the east. The Kings River is located to the south and would have influenced activity in and around this area.

3.1.3 Site Specific Landscape

Parts of an ancient field system and some associated features were discovered under a pastured field with a gentle south-east aspect. The low-lying nature of the surrounding landscape meant that the site had prominent views of the Blackstairs Mountains 30km to the east and Slievenamon 30km to the south-west. The site was 100m south-west of a prehistoric structure at Danesfort 9 and 250m south-west of two Bronze Age sites set within a low lying basin at Danesfort 10 and Danesfort 11. It was 180m north-east of a group of Bronze Age pits at Danesfort 7, 380m north-east of further prehistoric activity at Danesfort 6 and 630m north-east of a Bronze Age settlement at Danesfort 5. It was also within 1km of three RMP sites but none of them are thought to be prehistoric (Figure 2).

3.2 The Archaeological Landscape

As part of the general research relating to sites along the scheme and the specific research relating to Danesfort 8, the known archaeology within the surrounding landscape was assessed in order to establish the level and type of activity in the surrounding area in the past. This included a review of information from the Record of Monuments and Places, previous excavations and other relevant documentary sources including mapping and other sites excavated as part of the N9/N10 Phase 4 scheme. The excavated archaeology at Danesfort 8 has been identified as being Neolithic and Bronze Age in date with residual Mesolithic activity represented in the form of a chert blade.

3.2.1 The General Mesolithic landscape of the Scheme

Evidence of hunter-gatherers in the Kilkenny Carlow region is limited. The most abundant evidence of their presence comes from flint scatters discovered primarily along river basins in both counties. The Ballylough Project centred in the Waterford Harbour region and the lower reaches of the Barrow River has identified large numbers of later Mesolithic and Neolithic settlements in the estuarine area, consisting almost entirely of lithic scatters (Zvelebil et al 1996; Gibbons 1990, 2). It is quite possible that hunter-gatherer groups operating from base camps in the Waterford Harbour area or from the central midlands would have exploited the rich faunal and fish resources which Kilkenny's major rivers undoubtedly contained (Gibbons 1990, 2). Since the completion of the Ballylough Project, further research has been carried out and the mid reaches of the River Barrow have also been investigated. This area has produced a lithic collection dominated by chert artefacts indicating a widespread use of local, non-flint materials in the Late Mesolithic and Neolithic in the region; the presence of imported flint suggests that the valley also served as a corridor for communications and exchange (Zvelebil *et al.* 1996, 13). Eight of the lithic scatters were assigned to the Mesolithic period, by virtue of producing characteristic retouched flake or blade artefacts (Ramsden 1991, 20). Since these discoveries archaeological excavations in both counties Kilkenny and Carlow have further contributed to our knowledge of Mesolithic settlement in the region. In 2002 a small quantity of Mesolithic flint was retrieved from river gravels recovered from the River Nore in Co. Kilkenny (Doyle 2004). Additionally, the construction of the N25 Waterford Bypass led to excavations in south Kilkenny that revealed ephemeral traces of lakeside huts dating to the Mesolithic period, as well as the discovery of associated flint artefacts including two Bann Flakes (Wilkins 2007). These discoveries are extremely significant as they demonstrate the first domestic structural evidence of the Mesolithic population in Co. Kilkenny. A late Mesolithic Bann Flake was also recovered close to burnt mound activity excavated at Site 17, Rathpatrick, in Co. Kilkenny, also part of the N25 Waterford Bypass scheme (Wren 2007). Further to these discoveries eight of the sites excavated by Headland Archaeology, to the east of Carlow town as part of the Carlow to Kilcullen portion of

the N9/N10 Road Scheme, have produced considerable stone tool assemblages also dating to the late Mesolithic period (Dunne and Moloney 2008).

The excavations along Phase 4 of the N9/N10 Kilcullen to Waterford Scheme: Knocktopher to Powerstown produced very little evidence of Mesolithic occupation. Early Mesolithic finds were recovered from five sites along the scheme, namely at Knockadrina 2, Danesfort 6, Danesfort 8, Danesfort 13 and Danganbeg 1 and late Mesolithic finds were retrieved from two sites, Danesfort 13 and Kilree 4. All of the sites that yielded early Mesolithic finds are located in the south of the route and they consisted mostly of blades that were recovered from secondary contexts on predominantly Bronze Age and early medieval sites, thus representing a residual component. A radiocarbon date also indicates early Mesolithic activity at Holdenstown 2; this came from a single pit/posthole (6199-6005BC; UBA 13110). The main focus of activity on this site was an early medieval cemetery but localised Bronze Age and Iron Age activity was also excavated. No diagnostic artefacts dating to the early Mesolithic period were recovered from Holdenstown 2 however, so the significance of the radiocarbon date is unclear. The material recovered from Danesfort 13 included two blade cores, blades, flakes and debitage. The site also produced a very large late Mesolithic chert blade. Two late Mesolithic butt-trimmed 'Bann' flakes were also recovered during the excavation of Kilree 4, which was located on the edge of the Nore floodplain. These artefacts are not from a secure context but the riverine location, possibly at a natural crossing point on the river, is typical of late Mesolithic settlement patterns. The Danesfort and Kilree finds add significantly to the pattern of Mesolithic activity in the region. The proximity of the two sites, two kilometres apart, suggests that this area may have been extensively exploited during this period. Also of note in the locale is a midden (KK023-041) recorded at Kilmog or Racecourse, situated two kilometres west of Kilree and two and a half kilometres north-west of Danesfort, further attesting the probability of a Mesolithic community in the region.

3.2.2 The General Neolithic Landscape of the Scheme

The Neolithic period in Ireland is generally understood to have occurred between 4000BC–2500BC. Archaeological evidence directly associated with settlement during this period had - prior to the upsurge in development-led excavations - been rather sparse in Kilkenny and Carlow as the soils in these areas may have been too heavy for Neolithic farming technology (Grogan 2004). However, recent excavations on the Waterford to Knocktopher portion of the N9/N10 Kilcullen to Waterford Road Scheme in south Kilkenny, as well as the rectangular houses discovered on the Kilcullen to Powerstown portion of the same road scheme in Co. Carlow, have added further insight into the Neolithic settlement of the region. Prior to the N9/N10 excavations archaeological activity in the Kilkenny/Carlow region was predominantly represented by a limited number of burials or tombs, most of which are Neolithic in date, such as the middle Neolithic megalithic tombs at the eponymous site of Linkardstown and at Baunogenasraid, Co. Carlow and Jerpoint West, Co. Kilkenny (Raftery, 1944; Raftery, 1972; 1974; Ryan 1974;).

The Central Neolithic Landscape

In contrast there is a relative absence of Neolithic monument types in the flatter fertile plains of central Kilkenny. Here the soils consist of grey brown podzols interwoven with smaller areas of gley which would have been less amenable to early farmers. A possible late Neolithic embanked enclosure (or henge) is located in Carran (Gibbons 1990, 6), to the east of the present region, and further east close to the Carlow border there is an unclassified megalithic tomb in Barrowmount (KK021-029). A similar enclosure occurred in Annamult (Gibbons 1990, 6; Prendergast 1954) to the south. Henges are one indication of increased ceremonial activity from the late

Neolithic period onwards (Gibbons 1990) and further evidence of the late Neolithic is apparent to the north-east, beyond this region in Rathbeagh, where an enclosure is located on the banks of the Nore (Condit and Simpson 1998, 50–51).

The N9/N10 excavations within this central landscape revealed direct evidence for settlement although this is represented mainly by artefacts. A possible temporary shelter was recorded at Danesfort 12 however, while a second possible structure was identified at Danesfort 9. At Danesfort 12, six postholes and two stakeholes formed a semi-circular shape, arced around a central posthole, which perhaps supported an internal post. The Danesfort 9 structure comprised a curvilinear slot-trench in which four depressions were noted that may have served as footings for wooden posts and three possible postholes; it has been dated to the late Neolithic period. Neolithic domestic settlement activity was also noted at Holdenstown 2, in the form of a series of isolated pits, postholes, hearths and a circular series of pits which contained flint and a broken polished stone axe. One of the postholes excavated been dated to 3791–3656BC (UBA 13112). The multi-period site of Danesfort 5 also revealed evidence of early prehistoric activity in the form of an isolated pit containing a single piece of Neolithic pottery. The lithic assemblage from Rathclogh 2, while containing small early and final Neolithic elements, dates predominantly to the middle Neolithic. Contemporary activity, probably associated with a domestic site, is represented at Danesfort 7, Danesfort 12 and Danesfort 13 by small quantities of globular bowls. Two pits from Templemartin 5 contained cremated remains encased in pottery vessels. Both vessels from the cremation pits are thought to date to the late Neolithic. These are plain Grooved Ware pots and represent some of the first evidence for funerary contexts of this period in Ireland. Evidence of the late Neolithic/Beaker period was recorded in this landscape in the form of pottery sherds. Beaker pottery was recovered from a domestic context at Danesfort 8 which is typical of this material, and the evidence at Danesfort, consisting of pits and postholes without any indication of a structural plan, is consistent with the record elsewhere in the country.

Conclusion

The broad regional pattern in the Neolithic in all three of the scheme landscapes indicates two core areas of settlement. In the north-east there is a concentration of activity along the upper Barrow Valley extending from the Goresbridge area northwards along the Barrow and the valley of the Burren River. This continued to be an important area into the middle and late Neolithic and the activity at Ballynolan 1 is on the southern edge of this landscape. To the south-west, on the upland fringes between the Nore and Suir Valleys, a second settlement concentration may reflect route-ways along the lower Nore/Barrow and Suir extending southwards towards the coast at Waterford. The central areas within the current scheme, consisting of lower lying terrain, appear not to have been attractive in this early period possibly a reflection of the heavier, and perhaps more thickly afforested, soils. Expansion into this landscape is, however, indicated by the Grooved Ware and Beaker contexts at Templemartin 5, Paulstown 2 and Danesfort and this heralds more intensive settlement in the Bronze Age.

3.2.3 The General Bronze Age Landscape of the Scheme

The archaeological record implies that the Irish Bronze Age (2500–800BC) population dramatically increased from that of the Neolithic and the evidence for permanent settlements with considerable longevity becomes much more substantial. In addition, a wide range of ritual and funerary activity associated with this settlement is apparent. The overall environmental record for Ireland suggests that there was a general climatic deterioration in the Bronze Age, bringing wetter, colder conditions; during this period there was also accelerated forest clearance with more intensive

habitation in the drier lowlands. As a result of extensive development-led projects across the country, understanding of settlement and burial patterns from the early Bronze Age has greatly developed. The distribution of the prehistoric evidence shows that the Rivers Nore and Barrow provided a focus for settlement. In the central part of the current portion of the N9/N10 Phase 4 the fertile Kilkenny lowlands have produced some Bronze Age archaeology, particularly in Danesfort and Ennisnag townlands. In the northern part of the scheme, intense settlement is indicated by both burnt mounds and barrows existing on the uplands of the Castlecomer Plateau and the flanking valleys of the Nore and Suir. Hillforts appear to be positioned to overlook the settlement activity, as well as the route of the Nore, the lower saddle to the north of the Slieveardagh Hills, and to the south of the spur surmounted by Clonmantagh. A considerable number of ringditches, cremation and inhumation burials (single and grouped), burnt mound sites, structures and domestic settlement evidence, have been recorded as part of the Bronze Age on of the N9/N10 Phase 4.

In the southern landscape the exposure of domestic Bronze Age settlement was less forthcoming than that of the northern landscape. There was little direct evidence for structures in the southern and central landscapes with the exception of a cluster of structures in the Danesfort area. Instead, most of the settlement activity that fell within the roadtake was noted in the northern landscape, further to the north of Kilkenny and in Carlow. Ritual and burial is a dominant feature of the Bronze Age in Kilkenny and Carlow as indicated by the presence of flat cemeteries, burial cairns, ringditches, mounds, barrows and hillforts throughout these counties. Freestone Hill situated in Coolgrange, Co. Kilkenny, in the centre of the present landscape is just one example of these sites. Along the lower part of the Nore Valley, and concentrated in the Foulksrath and Jenkinstown areas, the landscape is dominated by barrows (in this case more specifically ringditches). The contrasting locations of these site types most probably relate to differential landscape exploitation by the same communities with some activities, possibly associated with the seasonal use of upland pasture, confined to higher terrain and settlement and funerary activity taking place in the more sheltered lowlands.

The significant number of burnt mound sites discovered due to the N9/N10 excavations, combined with the previously known examples in the RMP reinforces the concept that Bronze Age activity in Kilkenny and Carlow was considerable. A total of 36 sites with evidence for burnt mound activity were uncovered during the N9/N10 excavations, with an additional example discovered, and preserved outside, the roadtake. The burnt mounds are focussed in the upland area, especially along the river and stream valleys, such as at Clashduff, Coan West and Muckalee on the Dinin and Douglas Rivers, and in the upland hinterland of Freestone Hill.

The distribution of the prehistoric evidence shows that the Rivers Nore and Barrow provided a focus for Bronze Age settlement. The patterning of human activity in the region indicates that these were also the principal route-ways in prehistory; both were navigable by small craft but they, and the major tributaries of the Nore - the Dinin and King's Rivers - were also conspicuous landscape features that facilitated accurate navigation through this landscape. The Barrow and Nore also provided access to wider networks beyond the region.

The Central Landscape: Domestic Settlement

The characteristics of the prehistoric settlement landscape change from the peripheral activity located alongside the River Nore floodplains of the southern landscape to a slightly more permanent and defined settlement in the central landscape. The direct domestic settlement evidence, albeit limited, indicates the presence of a Bronze Age community in the locality. As the evidence for peripheral

settlement activity including burnt mounds and funeral monuments was also limited, this area may have been dominated by small-scale settlement. The area contained soils amenable to farming and perhaps the area was cultivated, rather than settled. The majority of the evidence was centred upon the Danesfort area which may consequently represent an important focus of activity, perhaps with considerable longevity.

Danesfort 5 was located upslope from a burnt mound site in Croan (unexcavated and not a Recorded Monument) and contained three post-built, circular houses with southeast-facing porches and internal hearths. Structure 1 overlay the remains of postholes, stakeholes and a possible fireplace, which may have represented an earlier structure or shelter. The morphology of these houses, with their regularly spaced postholes, would indicate a middle-late Bronze Age date, as also suggested by middle to late Bronze Age pottery. At Dunbell Big 2 there was a shallow, circular gully with internal postholes, an east-facing entrance (representing a possible structure) and a pit containing middle Bronze Age domestic pottery. A small lithic assemblage, including a convex end scraper, flake and debitage, came from Holdenstown 1. Holdenstown 3 also produced sherds from two fine middle Bronze Age domestic vessels.

A major prehistoric complex was identified at Templemartin 5 where settlement, industry and burial continued episodically until the late Bronze Age. The site was situated on the top of a northwest–southeast ridge and overlooked the surrounding countryside of rolling pasture land. At this site a series of six ringditches were recorded, two of which extended beyond the area of excavation and are therefore preserved *in situ*. One of the ringditches (5.2m external diameter) was penannular with a gap of 0.8m in the south-east and an almost-centrally located hearth. The presence of a hearth, with evidence for *in situ* burning, suggests that this ‘ringditch’ was the foundation trench for the wall of a structure, rather than a funerary monument. It was post-dated by another ringditch which cut through its western side. Other peripheral and possible settlement activity, in the form of pits, Bronze Age pottery and postholes, was noted at Danesfort 7, 8 and 9, as well as Ennisnag 1.

The Central Landscape; Funerary and Ritual activity

The previously known Bronze Age burial record of this landscape included two prehistoric burials excavated by Cassidy in 1991 at Dunbell Big (Cassidy 1991a and b). There at Ringfort No. 5, a pit containing a badly damaged Bronze Age food vessel was found and the second burial was discovered within a cist. The cist fill was mainly a reddish loam and on its side at its base was an intact food vessel containing and surrounded by burnt bone (*ibid.*). Other significant funerary activity includes the single grave sites of Garrincreen to the west and Grange Lower (Waddell 1990, 103) to the south-east. Bowl burials have also been discovered at Wells, Slyguff and Kilgraney, Co. Carlow, sites that border the eastern margins of this study area.

Ten sites produced evidence for funerary activity in this section of the N9/N10, primarily in the form of ringditches: Danesfort 1, 12 and 13, Kilree 4, Holdenstown 1 and Templemartin 5. However, the Danesfort 12 and 13 ringditches have produced Iron Age dates. The Danesfort 1 ringditch had cremated bone in the middle of its three fills, at opposite sides of the ditch. At Danesfort 6 a deep, flat-bottomed, straight-sided circular pit containing sherds of at least three vase urns and a cremation pit with a marker post were identified. At Danesfort 7 a middle-late Bronze Age flat cemetery was characterised by eight circular pits associated with token cremations. There are also some previously recorded finds from the Danesfort area, in particular a lidded vase that was found in the 19th century. Graves (1860) refers to the discovery of three ‘sepulchral urns’ found in Danesfort by Lady Elizabeth and

Captain Wemyss, in the proceedings of the September meeting of the Kilkenny and South East of Ireland Archaeological Society in 1860; two of these are described as rare and highly ornamented. The exact location of these finds has been questioned but excavated evidence of Bronze Age funerary activity in this townland, as a result of the N9/N10, supports the authenticity of the discovery.

An isolated cremation pit at Kilree 1 was capped with a saddle quern. At Kilree 4 a double ringditch was located on the edge of the Nore floodplain overlooking a potential crossing point. The fills of both the external and internal ringditch contained charcoal, animal bone and burnt bone. A possible cremation pit was identified and contained a single piece of copper in the middle fill; charcoal, burnt bone and burnt clay were also found in the fills. A funerary complex was identified at Holdenstown 1 and consisted of three ringditches, one of which was badly truncated. The primary phase of one of the small ringditches contained cremated material; this ringditch was later re-used to enclose a small inhumation cemetery. The activity at Holdenstown 1 fits into a wider landscape as the adjacent site of Dunbell Big 2 contained evidence for Bronze Age settlement and Holdenstown 2 also had evidence of prehistoric activity.

Two pits from the multi-phased site Templemartin 5 contained cremations in Grooved Ware vessels. In addition there were six ringditches, at least five of which were later in date than the two cremation pits. These ringditches formed the main concentration of activity probably during the Bronze Age and focused the funerary action on a rise to the north-east of the site, at the edge of a north-south gravel ridge overlooked by Freestone Hill. One was penannular, and its entrance faced the south-east, typical of the Bronze Age period and it pre-dated the other ringditches. It is possible that this represents the slot trench of a structure rather than a funerary monument. Fifteen cremation pits were identified on the site: two of these dated to the late Neolithic. The main focal point of the cemetery was also the highest point of the site and was on the edge of a ridge overlooking the surrounding countryside, and two of the ringditches and a concentration of Bronze Age cremation pits were located here. Five of the cremation pits had evidence for marker posts/stones and two others had been formally capped or sealed with sterile material. The amount of bone contained in any of the above cremations could only be considered as a token deposit of any individual. Two cremations, Cremations 9 and 11, display evidence of structured deposition and have larger chunks of bone than the others, suggesting these two might be slightly earlier, perhaps middle Bronze Age in date. The rest of the cremations had only very small pieces of bone which suggests that they were more intensely processed: perhaps more indicative of a late Bronze Age date. Possible pyre remains were represented by deposits located to the south of the main concentration of cremations

The Central Landscape; Burnt mounds

Only seven sites with evidence of burnt mound activity were uncovered within the central landscape. Two of the three Danesfort sites were located close together (Danesfort 10 and 11) and a further two sites were also located in proximity to each other (Rathgarvan or Clifden 1 and Maddockstown 1). Burnt mound activity discovered at Danesfort 2 was situated on the southern slopes of a small valley near the Ennisnag tributary of the King's River in the southern end of this landscape. Holdenstown 4 was not located close to any other burnt mounds however it was situated on flat terrain with good visibility southwards to Holdenstown 3. Rathgarvan or Clifden 1 and Maddockstown 1 were located on flat, wet grassland. Rathgarvan or Clifden 1 had evidence for natural springs and a waterhole which would have supplied water on-site. The River Nore meanders NNW-SSE to the south-east of both these sites. Burnt mound activity was also excavated at Leggetsrath East 1

which was located on the eastern edge of the floodplain of a small river/stream. This site was also on marginal land but was surrounded to the north and south by well-drained pastureland. Other burnt mound sites recorded in the vicinity include those at Bishopslough West (KK024-037, 38), Maddockstown (KK020-052), Rathcash West (KK020-077, 78) and Cloghoge (KK020-039, 075, 76).

The Central Landscape; Route-ways and Communications

It is evident that the Nore, Dinin (and its tributary the Douglas) provided the landscape links within the extensive late Bronze Age settlement distribution to the north of Kilkenny extending from the lowlands up into the uplands of the Castlecomer Plateau. However, beyond this the Nore also leads to the lowland zone in mid-Laois with its core of prehistoric activity, as well as to the sources of the Suir and contact with other major settlement cores at, for example, Cahir and Cashel. To the south the King's River, rising in the Slieveardagh Hills, also provides access to the Suir Valley. While it is clear that the rivers and streams are a major feature of the settlement networks, the distribution of prehistoric activity shows that other route-ways were functioning at both a local and regional scale. Some of these were already important in the early Neolithic while others became prominent only in the Bronze Age. Among the most significant of these are those on the eastern side of the Barrow in the Goresbridge area that formed the core of a settlement zone that in the Bronze Age extended westwards across the river into the Paulstown area of Co. Kilkenny. The immediate environs of Kilkenny City also appear in the Bronze Age as a settlement focus. Additionally the major focal site on Freestone Hill, has been highlighted by the discovery of new sites on the lowlands immediately to the south around Rathcash.

The Central Landscape; Conclusions

While the central part of the N9/N10 Scheme through the fertile Kilkenny lowlands has produced some Bronze Age archaeology, particularly in the Danesfort and Ennisnag areas, this low level of activity reflects the known site distribution patterns. This picture provides an interesting contrast with the dense settlement in the early medieval and medieval periods but it is probably significant that the two nodes of Bronze Age settlement identified are in slightly more elevated terrain overlooking the Nore and King's Rivers. More significant in this study area is the rich array of Bronze Age funerary activity uncovered along this portion of the N9/N10 route.

3.2.4 The Site Specific Archaeological Landscape of Danesfort 8

There were a number of recorded monuments located in close proximity to Danesfort 8. An enclosure site (KK023-062) is recorded to the north, c. 200m away, and located c. 250m to the north-east, an enclosure site and a possible ridge and furrow site (KK023-062001, 2) are recorded. Further to the north-east, another enclosure site (KK023:063) is located c. 850m away, and c. 1.05km to the south-east, a further enclosure site is situated (KK023-082). To the south-west of Danesfort 8, a field system and linear earthwork (KK023-06001, 2) are recorded, c. 450m away, and c. 1.1km to the west, two ringforts (KK023-056, 57) and a dovecote (KK023-059) are recorded.

At Danesfort 8, two ditch alignments of an ancient field system were excavated, as well as a number of pits, postholes and stakeholes. There were a number of sites excavated in the immediate vicinity of Danesfort 8, as part of the N9/N10 Phase 4: Knocktopher to Powerstown works. At Danesfort 9, c. 100m to the north-east, a late Neolithic temporary shelter or the ephemeral remains of a domestic dwelling and a single pit were excavated, and at Danesfort 10, located c. 200m to the north-east, prehistoric hearths and pits were excavated. Beyond these sites, at Danesfort 11, located c. 300m to the north-east of Danesfort 8, features associated with burnt mound activity were excavated and at Rathclogh 1, located c. 400m to the north-

east, post medieval activity in the form of field drains and a field boundary were excavated. Rathclogh 2 was located c. 800m to the north-east and a number of pits and a single stakehole dating to the middle/late Neolithic period were excavated at this site.

A number of sites were also excavated to the south of Danesfort 8, as part of the N9/N10 Phase 4: Knocktopher to Powerstown works. At Danesfort 7, located c. 150m to the south-west Neolithic activity in the form of eight scattered circular pits, two stakeholes and one post pit were recorded. Middle Neolithic pottery sherds were also recovered at this site. At Danesfort 6, located c. 300m to the south-west, an early Bronze Age phase of activity comprising of a deep, flat-bottomed, straight-sided circular pit containing sherds of a least three different funerary urns, and a cremation pit with marker post were excavated. A later phase of occupation was defined by a concentration of postholes, stakeholes, pits, and boundaries clustered together on the western edge of a natural pool. At Danesfort 5, c. 500m further to the south-west, a Bronze Age settlement that comprised three post and beam roundhouses with internal hearths and southeast-facing porches were excavated. Some later activity was also identified in the form of a keyhole-shaped kiln, a bowl furnace and other pits containing heat-cracked stone and metalworking debris at the site. At Croan 1, located c. 1.15km to the south-west of Danesfort 8, a hearth and possible structure were excavated, however dates returned from a fill of the hearth indicate a post medieval date for this activity and located c. 1.3km to the south-west, medieval and post medieval activity were recorded at Danesfort 4.

3.3 Typological Backgrounds

3.3.1 Typological Background of Isolated Pits and Postholes

It can be difficult to get in to the prehistoric 'mind set' when interpreting archaeological remains - none more so than in the case of apparently isolated pits and postholes, sometimes containing 'ritually' deposited items.

Usually large postholes/pits are interpreted as load bearing or structural elements of a building however when these features are identified in relatively isolated contexts away from obvious structures that explanation is not plausible. What then was their function? Were they excavated purely as rubbish pits to deposit pottery or finds or did they have more significance? Were they a 'closing deposit' when a structure was being abandoned/dismantled? Even if the deposition was attributable to such actions what was the posthole/pit excavated for, what did it support? Totem poles or marker posts have been suggested for such anomalies in the past - indeed it has been noted that a totem pole would merely leave behind a seemingly unremarkable large posthole in the archaeological record (Barker 1993, 25).

It is possible that some isolated pits/postholes represent simple refuse pits associated with temporary settlement but may also have been excavated and backfilled as part of a ritual associated with the transient nature of people at the time. Edmonds suggests that pits were dug and filled as people left a place for a season, like the planting of crops, offering "the hope of renewal and return" (Edmonds 1999). Pollard also suggests that abandoning a settlement and moving on was an act of social transition, and a potential threat to social order. The digging and filling of pits may have been a way to counter this threat (Pollard 2001, 22-33).

3.3.2 Typological Background of Beaker Pottery and Pits

Beaker pottery was adopted in Ireland circa 2500/2400 BC (Brindley 2005, Carlin 2006, 2) and it is seen as a major trend that rapidly spread throughout Europe at this time (Carlin 2006, 2). Its emergence is currently considered to indicate the

development of a more hierarchical and individualistic society, whereby status was attained and represented by the competitive exchange and display of exotic goods (*ibid.*). In Ireland, Beakers follow the same stylistic evolution as in Britain, from the early All-Over Corded style, to the later more elaborate decorated forms (Malone 2001, 243). The typical Beaker site in Ireland consists of occupational spreads, and pits and postholes that often lack any recognisable pattern (*ibid.*).

In Ireland, Beaker pottery is predominantly found in pits along with artefacts such as lithics, burnt and unburnt animal bone, and the charred remains of cereals and fruits. 100 of the 210 sites yielding Beakers in Ireland have consisted almost exclusively of pits (Carlin, 2011). Sixty-two of these sites consisted solely of pits, while other types of features such as postholes, stakeholes, slot trenches, spreads, and metallised surfaces also occurred with the remainder (*ibid.*).

The vast majority of Irish Beaker pottery comes from pits that share many characteristics with Neolithic and Early Bronze Age pits in Britain and Ireland (Garrow 2006; Woodward 2002). The broad range of different forms of deposition within these features prevents the recognition of any purely 'domestic' component, furthermore, the presence of human bone as well as special objects such as polypod bowls, polished stone axes, arrowheads and scraper caches suggests that some of these were not regarded as simply rubbish or storage pits (Carlin, 2011). Despite this, our inability to confirm that all of these pits are indeed wholly representative of settlement activity has implications for the general acceptance that Beaker artefacts in Ireland are mainly found in a settlement or 'domestic' context (*ibid.*).

3.4 Summary of the Excavation Results

The excavation identified a pit and an adjacent posthole, both of which contained Beaker pottery. The pit was dated to the early Bronze Age through radiocarbon dating, which is contemporary with the pottery found. A nearby pit, that is possibly contemporary, contained some lithics including a possible pot-lid (Sternke, Appendix 2.2). A series of shallow linear ditches appeared to represent the remains of an earlier field system. While one of the ditch fills has been dated to the early Bronze Age, and another produced a single sherd of Beaker pottery, it is possible that this represents disturbance of additional Beaker pits and that the material is residual. However it must also be considered that the field system could be broadly contemporary with the Beaker pits. Gaps between the field system ditches may represent entrances and a number of postholes and stakeholes in the vicinity of one of these possible entrances may be the remains of a fence or a gate. Post medieval boundary ditches and drains were also recorded.

3.5 Summary of the Specialist Analysis

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

Lithics analysis

The lithic finds from Danesfort 8 are two early Mesolithic blades, five pieces of flint debitage and a pot lid. The early Mesolithic blades represent a residual component present in the topsoil and a ditch fill. The presence of the debitage pieces suggests that a limited lithic production may have taken place at the site during the early Bronze Age period.

Prehistoric pottery analysis

The site at Danesfort 8 produced 46 sherds (plus 55 fragments) representing at least 11 final Neolithic / early Bronze Age Beakers. Danesfort is a very important extension to our understanding of this pottery type in Ireland. The bulk of the assemblage came from the fill C45 of pit C25. The remaining pottery came from the fill C40 of an adjacent posthole C39 while a small fragment from the fill C37 of a nearby linear cut (ditch C3, C28). There are three decorated vessels (Nos 1–2 and Group VI). Group numbers (Roman numerals) refer to sherds from a vessel where the overall form is not identifiable principally due to the absence of sufficient feature (rim/ neck/ shoulder) sherds. While this generally indicates separate pots due to the nature of the material is it possible that some Vessel Groups may represent portions of vessels otherwise identified by Vessel Numbers.

Vessel 1 has the most common form of Beaker ornament consisting of bands of horizontal lines separated by blank zones. The more elaborate ornament on Vessel 2 also consists of bands of horizontal lines separated by blank zones but the decorative bands define rows of oval impressions and have hanging fringes of oblique thumbnail impressions. The precise decoration on this pot is unusual but a close parallel is provided by a pot or pots from concentration D at Knowth, Co. Meath.

Post-medieval pottery analysis

A single sherd of a so-called willow pattern decorated plate was retrieved from site.

Charcoal and Wood Species identification

Charcoal was examined from five features consisting of two postholes, two pits and a linear ditch associated with the late Neolithic period at Danesfort. Six wood taxa or trees were identified from samples. These were oak, hazel, blackthorn/cherry, ash, elm and pomoideae. Oak was dominant in all features except the pit C59 where hazel was identified most frequently. Oak may have been used as post material and hazel brushwood may have been selected as wattle lining for the pit. The results suggest the presence and the exploitation of primary woodlands comprising specifically of oak with ash and elm also present and exploited to a lesser extent. Scrub type taxa which includes pomoideae, hazel and blackthorn/cherry was also present and exploited in the surrounding landscape.

Analysis of Plant Remains

A total of two samples were examined from this site. Hazelnut shell fragments and cereal grains were recovered from both samples. Barley was the most common cereal type found, although a small quantity of oat grains was also identified. Barley was a common cereal type in the assemblages from other sites excavated in the area, in particular at the prehistoric sites of Danganbeg 1 E3606, Tinvaun 2 E3680, Danesfort 12 E3616 and Danesfort 5 E3456. It is a common cereal type in Bronze Age deposits.

Animal Bone Analysis

A total of 98 bone fragments recovered from C19 were submitted for examination. Only 27 fragments (27.6%) were identified and divided into species. The faunal remains assemblage contained bones from four recognisable species of dog, pig, sheep and goat. The faunal remains unusually did not display any evidence of gnawing, butchery or exposure to heat. No definite or statistically detailed conclusions could be drawn from the faunal remains assemblage retrieved due to its limited size and poor degree of bone preservation.

Radiocarbon Dating

Two samples were sent for AMS radiocarbon dating.

A sample of charred hazelnut shell from the pit fill C45 was radiocarbon dated. The 2 sigma calibrated result was 2457–2205BC (UBA 11001).

A sample of charred hazelnut shell from the pit fill C46 was radiocarbon dated. The 2 sigma calibrated result was 2476–2286BC (UBA 15558).

4 DISCUSSION AND CONCLUSIONS

4.1 Discussion

Danesfort 8 was located in well drained flat land that is currently extensively used for tillage and pasture. The nature of the physical landscape was obviously attractive to settlers in this area given the large number of archaeological sites excavated as part of the N9/N10 Phase 4: Knocktopher to Powerstown scheme.

The site has been dated to the Beaker phase, which spans the later Neolithic and early Bronze Age, and radiocarbon dating of two samples has placed the site in the early centuries of the Bronze Age. This is not the first evidence of human activity in the area. The nearby site of Danesfort 7 yielded a middle Neolithic date and sherds of similarly dated pottery from a series of pits, although no definitive structure was identified. Late Neolithic evidence was identified at Danesfort 9, located to the north-east of the site, where a small temporary shelter or hut was recorded. Further contemporary late Neolithic evidence was found at Rathclogh 2 to the north-east. Rathclogh 2 also had evidence of pits with lithics, possibly deliberately deposited. As with the earlier Danesfort 7 site, no definitive structure or plan could be identified.

The area was subsequently more intensively settled in the Bronze Age and into the early medieval and medieval periods. This follows a general pattern identified across the country. It is possible that there are more definitive settlements dating to the late Neolithic and its transition with the Bronze Age that have yet to be discovered in the area of Danesfort and that the excavated evidence at Danesfort 8 represents activity ephemeral to this. It is also possible that, as suggested by Grogan, the soils in these areas may have been too heavy for Neolithic farming technology (2004). In this instance the Neolithic activity would have been transient and temporary with the area being used by hunters in the Neolithic rather than settled and farmed. However, the evidence indicates that whether transient or temporal the Danesfort area was well settled in the middle and later Neolithic as well as into the Bronze Age. It is not surprising in this context that the Beaker period be represented in the Danesfort area given the continuity of settlement.

Isolated pits with Beaker pottery are not unusual in the wider archaeological record although they are sometimes identified as part of a domestic settlement or more seldom in a funerary context. The field system identified on the site produced 1 sherd of Beaker pottery, from the ditch in closest proximity to the pits, and one of the Ditches (B) produced a radiocarbon date contemporary with that of the Beaker pit. Danesfort is a very important extension to our understanding of this pottery type in Ireland as there are few previously recorded examples of Beaker pottery from the region. The closest example, coming from Paulstown 2 (E3632) to the north-east, was also excavated as part of the N9/N10 Phase 4 scheme, and A053-54 Baysrath 1 to the south-west which was located immediately south of the Phase 4 contract near Knocktopher. The latter site was excavated under Phase 2 of the N9/N10 works. Danesfort 8 is fairly typical of Irish Beaker sites as Beaker pottery is predominantly found in pits along with artefacts such as lithics. Carlin (forthcoming) identifies that 100 of the 210 sites yielding Beakers in Ireland have consisted almost exclusively of pits.

Sternke suggests that the blade artefacts recovered from the site are possibly diagnostically Mesolithic. If these artefacts are indeed of this period, it is significant, as there is no Mesolithic activity recorded in the immediate area – other than the occurrence of other small lithic fragments, similarly interpreted as being Mesolithic, from other excavations on the N9/N10 Phase 4. A Bann flake was recorded at Kilree 4 on the banks of the Nore several kilometres to the north-east, but this was not from

a Mesolithic context and was clearly residual. Further away, at Holdenstown 2, a small pit was radiocarbon dated to the Mesolithic. The site contains confirmed Neolithic activity as well as an extensive early medieval cemetery, so the significance of this date requires some further study. However there is no definitive evidence of Mesolithic activity on the many sites in close proximity to Danesfort 8, although the lithic blades may be residual from a Mesolithic site that survives outside the limits of the roadtake of the present scheme.

The shallow field boundary gullies or ditches clearly represent a defined field system, and the gaps between ditches are most likely entrances. A series of random posthole-like features adjacent one of these entrance areas between Ditches A and B may be associated with a gate or a fence. It is possible that the ditches are broadly contemporary with the Beaker pits and one radiocarbon date suggests that they are. The presence of a sherd of Beaker pottery within the fills of Ditch C could also point to contemporary activity. However, it is also possible that the single pottery sherd within the ditch is residual from a disturbed Beaker pit – given the proximity of this field ditch to the identified Beaker pit and pit containing lithics. The hazelnut fragment dated from Ditch B may also be residual. This possible later date for the ditches must be considered on the basis of their linear nature and the potential that they may have truncated earlier features. None of the ditches produced any other diagnostic material so it is not felt that they date to the post-medieval or modern period, so a prehistoric date must be considered, particularly as the alignment of the ditches bears no resemblance to current field boundaries or those on the first edition Ordnance Survey map.

4.2 Conclusions

Danesfort 8 comprised a pit with Beaker pottery, which dates to the late Neolithic /early Bronze Age transition. Sites with Beaker pottery often consist of isolated pits with no discernable pattern or associated structures. Of additional interest at Danesfort 8 is the presence of a possibly contemporary field system, although there is some uncertainty about the validity of the dated evidence and the possibility of it being residual from further disturbed pits. Danesfort 8 is a very important extension to our understanding of this pottery type in Ireland and is the first evidence of this pottery type in the wider area in conjunction with the evidence from Paulstown and Baysrath, both excavated along the route of the N9/N10 Phase 4 scheme.

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

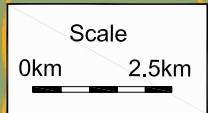
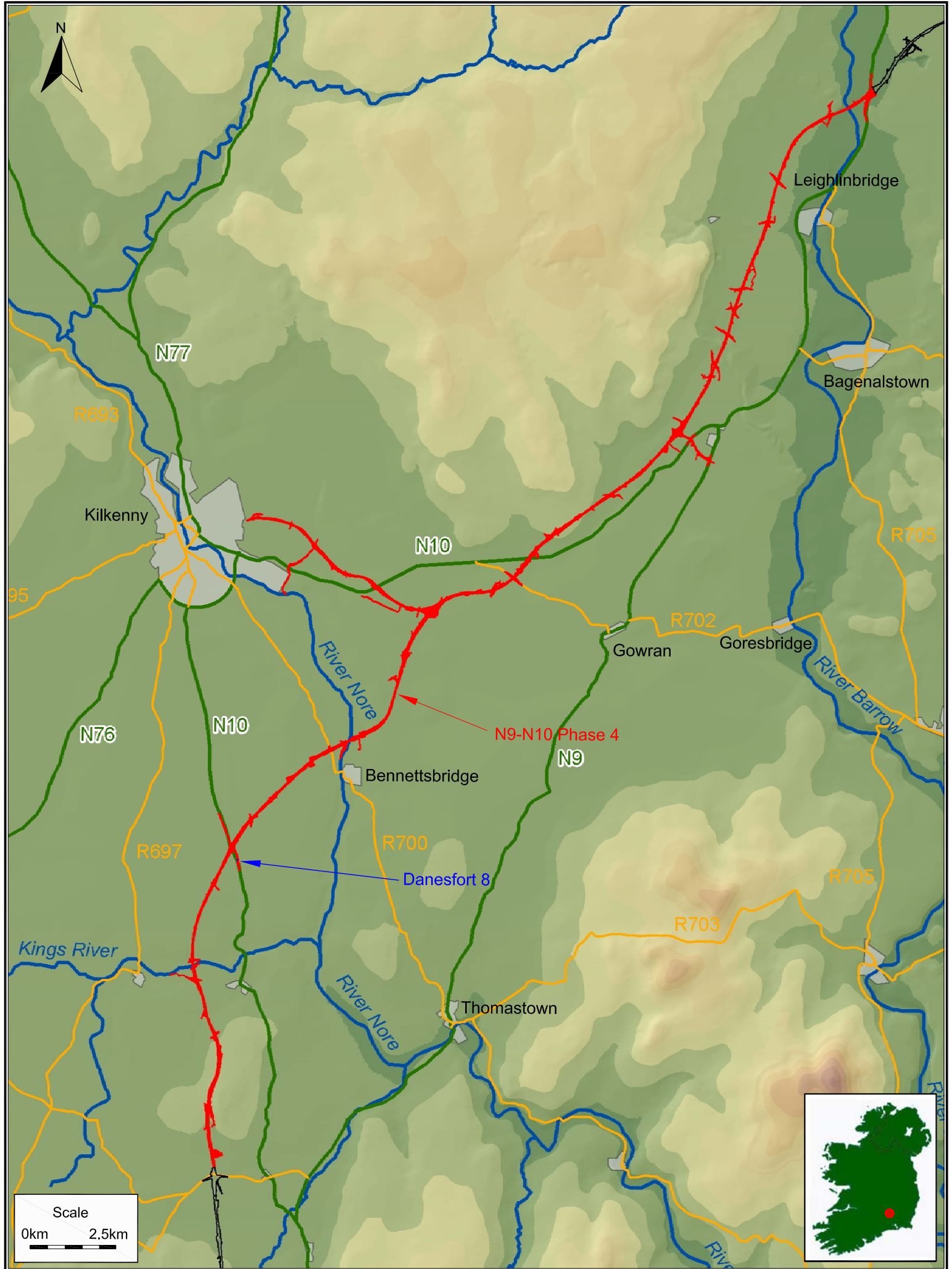
Topographical Files of the National Museum of Ireland, Kildare Street, Dublin 2.

Second Edition OS map

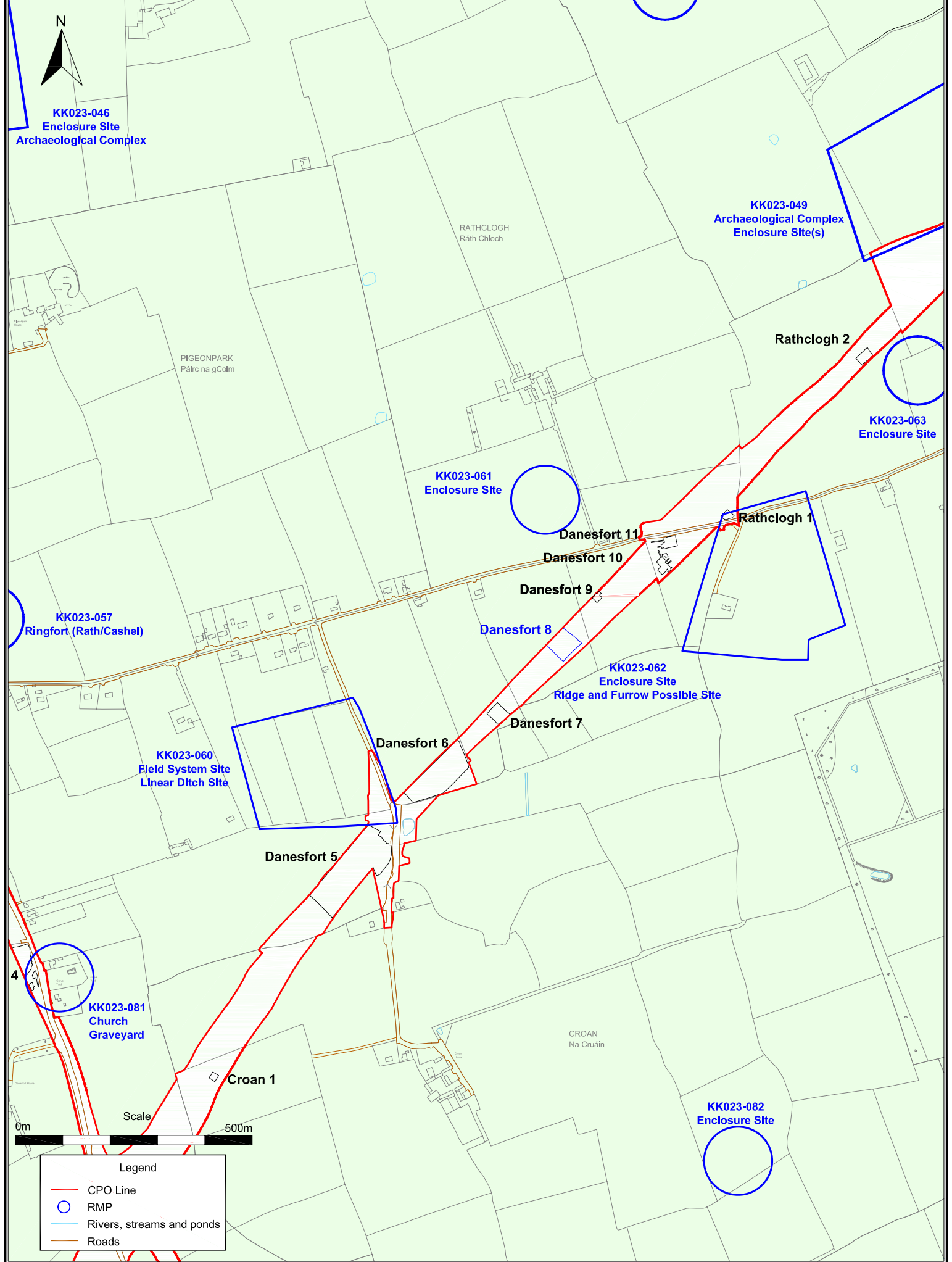
Electronic references

ENVision; *Environmental Protection Agency* Soil maps of Ireland

<http://www.epa.ie/InternetMapView/mapviewer.aspx>



	Title:	Danesfort 8 - General Site Location	Scale:	As Shown
	Project:	N9-N10 Phase 4: Knocktopher to Powerstown	Date:	31/05/10
	Client:	Kilkenny County Council	Produced by:	P Higgins
			Job No:	J2432
			Figure No:	1



Legend

- CPO Line
- RMP
- Rivers, streams and ponds
- Roads



Danesfort 9

Danesfort 8

Scale
0m 25m

Legend

- Waterways and ponds
- Roads
- Site Extents
- Field Boundary
- CPO



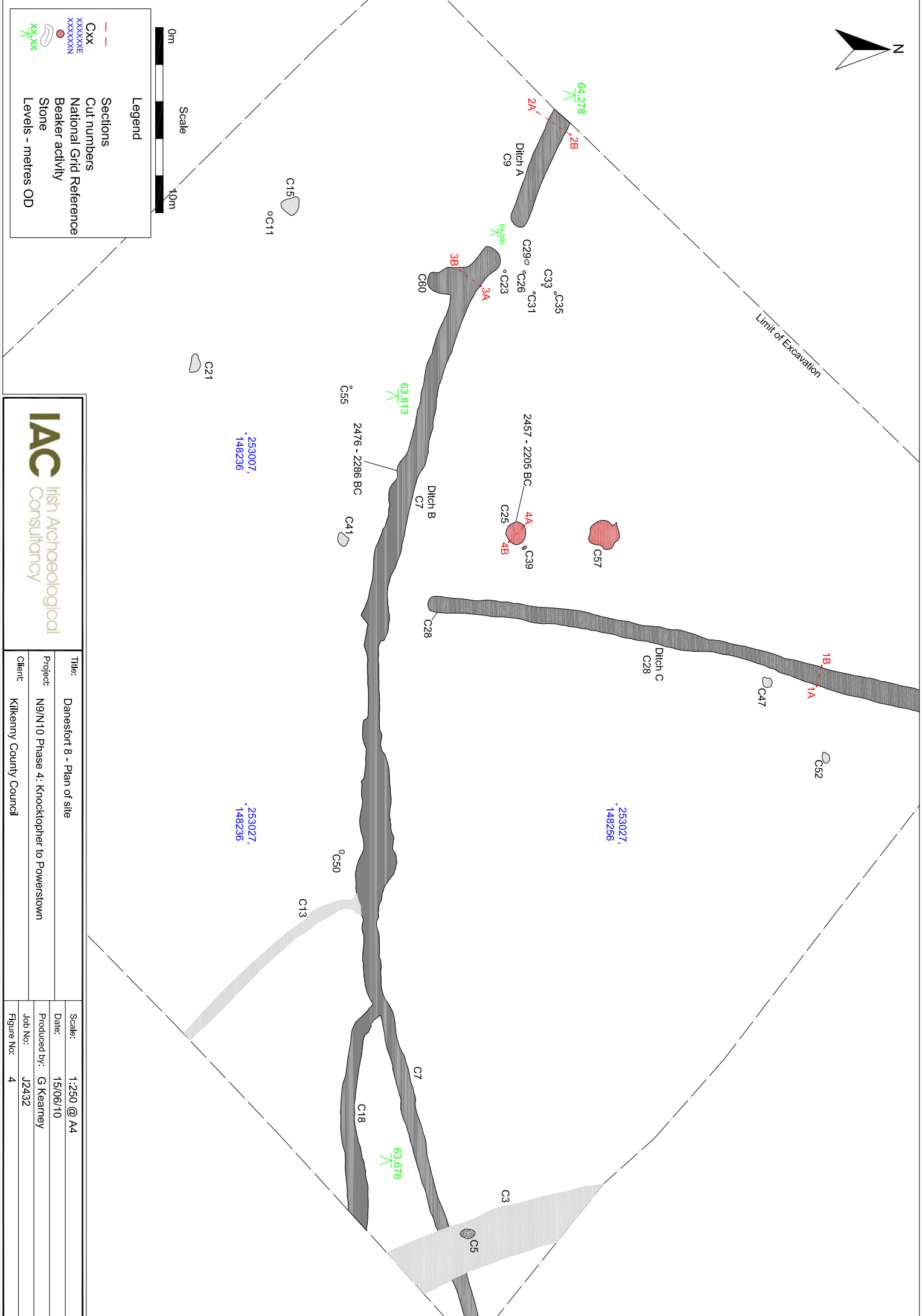
Limit of Excavation



Legend

Sections
Cut numbers
National Grid Reference
Beaker activity
Stone
Levels - metres OD

--- Gxx
xxxxxxx
xxxxxxx
xx:xx

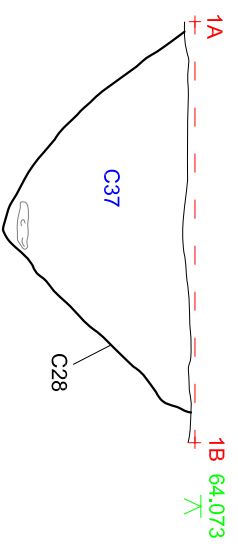


IAC Irish Archaeological
Consultancy

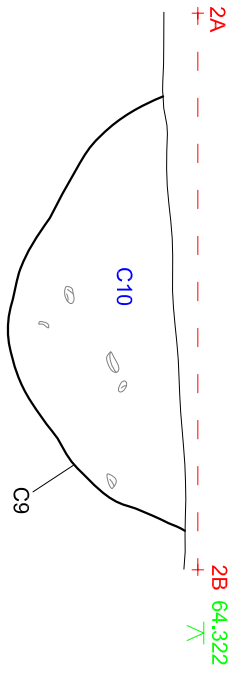
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Project:	N9/N10 Phase 4: Knocktopher to Powerstown
Client:	Kilkenny County Council

Scale:	1:250 @ A4
Date:	15/06/10
Produced by:	G Kearney
Job No:	J2432
Figure No:	4

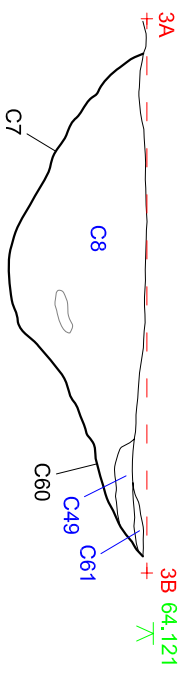
NNE facing section of C28



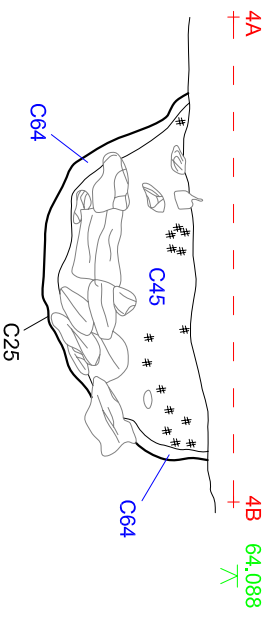
Southeast facing section of C9



Northwest facing section of C7, C60



Southwest facing section of C25

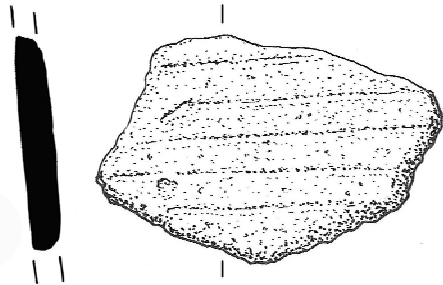


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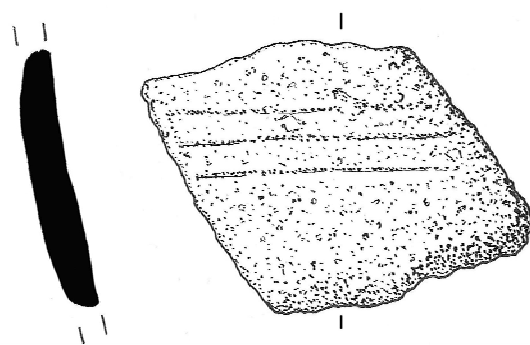
- Cxx Cut numbers
- Cxx Fill numbers
- # Stone
- xx,xxx Charcoal
- V Levels - metres OD

Title:	Danesfort 8 - Sections 1 - 4
Project:	N9/N10 Phase 4: Knocktopher to Powerstown
Client:	Kilkenny County Council
Scale:	1:20 @ A4
Date:	15/06/10
Produced by:	G Kearney
Job No:	J2432
Figure No:	5

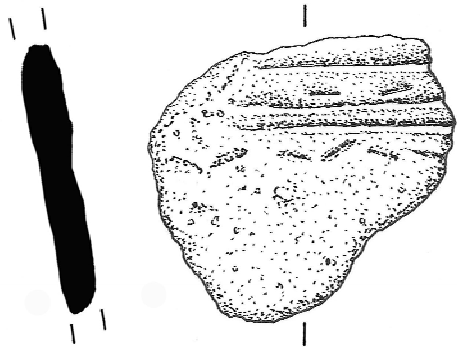
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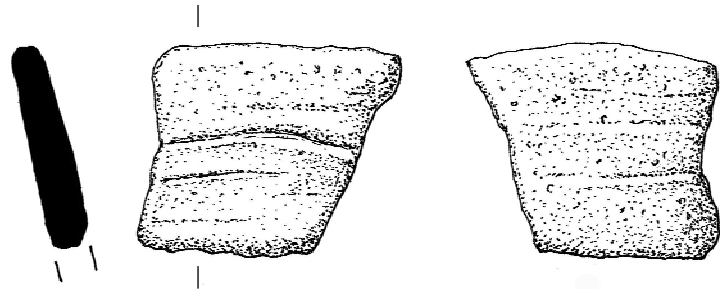
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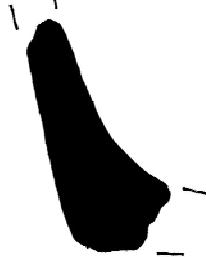
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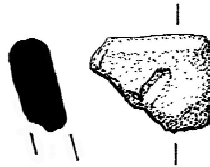
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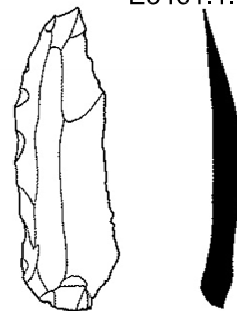
E3461:45:1



E3461:45:40



E3461:1:1



0m Scale 50mm

PLATES



Plate 1: Gently curving northeast–southwest aligned Ditch B, pre-excavation, facing west



Plate 2: Pit C25, mid-excavation, facing north-east



Plate 3: Entrance between Ditch B and Ditch C, post-excavation, facing WNW

APPENDIX 1 CATALOGUE OF PRIMARY DATA

Appendix 1.1 Context Register

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description	Context Above	Context Below
1	N/A			0.3	Topsoil	Mid brown sandy silt		
2	N/A				Subsoil	Light greyish yellow, compact sandy clay		
3	N/A	12.34	2.90	0.38	Cut of ditch	Post medieval / modern ditch, orientated NE-SW with sharp break of slope(at top), sides- steep at the western side and sloping on east, shape of base- gradual at the western side and not perceptible at the eastern side and flat, slightly concave shape of base.	C6	C2
4	C3	12.3	1.65	0.09	Top fill of ditch	Linear shape in plan, softly compacted dark brown sandy clay, contains occasional charcoal	C1	C5
5	C3	12.3	1.45	0.34	Fill of ditch	Linear shape in plan, loosely compacted dark grey sandy clay with a lot of stones.	C4	C3
6	C3	12.3	1.24	0.31	Fill of ditch	Softly compacted dark brown sand with occasional charcoal.	C4	C3
7	N/A	60.4	2.00	0.40	Cut of linear feature	Curved linear running east to west with sharp break of slope-top and gradual break of slope- base. Concave base and sloping sides.	C46	C2
8	C7	60.4	2.00	0.40	Fill of linear feature	Firmly compacted dark brown soil with pebbles and infrequent charcoal.	C1	C46
9	N/A	7.60	1.13	0.47	Cut of ditch	Linear ditch with sharp break of slope-top and not perceptible break of slope-base. Concave base and sides.	C10	C2
10	C9	7.60	1.13	0.47	Fill of ditch	Loosely compacted mid yellowish brown silty sand.	C1	C9
11	N/A	0.25	0.25	0.26	Cut of posthole	Circular with sharp break of slope-top and base, Vertical sides and flat shape of base	C12	C2
12	C11	0.25	0.25	0.26	Fill of posthole	Loosely compacted mid brownish yellow sandy clay with small bits of charcoal and stones throughout.	C1	C12
13	N/A	12.5	0.66	0.23	Cut of drain	Linear drain with a gradual break of slope-top and gradual break of slope-base, Flat shape of base and steep sides	C14	C2
14	C13	12.5	0.66	0.23	Fill of drain	Firmly compacted mid brown soil, no inclusions.	C1	C13
15	N/A	1.01	1.00	0.34	Cut of pit	Oval shape, sharp break of slope-top and gradual break of slope-base with vertical sides and flat base.	C17	C2
16	C15	0.7	0.42	0.14	Upper fill of pit	Firmly compacted dark yellowish brown fine sand with flecks of charcoal, gritty stones.	C1	C17
17	C15	1.01	1.00	0.34	Bottom fill of pit	Firmly compacted dark yellowish brown fine sand with flecks of	C16	C15

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description	Context Above	Context Below
						charcoal, gritty stones.		
18	N/A	12.4	1.10	0.28	Cut of ditch	Curving linear ditch with a sharp break of slope-top, vertical sides and flat base.	C20	C2
19	C18	12.1	0.60	0.28	Fill of ditch	Softly compacted mid brownish silty clay with pebble inclusions.	C1	C20
20	C18	12.1	0.48	0.25	Fill of ditch	Firm fine grain sediments, yellowish brown grey clay with charcoal included.	C19	C18
21	N/A	1.00	0.5	0.40	Cut of pit	Irregular in shape, sharp break of slope-top and gradual break of slope- base with concave sides, concave base.	C22	C2
22	C21	1.00	0.5	0.40	Fill of pit	Loosely compacted mid greyish brown silty clay.	C1	C21
23	N/A	0.16	0.15	0.23	Cut of stakehole	Irregular in shape, gradual break of slope-top and base, with steep sides leading to a concave base.	C24	C2
24	C23	0.16	0.14	0.23	Fill of stakehole	Firmly compacted dark brown with greyish hue silty clay with frequent charcoal.	C1	C23
25	N/A	1.27	1.10	0.40	Cut of pit	Irregular oval shape, gradual break of slope, sides not perceptible, with not perceptible base.	C64	C2
26	N/A	0.19	0.16	0.08	Cut of posthole	Circular in shape. Gentle break of slope-top and gradual break of slope- base with gradual sloping sides and concave base.	C27	C2
27	C26	0.19	0.16	0.08	Fill of posthole	Firm silty dark brown clay, frequent charcoal with pebbles.	C1	C26
28	N/A	29.8	1.20	0.49	Cut of linear feature	Curved linear running n-s feature, sharp break of slope-top with sloping sides, gradual break of slope-base leading to concave base.	C37	C2
29	N/A	0.31	0.23	0.13	Cut of poss. posthole	Oval on plan WSW-ENE, sharp break of slope-top with a gradual break of slope-base leading to a concave base. Steep sides from S and gradual from N	C30	C29
30	C29	0.31	0.23	0.13	Fill of poss. posthole	Softly compacted light reddish brown silty clay with moderate charcoal inclusions.	C29	C2
31	N/A	0.17	0.13	0.07	Cut of poss. stakehole	Oval in shape, gradual break of slope-top and base, with steep sides and concave base.	C32	C2
32	C31	0.17	0.13	0.07	Fill of poss. stakehole	Firmly compacted dark brown clay with infrequent charcoal.	C1	C31
33	N/A	0.13	0.13	0.13	Cut of poss. stakehole	Circular in plan, sharp break of slope-top with vertical sides, gradual break of slope-base with flat shape of base.	C34	C2
34	C33	0.13	0.13	0.13	Fill of poss. stakehole	Loosely compacted mid greyish brown silty clay with occasional charcoal.	C1	C33
35	N/A	0.18	0.13	0.22	Cut of poss. stakehole	Circular in shape, sharp break of slope-top with vertical sides, gradual break of slope-base leading to a concave base.	C36	C2

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description	Context Above	Context Below
36	C35	0.18	0.13	0.22	Fill of stakehole	Softly compacted dark brown clayey sand with few charcoal inclusions.	C36	C2
37	C28	29.8	1.20	0.49	Fill of linear feature	Linear, firmly compacted mid brown sandy silt with occasional stones and occasional charcoal to frequent towards the bottom	C38	C28
38	C37	0.20	0.20	0.04	Fill of linear feature	Softly compacted dark brown silt with some charcoal inclusions.	C1	C37
39	N/A	0.21	0.17	0.12	Cut of poss. posthole	Oval in shape, gradual break of slope-top with vertical sides, gradual bottom break of slope with flat base.	C40	C2
40	C39	0.21	0.17	0.12	Fill of poss. posthole	Loosely compacted dark greyish brown sandy clay with stone and charcoal inclusions.	C1	C39
41	N/A	0.8	0.6	0.18	Cut of pit	Gradual break of slope-top with sloping sides, break of slope at base is not perceptible leading to concave base.	C44	C2
42	C41	0.40	0.40	0.09	Upper fill of pit	Softly compacted mid greyish brown silty sand with grit.	C1	C43
43	C41	0.25	0.22	0.09	Fill of pit	Light yellowish brown clay, no inclusions.	C42	C44
44	C41	0.80	0.50	0.18	Bottom fill of pit	Softly compacted light brown grey silty clay with a small amount of charcoal and grit.	C41	C43
45	C25	1.24	1.10	0.38	Fill of pit	Softly compacted dark grey silty clay with stones and charcoal inclusions.	C1	C64
46	C7	9.10	0.57	0.19	Fill of linear feature	Firmly compacted dark grey clayey sand with charcoal and medium size stones inclusions.	C8	C7
47	N/A	0.60	0.52	0.26	Cut of pit	Irregular in shape, gradual break of slope-top with uneven sides and uneven base.	C48	C2
48	C47	0.60	0.52	0.26	Fill of pit	Loosely compacted brown silty sand with charcoal.	C1	C48
49	C60	1.50	0.95	0.09	Bottom fill of pit	Softly compacted dark greyish brown clayey silt with a lot of charcoal	C61	C60
50	N/A	0.30	0.20	0.13	Cut of poss. posthole	Oval in shape, not perceptible sides with concave base.	C51	C2
51	C50	0.30	0.20	0.13	Fill of poss. posthole	Softly compacted brownish grey silty clay with no inclusions.	C1	C50
52	N/A	0.70	0.10	0.15	Cut of poss. pit	Oval in shape, gradual break of slope-top and gradual to not perceptible break of slope-base with gently sloping sides and concave base.	C53	C2
53	C52	0.60	0.40	0.15	Fill of poss. pit	Loosely compacted dark brown clay with charcoal inclusions.	C1	C54
54	C52	0.10		0.06	Fill of poss. pit	Tightly compacted pale grey orange sandy silt with no inclusions.	C53	C52
55	N/A	0.15	0.13	0.15	Cut of stakehole	Circular in shape, gradual break of slope with steep sides and a tapered round pointed base.	C56	C2
56	C56	0.15	0.13	0.15	Fill of stakehole	Mid greyish brown silty clay with pebbles and charcoal.	C1	C55

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description	Context Above	Context Below
57	N/A	1.55	1.55	0.43	Cut of pit	Sub-circular in shape, gradual break of slope with vertical sides and straight base.	C58	C2
58	C57	1.55	1.55	0.30	Upper fill of pit	Softly compacted mid greyish brown clayey silt, no inclusions.	C1	C59
59	C57	0.75	0.75	0.25	Lower fill of pit	Loosely compacted dark greyish brown clayey silt with occasional charcoal.	C58	C57
60	N/A	2.20	1.50	0.33	Cut of pit	Sub rectangular in shape, sharp break of slope-top with concave sides and gradual break of slope- base to a concave base.	C61	C2
61	C60	2.20	1.50	0.25	Upper fill of pit	Firmly compacted brownish silty clay with no inclusions.	C1	C60
62	N/A	1.33	0.90	0.15	Cut of tree bole	Oval in shape, gradual break of slope with smooth sides, gradual lower break of slope with a flat base.	C63	C2
63	C60	1.33	0.90	0.15	Fill of tree bole	Loosely compacted dark brown silty sand with occasional charcoal.	C1	C62
64	C25	1.27	1.10	0.07	Fill of pit	Loosely compacted dark brown silty clay with stones and grease	C45	C25

Appendix 1.2 Catalogue of Artefacts

Registration Number	Context	Item No.	Simple Name	Full Name	Material	Description	No. of Parts
E3461:001	1	0	Blade	Chert blade	Chert	Chert blade produced on a single-platform blade core using a soft hammer stone. It displays traces of use-wear on its left and right edge	N/A
E3461:005:1-3	5	1	Plate	Sherd of modern ceramic plate	Ceramic	Rim sherd of willow pattern decorated plate broken into three pieces dating to the 19th century	N/A
E3461:037:1	37	1	Beaker	Sherd of Beaker pottery	Ceramic	Fragment of final Neolithic / early Bronze Age beaker.	N/A
E3461:040:1	40	1	Beaker	Sherd of Beaker pottery	Ceramic	Necksherd of final Neolithic / early Bronze Age beaker.	N/A
E3461:040:2	40	2	Beaker	Sherd of Beaker pottery	Ceramic	Bodysherd of final Neolithic / early Bronze Age beaker.	N/A
E3461:040:3	40	3	Beaker	Sherd of Beaker pottery	Ceramic	Bodysherd of final Neolithic / early Bronze Age beaker.	N/A
E3461:040:4	40	4	Beaker	Sherd of Beaker pottery	Ceramic	Fragment of final Neolithic / early Bronze Age beaker.	N/A
E3461:040:5	40	5	Beaker	Sherd of Beaker pottery	Ceramic	Fragment of final Neolithic / early Bronze Age beaker.	N/A
E3461:045:1	45	1	Beaker	Sherd of Beaker pottery	Ceramic	Base / anglesherd of final Neolithic / early Bronze Age beaker.	N/A
E3461:045:2	45	2	Beaker	Sherd of Beaker pottery	Ceramic	Lower bodysherd of final Neolithic / early Bronze Age beaker. Some decoration visible.	N/A
E3461:045:3	45	3	Beaker	Sherd of Beaker pottery	Ceramic	Bellysherd of final Neolithic / early Bronze Age beaker. Some decoration visible.	N/A
E3461:045:4	45	4	Beaker	Sherd of Beaker pottery	Ceramic	Much worn bodysherd of final Neolithic / early Bronze Age beaker.	N/A
E3461:045:5	45	5	Beaker	Sherd of Beaker pottery	Ceramic	Necksherd of final Neolithic / early Bronze Age beaker. Decorated with bands of horizontal lines.	N/A
E3461:045:6	45	6	Beaker	Sherd of Beaker pottery	Ceramic	Bellysherd of final Neolithic / early Bronze Age beaker. Decorated with bands of horizontal lines	N/A
E3461:045:7	45	7	Beaker	Sherd of Beaker pottery	Ceramic	Necksherd of final Neolithic / early Bronze Age beaker. Some decoration visible.	N/A
E3461:045:8	45	8	Beaker	Sherd of Beaker pottery	Ceramic	Bodysherd of final Neolithic / early Bronze Age beaker.	N/A
E3461:045:9	45	9	Beaker	Sherd of Beaker pottery	Ceramic	Rimsherd of final Neolithic / early Bronze Age beaker. Some decoration visible.	N/A

Registration Number	Context	Item No.	Simple Name	Full Name	Material	Description	No. of Parts
E3461:045:10	45	10	Beaker	Sherd of Beaker pottery	Ceramic	Much worn necksherd of final Neolithic / early Bronze Age beaker.	N/A
E3461:045:11	45	11	Beaker	Sherd of Beaker pottery	Ceramic	Much worn necksherd of final Neolithic / early Bronze Age beaker.	N/A
E3461:045:12	45	12	Beaker	Sherd of Beaker pottery	Ceramic	Bodysherd of final Neolithic / early Bronze Age beaker. Some decoration visible.	N/A
E3461:045:13-14	45	13	Beaker	Sherd of Beaker pottery	Ceramic	Much worn bodysherd of final Neolithic / early Bronze Age beaker.	N/A
E3461:045:15	45	15	Beaker	Sherd of Beaker pottery	Ceramic	A much worn necksherd of final Neolithic / early Bronze Age beaker.	N/A
E3461:045:16	45	16	Beaker	Sherd of Beaker pottery	Ceramic	Much worn bodysherd of final Neolithic / early Bronze Age beaker.	N/A
E3461:045:17	45	17	Beaker	Sherd of Beaker pottery	Ceramic	A much worn base / anglesherd of final Neolithic / early Bronze Age beaker.	N/A
E3461:045:18	45	18	Beaker	Sherd of Beaker pottery	Ceramic	Bodysherd of final Neolithic / early Bronze Age beaker	N/A
E3461:045:19	45	19	Beaker	Sherd of Beaker pottery	Ceramic	A much worn bodysherd of final Neolithic / early Bronze Age beaker.	N/A
E3461:045:20	45	20	Beaker	Sherd of Beaker pottery	Ceramic	Much worn bodysherd of final Neolithic / early Bronze Age beaker.	N/A
E3461:045:21	45	21	Beaker	Sherd of Beaker pottery	Ceramic	Base / anglesherd of final Neolithic / early Bronze Age beaker	N/A
E3461:045:22	45	22	Beaker	Sherd of Beaker pottery	Ceramic	Much worn bodysherd of final Neolithic / early Bronze Age beaker	N/A
E3461:045:23	45	23	Beaker	Sherd of Beaker pottery	Ceramic	Base / anglesherd of final Neolithic / early Bronze Age beaker	N/A
E3461:045:24	45	24	Beaker	Sherd of Beaker pottery	Ceramic	Bodysherd of final Neolithic / early Bronze Age beaker	N/A
E3461:045:25	45	25	Beaker	Sherd of Beaker pottery	Ceramic	Base / anglesherd of final Neolithic / early Bronze Age beaker	N/A
E3461:045:26-27	45	26-27	Beaker	Sherd of Beaker pottery	Ceramic	Much worn necksherd of final Neolithic / early Bronze Age beaker	N/A
E3461:045:28-29	45	28	Beaker	Sherd of Beaker pottery	Ceramic	Much worn bodysherd of final Neolithic / early Bronze Age beaker	N/A
E3461:045:30	45	30	Beaker	Sherd of Beaker pottery	Ceramic	A much worn bodysherd of final Neolithic / early Bronze Age beaker.	N/A


Registration Number	Context	Item No.	Simple Name	Full Name	Material	Description	No. of Parts
E3461:045:31-32	45	31	Beaker	Sherd of Beaker pottery	Ceramic	Bodysherd of final Neolithic / early Bronze Age beaker	N/A
E3461:045:33	45	33	Beaker	Sherd of Beaker pottery	Ceramic	Bodysherd of final Neolithic / early Bronze Age beaker	N/A
E3461:045:34	45	34	Beaker	Sherd of Beaker pottery	Ceramic	Bodysherd of final Neolithic / early Bronze Age beaker	N/A
E3461:045:35	45	35	Beaker	Sherd of Beaker pottery	Ceramic	Bodysherd of final Neolithic / early Bronze Age beaker	N/A
E3461:045:36	45	36	Beaker	Sherd of Beaker pottery	Ceramic	Much worn necksherd of final Neolithic / early Bronze Age beaker.	N/A
E3461:045:37	45	37	Beaker	Sherd of Beaker pottery	Ceramic	Much worn bodysherd of final Neolithic / early Bronze Age beaker.	N/A
E3461:045:38	45	38	Beaker	Sherd of Beaker pottery	Ceramic	Much worn bodysherd of final Neolithic / early Bronze Age beaker.	N/A
E3461:045:39	45	39	Beaker	Sherd of Beaker pottery	Ceramic	Bodysherd of final Neolithic / early Bronze Age beaker	N/A
E3461:045:40	45	40	Beaker	Sherd of Beaker pottery	Ceramic	Small rimsherd of final Neolithic / early Bronze Age beaker. Decoration of oblique scores, probably forming a band.	N/A
E3461:045:41	45	41	Beaker	Sherd of Beaker pottery	Ceramic	Rimsherd of final Neolithic / early Bronze Age beaker	N/A
E3461:045:42-53	45	42	Beaker	Sherd of Beaker pottery	Ceramic	Fragment of final Neolithic / early Bronze Age beaker	N/A
E3461:045:54-67	45	54	Beaker	Sherd of Beaker pottery	Ceramic	Fragments of final Neolithic / early Bronze Age beaker. Some decoration visible.	N/A
E3461:045:68-72	45	68	Beaker	Sherd of Beaker pottery	Ceramic	Much worn fragments of final Neolithic / early Bronze Age beaker	N/A
E3461:045:73-74	45	73-74	Beaker	Sherd of Beaker pottery	Ceramic	Bodysherd of final Neolithic / early Bronze Age beaker	N/A
E3461:045:75-95	45	75-95	Beaker	Sherd of Beaker pottery	Ceramic	Fragment of final Neolithic / early Bronze Age beaker	N/A
E3461:045:96-100	45	96-100	Debitage	Flintdebitage	Flint	Flintdebitage	N/A
E3461:058:1 & 3	58	1 & 3	Blade	Flint blade	Flint	Burnt flint blade produced on a single-platform blade core using a soft hammer stone. It is broken and refits on to the potlid E3461:058:2. It displays traces of use-wear on its left and right edge	N/A
E3461:058:2	58	2	Potlid	Flint potlid	Flint	Flint potlid	N/A

Appendix 1.3 Catalogue of Samples

During post excavation works specific samples were processed with a view to further analysis. A total of 16 soil samples totalling c. 43 Litres were taken from features at Danesfort 8 and all samples were processed by flotation and sieving through a 250µm mesh. The following are the ecofacts recovered from these samples:

Context #	Sample #	Feature type i.e. Structure A, hearth C45	charcoal	Seeds and charcoal	Burnt animal bone	animal bone	human bone	metallurgical waste	Other
C12	1	Posthole	0.5g						
C16	2	Pit	17.5g						
C19	3	Curvilinear				45.5g			
C24	4	Stakehole	0.1g						
C30	6	Stakehole	0.6g						
C34	7	Stakehole	0.3g						
C40	8	Posthole/stakehole	<0.1g						
C46	9	Linear C 17	10.4g						
C56	10	Pit	2.2g						
C53	11	Pit	2.6g						
C49	12	Pit	0.2g						
C45	13	Pit		1.4g					
C45	13	Pit	73.8g						
C46	9	Linear C 17		0.2g					
C59	14	Pit	3.0g						
C63	15	Pit	1.1g						

Appendix 1.4 Archive Index

Project: N9/N10 Phase 4		
Site Name: Danesfort 8, AR085		
Licence Number: E3461		
Site director: Richard Jennings		
Date: August 2011		
Field Records	Items (quantity)	Comments
Site drawings (plans)	14	4 pre-ex, 3 post-ex, 1 mid-ex, 9 post-ex and 6 sections
Site sections, profiles, elevations	6	
Other plans, sketches, etc.	0	
Timber drawings	0	
Stone structural drawings	0	
Site diary/note books		
Site registers (folders)		
Survey/levels data (origin information)	300	
Context sheets	64	
Wood Sheets	0	
Skeleton Sheets	0	
Worked stone sheets	0	
Digital photographs	105	
Photographs (print)	0	
Photographs (slide)	0	
Security copy of archive	Yes	Digital copy

APPENDIX 2 SPECIALIST REPORTS

Appendix 2.1 Lithics Report – Farina Sternke

Appendix 2.2 Prehistoric Pottery Report – Eoin Grogan and Helen Roche

Appendix 2.3 Medieval/Post Medieval Pottery – Clare McCutcheon

Appendix 2.4 Charcoal and Wood Report – Ellen O’ Carroll

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Appendix 2.1 Lithics Report – Farina Sternke

**Lithics Finds Report for E3461 Danesfort 8 (A032/061), Co. Kilkenny
N9/N10 Road Scheme – Phase 4
Farina Sternke MA, PhD**

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Table 1 Composition of the lithic assemblage from Danesfort 8 (E3461)

1 Introduction

A total of eight lithic finds from the archaeological investigations of a prehistoric site at Danesfort 8, Co. Kilkenny were presented for analysis (Table 1). The finds are associated with a prehistoric field system including two ditches a cluster of stakeholes and pits.

Find Number	Context	Material	Type	Condition	Cortex	Length (mm)	Width (mm)	Thickness (mm)	Complete	Retouch
E3461:1	Stray	Chert	Blade	Reasonably Fresh	No	39	12	4	Yes	
E3461:45:96	45	Flint	Debitage							
E3461:45:97	45	Flint	Debitage							
E3461:45:98	45	Flint	Debitage							
E3461:45:99	45	Flint	Debitage							
E3461:45:100	45	Flint	Debitage							
E3461:58:1+3	58	Flint	Blade	Burnt	No	40	18	4	No	
E3461:58:2	58	Flint	Potlid							

Table 1 Composition of the Lithic Assemblage from Danesfort 8 (E3461)

Methodology

All lithic artefacts are examined visually and catalogued using Microsoft Excel. The following details are recorded for each artefact which measures at least 20mm in length or width: context information, raw material type, artefact type, the presence of cortex, artefact condition, length, with and thickness measurements, fragmentation and the type of retouch (where applicable). The technological criteria recorded are based on the terminology and technology presented in Inizan *et al.* 1999. The general typological and morphological classifications are based on Woodman *et al.* 2006. Struck lithics smaller than 20mm are classed as debitage and not analysed further, unless they represent pieces of technological or typological significance, e.g. cores etc. The same is done with natural chunks.

Quantification

The lithics are six flaked pieces of flint, one flint potlid and one flaked piece of chert. Two artefacts are larger than 20mm in length and width and were therefore recorded in detail.

Provenance

The lithic artefacts were recovered from the topsoil, a pit fill (C45) and a ditch fill (C58).

Condition:

The lithics survive in reasonably fresh (E3461:1) and burnt (E3461:058:1+3) condition.

Technology/Morphology:

The artefacts are two blades, five pieces of debitage and a potlid.

BLADES

The assemblage contains one chert blade (E3461:1) and one broken flint blade (E3461:058:1+3). The blades were produced on single-platform blade cores using

soft hammer stones. Blade E3461:058:1+3 is broken into two pieces. These two pieces together refit on to potlid E3461:058:2. The blades measure 39mm and 40mm long, 12mm and 18mm wide and 4mm and 4mm thick, respectively. They both display traces of use-wear on their left and right edges. The blades are diagnostic and date to the early Mesolithic period (Woodman *et al.* 2006).

DEBITAGE

The presence of five pieces of burnt flint debitage suggests that knapping took place at the site. This debitage contains possible bifacial or re-sharpening pieces and probably date to the early Bronze Age.

Dating:

The assemblage is technologically diagnostic and dates to the early Mesolithic period (blades) and possibly also to the early Bronze Age (debitage).

Conservation

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

Comparative Material

The early Mesolithic component of the assemblage is similar in character to that recovered at Mount Sandel, Co. Derry (Woodman 1985) and Eleven Ballyboes, Co. Donegal (Costa *et al.* 2001).

Discussion

Flint is available in smaller nodules along the Wicklow, Wexford and Waterford coast or in the glacial tills in Co. Kilkenny in the form of remanié pebbles. The use of a single platform and a bipolar technology on small to medium sized pebbles is in parts the result of this availability. The flint used at Danesfort 8 is beach pebble flint which almost certainly derives from the Wicklow, Wexford or Waterford coast. The majority of these flint nodules are rather small pebbles with an average dimension of 30–50mm which are very suitable for the early Mesolithic single-platform blade technology, but as a result the regionally dominant split pebble bipolar is widely used in the Neolithic and Bronze Age (O'Hare 2005).

Given the technological composition of the Danesfort 8 assemblage, i.e. predominantly production debris, it can be suggested that it was produced, used and discarded *in situ*.

Summary

The lithic finds from the archaeological excavation at Danesfort 8, Co. Kilkenny are two early Mesolithic blades, five pieces of flint debitage and a potlid. The early Mesolithic blades represent a residual component present in the topsoil and a ditch fill.

The presence of the debitage pieces suggests that a limited lithic production may have taken place at the site during the early Bronze Age period.

This site makes a minor contribution to the evidence for prehistoric settlement and land use in Co. Kilkenny.

Recommendations for Illustration

- Blade (E3461:1) See Figure 6

References

Costa, L.-J., Sternke, F. and Woodman, P. C. 2001 2003 The Analysis of a Lithic Assemblage from Eleven Ballyboes, County Donegal. *Ulster Journal of Archaeology* 60, 1-8.

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Appendix 2.2 Prehistoric Pottery Report – Eoin Grogan and Helen Roche

N9/N10 Knocktopher to Powerstown
The Prehistoric Pottery Assemblage from Danesfort 8,
Co. Kilkenny (AR085, E3461)

Eoin Grogan and Helen Roche

Summary

The site at Danesfort 8 produced 46 sherds (plus 55 fragments, weight: 231.5g) representing at least 11 final Neolithic / early Bronze Age Beakers. Danesfort is a very important extension to our understanding of this pottery type in Ireland.

Context

The bulk of the assemblage (43 sherds and 52 fragments, weight: 219g) came from the fill (**45**) of pit **25** (Jennings 2008). The remaining pottery came from the fill (**40**) of an adjacent posthole (**39**) while a small fragment from the fill (**37**) of a nearby linear cut (ditch 3, **28**). (Throughout this report context numbers are in **bold**.)

The final Neolithic/ early Bronze Age Beaker

Danesfort produced 46 sherds (three rim-, 9 neck-, two belly-, five base-angle- and 27 bodysherds, plus 55 fragments, total weight: 231.5g) representing at least 11 fine Beakers (Nos 1–3, Groups I–VIII). The assemblage is much worn or abraded; this, and the number of vessels represented by small numbers of sherds, is typical of domestic assemblages. The condition of the material suggests that the pottery had been exposed on the surface, possibly in a midden, for some period before final deposition in these contexts.

Although no complete profiles could be determined all of the vessels appear to have soft S-shaped profiles. It was not possible to establish the size of any of the pots although all appears to have been medium sized and Vessel 3 had a base diameter of c. 70mm. The fabric is well-made and most vessels contain quartzite inclusions while several also had sandstone; Vessels 1–3 had both quartzite and mica inclusions, a feature of Beaker pottery in many areas but particularly typical of vessels from north Leinster. The pots are all fine walled with thicknesses of 5–8mm and generally buff to red-buff with grey or dark grey cores.

There are three decorated vessels (Nos 1–2 and Group VI). Vessel 1 has the most common form of Beaker ornament consisting of bands of horizontal lines separated by blank zones: in the case of Danesfort the lines appear to have been incised although comb impressed lines are also a feature of this decorative arrangement. Comparable examples include vessels from Knowth concentrations B, C, and D, Co. Meath (Eogan 1984, 266–68, fig. 94: 1565–95, fig. 95: 1596–1618, 277–80, figs 100–01, 294, fig. 110), Dalkey Island Site 5, Co. Dublin (Liversage 1968, 72, fig. 8: p51–52), Lough Gur, Co. Limerick, Sites C, D (including a reconstructed example; Ó Ríordáin 1954, 277–78, pls 36–37, and 394, fig. 36: 1–12), L (Grogan and Eogan 1987, 407, fig. 46) and 10 (Grogan and Eogan 1987, 451, fig. 68: V.5 and V.6).

The more elaborate ornament on Vessel 2 also consists of bands of horizontal lines separated by blank zones but the decorative bands define rows of oval impressions and have hanging fringes of oblique thumbnail impressions. The precise decoration on this pot is unusual but a close parallel is provided by a pot or pots from concentration D at Knowth, Co. Meath (Eogan 1984, 297, fig. 112: 3235A–F and 3235G–I).

Regional context

There are few recorded examples of Beaker pottery from the region. To the south there is a large assemblage at Baysrath, Co. Kilkenny (Grogan and Roche 2008a) while smaller quantities came from Paulstown (to the north-east; Elliot 2008; Grogan and Roche 2009) and Glashare (north-west), Co. Kilkenny, and Parknahown (north-west), Co. Laois (Roche and Grogan 2008; Grogan and Roche 2008b). The distribution of Beaker in the region suggests connections along the major rivers with Baysrath and Danesfort linked to Glashare and Parknahown by the Nore Valley and

the latter sites providing a link with major concentrations in the areas around Cashel and Caher in Co. Tipperary (Grogan and Roche 2006; forthcoming).

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- Ó Ríordáin, S. P. 1954 Lough Gur Excavations: Neolithic and Bronze Age Houses on Knockadoon. *Proceedings of the Royal Irish Academy* **56C**, 297–459.
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CATALOGUE

The excavation number E3461 is omitted throughout: only the context number, in **bold**, followed by the find number is included (e.g. **45:5**). Numbers in square brackets (e.g. [39, 73]) indicate that the sherds are conjoined. The thickness refers to an average dimension; where relevant a thickness range is indicated. Vessel numbers have been allocated to pottery where some estimation of the form of the pot is possible, or where the detailed evidence of featured sherds (e.g. rims, shoulders), decoration or fabric indicates separate pots. Group numbers (Roman numerals) refer to sherds from a vessel where the overall form is not identifiable principally due to the absence of sufficient feature (rim/ neck/ shoulder) sherds. While this generally indicates separate pots due to the nature of the material it is possible that some Vessel Groups may represent portions of vessels otherwise identified by Vessel Numbers. Individual sherds that could not be definitely ascribed to either category are described separately; these may come from further pots that are not, however, included in the calculations of minimum and maximum numbers of vessels. The inclusions were examined using simple magnification and in some cases attribution reflects probable, rather than certain, identification.

Final Neolithic/ early Bronze Age Beaker

Phase 2, prehistoric activity: pits and postholes

Fill 45 of pit 25

Vessel 1. This is represented by 9 much worn sherds (1 necksherd: **45:5**, 1 bellysherd: **45:6**; 5 bodysherds: **45:18**, 24, 31–32, 34; 2 base-anglesherds: **45:23**, 25; 12 fragments: **45:42–53**) from a vessel with a gently curved S-shaped profile. The gritty cream-buff fabric has an occasionally grey-buff core and inner surface (especially towards the lower part of the vessel). There is a low content of quartzite and mica inclusions ($\leq 2.32 \times 1.5\text{mm}$). Neck thickness: 5.38mm; body: 5.03mm; weight: 58g.

Decoration The neck and belly have bands of up to 5 horizontal lines separated by blank zones; although much worn the lines appear to be incised.

Vessel 2. This is represented by 5 much worn sherds (1 rimsherd: **45:9**; 1 necksherd: **45:7**, 1 bellysherd: **45:3**; 1 bodysherd: **45:12**; 1 lower bodysherd from close to the base: **45:2**; 14 fragments: **45:54–67**) from a vessel with a simple rounded rim and a gently concave neck. The gritty buff to red-buff fabric has an occasionally grey-buff core and inner surface. There is a low content of quartzite and mica inclusions ($\leq 1.5 \times 1\text{mm}$, up to $3.57 \times 3.06\text{mm}$). Neck thickness: 6.71mm; body: 6.39mm; weight: 39g.

External decoration Although much worn there is a band of up to 5 horizontal lines on the neck with a blank zone beneath; although much worn the lines appear to be incised. On the upper belly there is a panel of four, apparently incised, horizontal lines. The central lines are slightly more widely spaced and between these there are regularly spaced, horizontally arranged, oval impressions. Beneath the panel is a fringe of alternating oblique thumbnail impressions.

Internal There are three very faint horizontal lines immediately beneath the rim: comparisons with similar Beakers suggest these are cord-impressed lines.

Vessel 3. This is represented by 4 much worn sherds (1 necksherd: **45:15**, 1 base-anglesherd: **45:17**; 2 bodysherds: **45:19**, 30) from a vessel with a gently concave neck and a flat base with a slight upright foot. The buff to red-buff fabric has a grey core and an occasionally grey-buff inner surface. There is a very low content of

quartzite inclusions ($\leq 1.5 \times 1\text{mm}$, occasionally up to $3.17 \times 2.5\text{mm}$) with occasional sandstone and mica. Neck thickness: c. 5.96mm; body: 7.53mm; weight: 26g. Maximum external rim diameter: c. 70mm

Group I. This is represented by a single base-anglesherd (**45:1**) from a vessel with a flat base and a slightly rounded foot. The light buff to grey-buff fabric has a grey core and a low content of quartzite ($\leq 1.5 \times 1\text{mm}$, occasionally up to $3.34 \times 2.5\text{mm}$) and occasional sandstone inclusions (up to $4.94 \times 3.04\text{mm}$). Body thickness: c. 7.2mm; weight: 12g.

Group II. This is represented by 5 much worn sherds (2 necksherds: **45:3**, 10; 3 bodysherds: **45:4**, 20, 38) of light buff fabric with a grey to grey-buff grey core and inner surface. There is a very low content of occasional quartzite inclusions (up to $2.24 \times 2\text{mm}$). Neck thickness: 6.29; body: 6.83 (upper) – 9.21mm (lower); weight: 24g.

Group III. This is represented by 7 much worn sherds (2 necksherds: **45:11**, 36; 5 bodysherds: **45:2**, 13–14, 16, 37) of light buff to red-buff fabric with a grey-buff core and a very low content of quartzite ($\leq 1\text{mm}$) and occasional sandstone inclusions (up to $2.57 \times 2.55\text{mm}$). Neck thickness: 5.53–5.78mm; body: 4.91–5.54mm; weight: 14g.

Group IV. This is represented by 5 much worn sherds (2 necksherds: **45:26–27**; 3 bodysherds: **45:22**, 28–29; 5 fragments: **45:68–72**) of grey-buff fabric with a grey core and a very low content of quartzite inclusions ($\leq 1\text{mm}$). Neck thickness: 5.31mm; body: 6.10mm; weight: 18g.

Group V. This is represented by 6 small bodysherds (**45:33**, 35, [39, 73], 74) of grey-buff fabric with a grey core and a very low content of quartzite inclusions ($\leq 1\text{mm}$). Body thickness: 6.78mm; weight: 8g.

Group VI. This is represented by a single small rimsherd (**45:40**) from a vessel with a rounded rim and apparently upright neck. The compact dark grey-buff fabric has a dark grey core and a very low content of quartzite inclusions ($\leq 1\text{mm}$). Neck thickness: 6.5mm; weight: 1g.

Decoration There are oblique scores, probably forming a band, on the neck.

Other sherds

Small much worn rimsherd (**45:41**) possibly from Vessel 2 or 3; weight: 1g.

There are a further 21 fragments (**45:75–95**); weight: 18g.

Fill 40 of posthole 39

Group VII. This is represented by 2 sherds (1 necksherd: **40:1**; 1 bodysherd: **40:3**; 1 fragment: **40:4**) of compact light buff fabric with a very low content of quartzite inclusions ($\leq 1\text{mm}$). Neck thickness: 8.06mm; weight: 7g.

Group VIII. This is represented by a single bodysherd (**40:2**; 1 fragment: **40:5**) of gritty compact buff fabric with a grey-buff core and inner surface. There is a medium content of quartzite inclusions ($\leq 3 \times 2\text{mm}$). Body thickness: 7.05mm; weight: 5g.

Fill 37 of ditch 3 (28)

Single fragment (**37:1**); weight: 0.5g.

Vessel No.	Context/feature	Number of sherds	Rimsherds	Necksherds	Base-anglesherds	Bellysherds	Bodysherds	Fragments	Inclusions	Vessel size (mm)	Weight (g)	Pottery type	Decorated
1	45	9	0	1	2	1	5	12	Q M	M	58	Fine Beaker	✓
2	45	5	1	1	1	1	1	14	Q M	M	39	Fine Beaker	✓
3	45	4	0	1	1	0	2	0	Q S M	Ba. 70	26	Fine Beaker	-
Group I	45	1	0	0	1	0	0	0	Q S	M	12	Fine Beaker	-
Group II	45	5	0	1	0	0	3	0	Q	-	24	Fine Beaker	-
Group III	45	7	0	2	0	0	5	0	Q S	-	14	Fine Beaker	-
Group IV	45	5	0	2	0	0	3	5	Q	-	18	Fine Beaker	-
Group V	45	6	0	0	0	0	6	0	Q	-	8	Fine Beaker	-
Group VI	45	1	1	0	0	0	0	0	Q	-	1	Fine Beaker	✓
Other	45	1	1	0	0	0	0	21	-	-	19	Fine Beaker	
Subtotal		43	3	8	5	2	25	52			219	Pit 25	
Group VII	40	2	0	1	0	0	1	1	Q	-	7	Fine Beaker	-
Group VIII	40	1	0	0	0	0	1	1	Q	-	5	Fine Beaker	-
Other	37	0	0	0	0	0	0	1	-	-	0.5	Fine Beaker	

Q quartzite M mica D dolerite Ba. Base diameter

Table 1. Details of pottery including individual vessels from Danesfort 8, Co. Kilkenny.

Vessel	Context	Sherds to draw	Section only	Photograph
1	45	N. 45:5, Be. 45:6		
2	45	N. 45:8-9 Draw inner surface of 45:9 also		
Group I	45		B-A. 45:1	
Group VI	45	R. 45:40		

R. rim N neck Be. Belly B-A. base-angle

Table 2. Suggestions for illustration: Danesfort 8, Co. Kilkenny.

Appendix 2.3 Medieval/Post Medieval Pottery – Clare McCutcheon

A Note on the Pottery From Danesfort 8 (E3461)
N9/N10 Knocktopher to Powerstown, Co. Kilkenny

Clare McCutcheon

Introduction:

A total of three sherds were presented for study. Following identification and reassembly this was reduced to a single sherd.

Transfer printed ware

Transfer printing in monochrome colours was developed in Battersea from c.1763 onwards (Savage & Newman 1985, 296). Underglaze blue or black, red, lilac or sepia overglazes are typical of the earlier period with polychrome printing developed during the nineteenth century (*ibid.*).

The sherd from this site is the rim of a so-called willow pattern decorated plate.

Reference:

Savage, G. and Newman, H. 1985 *An illustrated dictionary of ceramics*. Thames and Hudson, London.

Appendix 2.4 Charcoal and Wood Report – Ellen O’ Carroll

Site Name- Danesfort 8
Excavation number –E3461 AR85
County – Kilkenny
Author- Ellen O’Carroll
Date –18/11/09

Introduction

Five charcoal samples were identified and analysed from excavations associated with Late Neolithic agricultural activity at Danesfort 8, Co. Kilkenny as part of the resolution of the N9/N10 Kilcullen to Waterford Scheme, Phase 4 – Knocktopher to Powerstown. The site at Danesfort 8 consisted of two ditch alignments of an ancient field system. One piece of prehistoric pottery was recovered from the ditches and a further 95 pieces of Beaker pottery were found in an adjacent pit (Jennings 2008). The fill, C45, of a pit C25 has been dated to the late Neolithic period CAL 2457–2205BC.

Charcoal analysis is an important component of any post-excavation environmental work as it can help in re-constructing an environment hitherto lost to us, although this must be done with caution as sufficient sample numbers are required for a complete and full understanding of the immediate environment. Keepax suggests 50 charcoal samples in a European temperate climate (Keepax 1988). Charcoal and wood are also analysed and identified to determine what species are used and selected for particular functions on site i.e. post-holes, wall posts, firewood, burnt remains of wattle and other structural uses.

The results of the analysis from Danesfort 8 will later form part of an overall scheme-wide charcoal study for the N9/N10 (Lyons, O'Donnell & OCarroll *forthcoming*).

Methodology (After IAC Ltd)

Processing

- A mechanical flotation tank using a pump and water recycling system is used for soil flotation
- The soil is washed using a 1mm mesh in the flotation tank and a 300 micron and 1mm sieve is used to catch floated material.
- The volume of all soil samples are recorded in litres using a measuring jug.
- The sample is then placed into the 1mm mesh in the flotation tank, the tank is then filled with water and the sample washed. Any large lumps of soil can be carefully broken down by hand, but the jets of water in the flotation tank gently clean the rest of the sample.
- Once the sample is clean (just stones, charcoal, artefacts remaining in the mesh) the tank is fill up with water and at this stage any floating material (charcoal, seeds etc) should flow over the spout and into the sieves.
- The retent is then gently poured into a labelled tray (containing site code, site name, sample number and context number) and place on a shelf to dry.
- The flots are securely packaged in tissue, labelled and hung up to dry. This prevents any loss of light material (seeds) which could result once the flots are dry and being moved (if they are dried on trays).
- Before washing a new sample all equipment used (measuring jugs, 1mm mesh, sieves etc) are thoroughly washed using clean water.
- The large black settling tanks (and water) are cleaned between every site, or if a large site is being processed, every 1-2 weeks.
- Any samples containing high clay content will be soaked in water for 1-2 days to aid the sieving process.

Charcoal identification

The identification of charcoal material involves breaking the charcoal piece along its three sections (transverse, tangential and radial) so clean sections of the charcoal 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. Fifty fragments were identified from each sample, where possible.

A number of wood taxa cannot be identified to species or sub-species level anatomically. These include Sessile oak (*Quercus petraea*) and pedunculate oak (*Quercus robur*); Hairy birch (*Betula pubescens Ehrh*) and silver birch (*Betula pendula Roth*) and English elm (*Ulmus procera*) and wych elm (*Ulmus glabra*), all of which are native to Ireland. In addition, taxa referred to as pomoideae in this report include apple, pear, hawthorn and mountain ash, which cannot be identified microscopically. There are also over 13 species of willow (*Salix* sp) and these species can-not be differentiated microscopically.

Details of charcoal recording

Each species was identified, bagged together and then weighed and each fragment counted. Insect channels and holes as well as fungal hyphae 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 by the presence of strongly or weakly curved rings. When charcoal samples showed indications of fast or slow growth this was also recorded. Finally the annual tree rings present on each charcoal fragment were counted.

Results

Charcoal was examined from the fill of two postholes C12 & C30, two pit fills C45 & C59 and the fill of one linear ditch B. The pit fill C45 has been dated to the late Neolithic/Early Bronze Age (Cal 2457-2205BC). Sample 1 from C12, the posthole, contained very small fragments and all pieces were identified as oak. Overall the charcoal was in good to moderate condition with strongly curved tree rings and moderately curved tree rings on sample 9 and 14 respectively (see Table 1). The weight and fragment count identified from each taxa type at each site is represented below in Figure 1 and Table 1.

Six wood taxa or trees were identified from the Danesfort 8 samples. These were oak (*Quercus* sp), hazel (*Corylus avellana*), blackthorn/cherry (*Prunus spinosa/Prunus avium/padus*), ash (*Fraxinus excelsior*), elm (*Ulmus* sp) and pomoideae. The results are dominated by oak and hazel (Figure 1). Oak was dominant in all features except the pit **C59** where hazel was identified most frequently (Table 1).

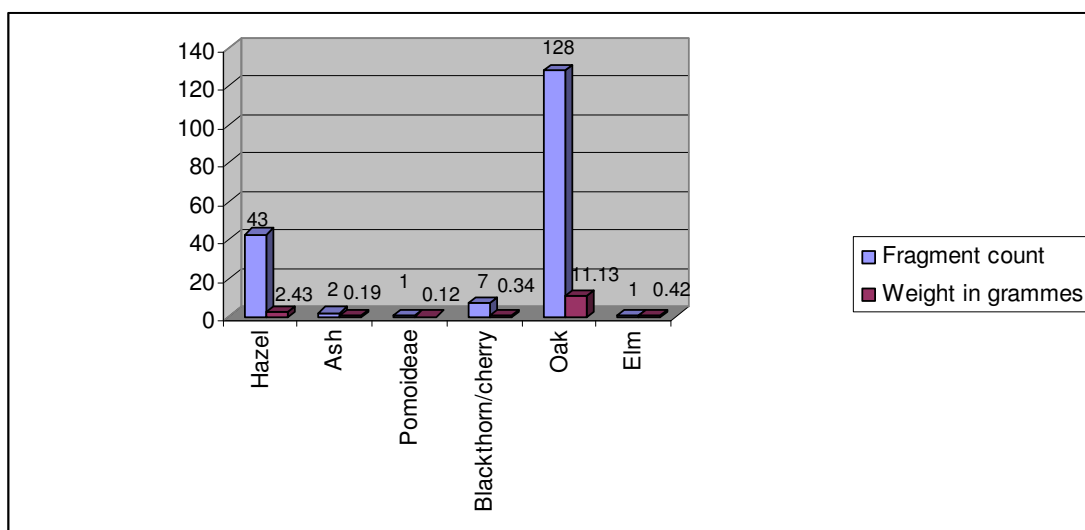


Fig. 1: Taxa types identified

Discussion

Oak was by far the dominant taxon identified in all features except one pit C59 analysed from the assemblage (Table 1). The oak charcoal present in the post-holes C12 and C30 is most likely related to the post that was present there as only one taxon was identified from these post features. The oak from the linear ditch features C46 may be related to planking which lay in the ditch feature or may simply be extraneous charcoal that fell into the ditch through ancillary activities. Oak was also the dominant taxon identified from the pit C45. It has been shown from pollen analysis and similar late Neolithic sites that oak was prolific in the surrounding environment during the Neolithic periods and appears to have been deliberately selected for many functions. Preliminary analysis from the N6 routeway show that oak was nearly exclusively identified from the Neolithic structures such as pits and one possible Neolithic structure (O'Carroll 2008b).

The dominance of brushwood type hazel wood may suggest that hazel wattle lined the pit at C59. Because of its flexible nature, hazel wood has been used for making furniture, fencing and wickerwork. A large wattle-lined pit uncovered at Killyliss ringfort, Co. Tyrone was found to have been used as a latrine (Edwards 1990, 32). At *Gearraigh na h'Aibhne*, near Callanish on the Isle of Lewis, a small pit of unknown function was found to contain a quantity of hazel rods (Duffy 2006). Initially identified as a cist, excavation showed that the pit was either lined with hazel wattle or was built to contain a removable basket (*ibid.*).

Other taxa present in the assemblage but to a lesser extent include ash, blackthorn/cherry, pomoideae and elm

Environmental information related to the taxa from the identified charcoal

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 (Mc Cracken 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 pre-historic and Medieval Ireland as it burned hotter and cleaner than wood and was considered superior to wood in that respect. We know from historical sources that the charcoal maker, or collier, was an important figure in early medieval Ireland. Oak also has unique properties of great durability and strength and was frequently used in the manufacture of posts and wooden plank. 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 wood has been used for making furniture, fencing and wickerwork. It 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. In early Irish law, hazel was considered one of the *airig fedo* or 'nobles of the wood'. It also played a central role in Irish mythology and was associated with wisdom, truth and kingship (MacCoitir 2006, 72-81). In folklore, it was used as a protection against evil (*ibid.*).

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, where it forms dense thickets. Wild cherry and blackthorn are more common in Ireland than bird cherry. *Prunus padus*, which is also known as wild cherry, gean or mazzard, can be found growing mainly by stream-sides in limestone areas. It is also commonly found in hedgerows and on the edge of woodland, where direct sunlight is assured. *Prunus avium*, the second of our native cherries, is also known as the hackberry (or hag berry) or bird cherry. The bird cherry is much smaller than the wild cherry and rarely exceeds 12m in height and 8m in spread. The flower and bark smell of bitter almond. Bird cherry thrives on acid soils, often close to the moist soil of birch woods. As is the case with wild cherry, the bird cherry will not thrive in heavy shade, instead preferring sunlit woodland edges. The wild cherry (*Prunus avium*) has been cultivated for its edible fruit for thousands of years. As long ago as 800BC, the sweet, red fruit was grown and eaten in Turkey and Greece. There is also evidence that wild cherries were eaten by humans long before this, with radiocarbon dating putting some discarded cherry stones at around 2077BC (*ibid.*; www.kew.org). Cherry stones were also found during the excavation of a late Bronze Age crannóg in Co. Offaly (Mac Coitir 2006, 51). There is very little archaeological evidence for the use of cherry wood in Ireland although the wild cherry tree is commonly found in many hedgerows (Nelson 1993, 167). Cherry wood burns slowly and has a relatively high calorific quality (Rackham 1980).

Ash 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 colonised 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 periods such as at Clonfinlough in Co. Offaly (Moloney *et al* 1994). Ash is also abundant in native hedgerows and was quite common in the later historic period.

Pomoideae includes apple, pear, hawthorn and mountain ash. It is impossible to distinguish these wood species anatomically but as wild pear is not native and crab apple is a rare native species in Ireland it is likely that the species identified from the site along the N9/N10 are hawthorn or mountain ash (rowan) (Nelson 194-200, 1993). Hawthorn (*Crataegus monogyna*) is a native species, and is found in many hedgerows throughout Ireland. Mountain ash (*Sorbus aucuparia*) is also a common tree in Ireland growing particularly well in rocky and hilly mountainous places.

English elm (*Ulmus procera*) and wych elm (*Ulmus glabra*) cannot be separated by their wood structure. As suggested by Mitchell (1986) elm declined (although would not have completely died out) with the advent of farming and possibly elm disease epidemic around 3700BC. It generally prefers damp woods particularly on limestone. Vegetation reconstructions based on charcoal assemblages can be problematic, as the nature of the relationship between the charcoal assemblage, people and the contemporary environment is far from straightforward. Ideally, charcoal analysis should be backed up by pollen cores, plant macros and analysis of coleopteran remains for a more accurate picture.

The results from the late Neolithic site at Danesfort 8 suggests the presence and the exploitation of primary woodlands comprising specifically of oak with ash and elm also present and to a lesser extent. Scrub like taxa which includes pomoideae, hazel and blackthorn/cherry was also present and exploited in the surrounding landscape. Further analysis, discussions and comparative analysis will be completed for the final integrated charcoal report for all analysed sites along the N9/N10 (Lyons, OCarroll & O Donnell, *forthcoming*)

Summary

Charcoal was examined from five features consisting of two postholes, two pits and a linear ditch associated with the late Neolithic period at Danesfort. Six wood taxa or trees were identified from samples. These were oak (*Quercus* sp), hazel (*Corylus avellana*), blackthorn/cherry (*Prunus spinosa/Prunus avium/padus*), ash (*Fraxinus excelsior*), elm (*Ulmus* sp) and pomoideae. The results are dominated by oak and hazel (Figure 1). Oak was dominant in all features except the pit **C59** where hazel was identified most frequently (Table 1). Oak may have been used as post material and hazel brushwood may have been selected as wattle lining for the pit.

The results from the late Neolithic site at Danesfort 8 suggests the presence and the exploitation of primary woodlands comprising specifically of oak with ash and elm also present and exploited to a lesser extent. Scrub type taxa which includes pomoideae, hazel and blackthorn/cherry was also present and exploited in the surrounding landscape.

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Table 1 Charcoal identification details from Danesfort 8

Context number	Sample number	Flot weight (grammes)	Context description	Wood species	No. of fragments	Charcoal weight (grams)	Size of fragments (mm)	No. of growth rings	Comments & date
12	1	0.5	Posthole fill	<i>Quercus sp (oak)</i>	18	0.5	1 - 3mm	1 - 5 rings	Small fragments, all identified
30	6	0.6	Posthole fill	<i>Quercus sp (oak)</i>	25	0.6	2 - 6mm	3 - 8 rings	All identified
45	5	73.8	Pit fill	<i>Quercus sp (oak)</i>	35	5	4 - 11mm	3 - 8 rings	Cal 2457-2205 BC
				Pomoideae	1	0.12	8mm	5 rings	
				<i>Corylus avellana (hazel)</i>	8	1.18	6 - 11mm	2 - 5 rings	
				<i>Ulmus sp (elm)</i>	1	0.42	6mm	3 rings	
				<i>Fraxinus excelsior (ash)</i>	1	0.1	3mm	2 rings	
46	9	10.4	Linear feature-ditch b	<i>Quercus sp (oak)</i>	49	5.01	3 - 14mm	2- 15 rings	Strongly curved
				<i>Fraxinus excelsior (ash)</i>	1	0.18	6mm	2rings	Moderately curved rings
59	14	3	Pit fill	<i>Corylus avellana (hazel)</i>	35	1.25	3 - 10mm	3 - 7 rings	
				<i>Quercus sp (oak)</i>	1	0.02	5mm	3 rings	
				<i>Prunus sp (blackthorn/cherry)</i>	7	0.34	4 - 12mm	5 - 10 rings	

Appendix 2.5 Plant Remains Analysis Report – Penny Johnston

**Plant Remains Analysis Report for
E3461 Danesfort 8 (A032/061) Co. Kilkenny
N9/N10 Road Scheme – Phase 4**

Penny Johnston, Eachtra

Introduction

This report details the analysis of plant remains recovered from excavations in advance of the construction of the N9/N10 Knocktopher to Powerstown Road (Phase 4). The excavation was directed by Richard Jennings on behalf of Irish Archaeological Consultancy Ltd. The archaeological site was located in the townland of Danesfort (E3461).

The excavated remains included evidence for an ancient field system.

Methodology

The samples were processed by the client, who also carried out a preliminary sorting of the samples. This pre-selection of the plant remains may bias the final plant records from these sites, as it is possible that many small items, such as weed seeds and chaff, were not picked out.

The selected material was sent to Eachtra Archaeological Projects where it was examined under a low-powered binocular microscope (X6 –X45). Suitable plant material was identified and the results of analysis are presented.

Danesfort 8 E3461 AR085

The site comprised a field system and a pit that contained fragments of Bronze Age pottery. A total of 2 samples were examined from this site. Hazelnut shell fragments and cereal grains were recovered from both samples. Barley was the most common cereal type found, although a small quantity of oat grains was also identified. Barley was a common cereal type in the assemblages from other sites excavated in the area, in particular at the prehistoric sites of Danganbeg 1 E3606, Tinvaun 2 E3680, Danesfort 12 E3616 and Danesfort 5 E3456. It is a common cereal type in Bronze Age deposits (Monk 1985/6).

Table 1: Identified plant remains from Danesfort 8 E3461

Context	46	45
Sample	9	13
Hazelnut shell fragments (<i>Corylus avellana</i> L.)	1	25
Oat grains (<i>Avena</i> L. species)	1	
Possible oat grains (cf <i>Avena</i> species)	1	
Barley grains (<i>Hordeum vulgare</i> L.)	13	
Indeterminate cereal grains	12	2

Reference

Monk, M. 1985/6 Evidence from macroscopic plant remains for crop husbandry in prehistoric and early historic Ireland: a review. *The Journal of Irish Archaeology* 3.

Appendix 2.6 Animal Bone Report – Aoife McCarthy

**Osteoarchaeological Report of Faunal Remains from
E3461 A032/: Danesfort 8 AR085, Co. Kilkenny
N9/N10 Kilcullen to Waterford Scheme
Phase 4: Knocktopher to Powerstown
Aoife McCarthy MA BA
March 2010**

1. Introduction

1.1 Introduction

This report details the osteological analysis of faunal remains samples recovered during excavations at Site E3461 AR085 Danesfort 8 in the townland of Danesfort, Co. Kilkenny as part of the archaeological mitigation programme of the N9/N10 Kilcullen to Waterford Road Scheme. Aoife McCarthy MA (Osteoarchaeology University of Southampton 2006) undertook the analysis on behalf of Irish Archaeological Consultancy Ltd in February 2010. At the time of writing this report, background archaeological information was obtained from a draft interim excavation report (Jennings, R. 2009) and from consulting the original site register documents.

1.1 General Osteological Information

The osteological analysis of hand retrieved faunal remains was undertaken to provide an overview of the osteoarchaeological aspect of the site and determine if the material could provide further interpretation of site activity.

A total of 98 fragments from 94 possible skeletal elements and weighing 39.1g were recorded within the assemblage. The degree of preservation of the animal bone assemblage varied from moderate to poor and very poor. A high rate of fragmentation was also noted within the assemblage.

All of the faunal remains assemblage recovered at Danesfort 8 originated from C19 the softly compacted silty-clay fill of ditch feature C18. A fragment of charred hazelnut recovered from pit fill C45 was issued for AMS dating and returned a two sigma calibrated date of Cal. 2457–2205BC; placing activity within the Bronze Age period.

A total of 27 bone fragments (27.6%) of the faunal remains assemblage were classified to species. Due to fragmentation combined with poor preservation and small size of the individual bone fragments it was not possible to identify 71 fragments (72.4%); these were classed as indeterminate vertebrate of small, medium or large size. Bone elements were identified where possible.

The faunal remains assemblage recovered from Danesfort 8 contained bones from a possible 3 different species including; dog, pig, sheep and goat. The species of dog was the highest represented within the assemblage, accounting for 17 fragments (62.9%) of identified material.

2. Methodology

SPECIES IDENTIFICATION: Identification of the bones involved reference to Schmid (1972) and Hillson (1992) as well as comparison with the author's own reference material. The closely related taxa of sheep and goat are difficult to distinguish and where grouped under the term '*caprinae*'

- **NISP:** Number of Identified Specimens Indicates the total number of fragments found.
- **MNI:** Minimum Number of Individuals. Indicates the minimum number of individuals from every species that were present in the material. Estimating MNI is calculated on the specimen of the most abundant skeletal element present; whilst taking age, sex, size and archaeological context into account.

- In order to calculate accurate MNI and MNE figures for each species, bird as well as mammal, a method of zoning was implemented when recording (Serjeantson, 2000). This method was used so as to compensate for any possible biases due to fragmentation; siding was also taken into account at this point.
- MNE: Minimum Number of Elements. Indicates the minimum number of anatomical units that are present and what side they are from. To avoid getting a higher MNE all loose epiphyses have to be paired with all un-fused diaphysis.

AGEING: Two main methods are used to determine the age of faunal remains; tooth eruption and degree of Epiphysial fusion (a less reliable method). Tooth eruption and wear stages were recorded for the following teeth where possible; dP4 (deciduous fourth premolar), P4 (fourth premolar), M1 (first molar), M2 (second molar) and M3 (third molar) of cattle, sheep/goat and pig (Grant 1982). The analysis of tooth wear patterns refers to the alteration of the enamel surface and exposure of inner dentine through use.

BIOMETRICAL DATA: Due to a high degree of fragmentation, small fragment size and nature of the remains recovered from Danesfort 8 bone measurements and biometric analysis was not possible.

SEX DETERMINATION: Sex determination of animal remains is possible by analysis of certain sexually dimorphic elements. For example goat horncores may be classified as male or female based on their morphology and cattle metacarpals can be defined as male or female through calculation of the slenderness index (McCormick 1992). Sexual determination of species was not possible due to the high degree of fragmentation and the nature of faunal material and recovered at Danesfort 8.

BUTCHERY/GNAWING/BURNING: Evidence for butchery was recorded under the categories of cut, chopped, chopped and cut. All specimens were analysed for evidence of rodent or carnivorous gnawing as well as evidence of burning. Burnt bones were recorded in accordance with colour changes resulting from differing heat levels e.g. calcined bones acquire a bluish-whitish hue through exposure to high temperatures.

PATHOLOGY: The discovery of any injury and/or pathology was recorded for all specimens, where present.

3. Results

Context 19 Sample 3

Canis/Dog

Dog was the highest represented animal species at Danesfort 8; a total of 17 fragments which formed 62.9% of the identified animal bone assemblage were recovered. The total weight of recovered dog bone was 5.2g. Dog MNI was calculated at 1 based on recovered vertebrae and carpal bone fragments. Due to the nature of material recovered it was not possible to calculate an estimation of age. The skeletal elements of dog/*canis* present within the assemblage were external cuneiform, cervical vertebrae, cuboid and vertebrae body fragments. None of the recovered dog bone fragments displayed evidence of butchery, gnawing or exposure to heat.

Sus/Pig

Pig comprised a total of 4 bone fragments and 14.8% of the identified material at Danesfort 8. The total weight of recovered pig bone was 5.5g. Pig MNI was calculated at 1 based on recovered metapodial diaphysis and pelvic bone fragments. The skeletal elements of pig/sus present within the assemblage were metapodia and pelvis. None of the recovered bone fragments displayed evidence of butchery, gnawing or exposure to heat. Due to poor preservation of recovered pig bone fragments it was not possible to record metrical data or estimate an age at slaughter for the domestic species.

Sheep/Goat (*Caprinae*)

Caprinae formed 22.2% of identified animal bone assemblage at Danesfort 8; with a total of 6 bone fragments recovered. The total weight of hand retrieved caprinae bone was 10g. Sheep/Goat MNI was calculated at 1 based on recovered metacarpal, metatarsal and vertebrae bone fragments. The skeletal elements of sheep/goat present within the assemblage were metacarpal/metatarsal, cervical vertebrae and lumbar vertebrae. None of the recovered sheep/goat bones displayed evidence of butchery, gnawing or exposure to heat.

Indeterminate Vertebrate

Due to fragmentation, poor preservation and small fragment size a series of 71 unidentifiable bone fragments of indeterminate vertebrate (72.4%), weighing 18.4g were recovered from Danesfort 8. None of the 71 indeterminate fragments displayed evidence of exposure to heat, butchery or gnawing. The bone elements of indeterminate vertebrate retrieved comprised long bone, rib, vertebrae and unidentifiable fragments. A quantity of the unidentifiable bone fragments recovered also consisted of small to tiny fragments of trabecular bone.

4. Summary

Ninety eight bone fragments recovered from archaeological context C19 on Danesfort 8 were submitted for examination. From these a total of 71 bone fragments or 72.4% were unidentifiable to species due to small fragment size, poor preservation and fragmentation of the bone. The remaining 27 fragments (27.6%) were identified and divided into species. The faunal remains assemblage contained bones from 4 recognisable species of dog, pig, sheep and goat. As illustrated the range of species identified at Danesfort 8 was dominated by the domestic species of dog which accounted for 17 bone fragments or 62.9% of classified material. The faunal remains unusually did not display any evidence of gnawing, butchery or exposure to heat. No definite or statistically detailed conclusions could be drawn from the faunal remains assemblage retrieved from Danesfort 8 due to its limited size and poor degree of bone preservation.

Bone Database:

Spec	C	S	Taxa	Anat	Side	Prox	Dist	1	2	3	4	5	6	7	8	But	Bu	G	Q	W (g)	Comments
1	C19	3	Canis	external cuneiform				1	1	1	1	1	1	1	1				1	0.5	Complete and well preserved tarsal bone.
2	C19	3	Shp/Gt	MC/MT			uf								1				1	1.3	Well preserved un-fused distal epiphysis. Metrics not possible. Degree of trabecular bone exposed
3	C19	3	Shp/Gt	Cervical Vert				1	1	1	1								1	4.3	Moderate-poorly preserved vertebrae fragment, degree of trabecular bone exposed.
4	C19	3	Shp/Gt	Cervical Vert				1											1	2.3	Moderate-poorly preserved vertebrae fragment, high degree of trabecular bone exposed.
5	C19	3	Unid	Rib														7		1.5	Series of poorly preserved fragments of rib corpus. Med sz mammal. Degree of trabecular bone exposed. Length 31mm, Width 9mm, Thickness 2mm
6	C19	3	Canis	Cervical Vert				1	1	1	1								1	0.8	Moderately preserved CD2 vertebrae. Low level trabecular bone exposed.
7	C19	3	Canis	Cervical Vert				1	1	1	1			1					1	0.6	Moderately preserved CD8 vertebrae. Low level trabecular bone exposed.
8	C19	3	Canis	Vertebrae								1							1	0.2	Moderately preserved vertebrae fragment.
9	C19	3	Canis	Vertebrae									1						1	0.1	Poorly preserved fragment
10	C19	3	Canis	Cervical Vert				1	1										1	0.3	Moderately preserved CD2 vertebrae. Low level trabecular bone exposed.
11	C19	3	Canis	Cervical Vert								1							1	0.2	Moderately preserved fragment.
12	C19	3	Canis	Vertebrae									1						1	0.1	Poorly preserved fragment, trabecular bone exposed.
13	C19	3	Canis	Vertebrae				1											1	0.2	Poorly preserved fragment, trabecular bone exposed.
14	C19	3	Canis	Cervical Vert				1			1							2		0.3	Poorly preserved fragment, trabecular bone exposed.
15	C19	3	Canis	Cervical Vert					1										1	0.3	Poorly preserved fragment, trabecular bone exposed.
16	C19	3	Unid	Vertebrae															11	1.4	Series of small poorly preserved fragments of vertebrae, degree of trabecular bone exposed.
17	C19	3	Shp/Gt	Lumbar Vertebrae							1								1	1.4	Poorly preserved fragment, degree of trabecular bone exposed.

36	C19	3	Unid	Unid														13	1.5	Series of small & poorly preserved fragments of bone, trabecular bone exposed.
37	C19	3	Unid	Rib					1									1	0.3	Poorly preserved fragment

Key:

- | | | | | |
|-------------|---------------------|----------------------|-------------------------|---------------|
| C= Context | But=Butchery | N=No | W=White | S=Sample |
| Bu=Burnt | Unid=Unidentifiable | R=Rodent | Anat=Anatomical Element | G=Gnaw |
| Taxa=Taxon | Cn=Carnivore | Q=Quantity of Pieces | B=Black | Prox=Proximal |
| Dist=Distal | G=Grey | | | |

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GLOSSARY OF TERMS:

BOS: Latin term for Cow

SUS: Latin term for Pig

CERVUS: Latin term for Deer

EQUUS: Latin term for Horse

OVIS: Latin term for Sheep

CAPRINAE: Latin term for Sheep/Goat

CANIS: Latin term for Dog

LEPUS: Latin term for Hare

AVES: Latin term for Bird

TAPHONOMY: The study of the processes affecting an organism after death from the time of burial until collection.

TRABECULAR BONE: Osseous tissues that fill the interior cavity of bones and resemble a sponge or honeycomb.

DIAPHYSIS: Bone shaft

CORPUS COSTAE: Body of Rib Bone

APPENDIX 1: % MNI

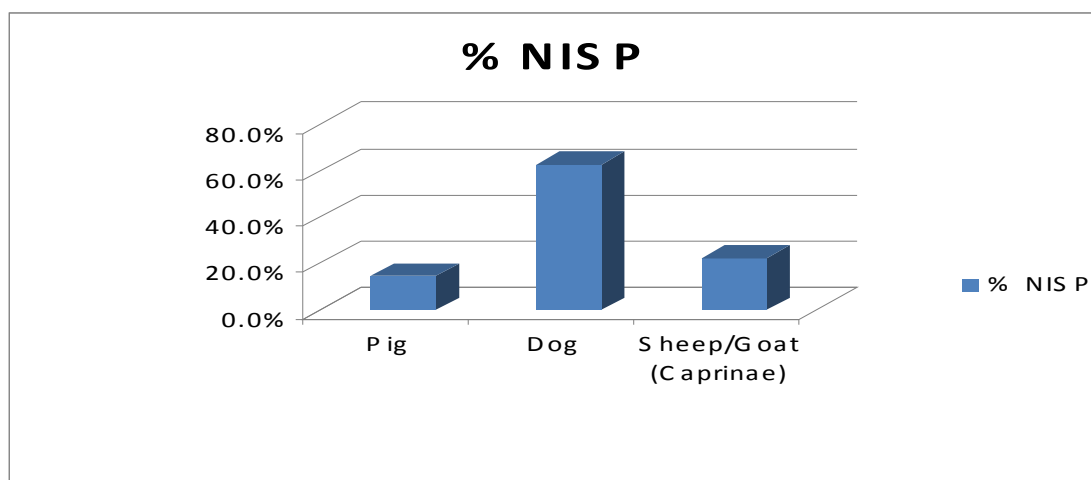
Table 1: Identifiable Fragments

SUM OF QUANTITY	
TAXA	TOTAL
Dog	17
Pig	4
Sheep/Goat (<i>Caprinae</i>)	6
TOTAL	27

Table 2: % NISP

% NISP		
DOMESTICATES		
Pig	4	4/27x100= 14.8%
Dog	17	17/27x100= 62.9%
Sheep/Goat (<i>Caprinae</i>)	6	6/27x100= 22.2%

Figure 1: % NISP



Appendix 2.7 Radiocarbon Dating Results – QUB Laboratory

The “Measured radiocarbon age” is quoted in conventional years BP (before AD 1950). The error is expressed at the one-sigma level of confidence.

The “Calibrated date range” is equivalent to the probable calendrical age of the sample material and is expressed at the two-sigma (95.4% probability) level of confidence

Calibration data set: intcal04.14c (UBA 11001)

Calibration data set: intcal09.14c (UBA 15558)

Context	Sample No	Material	Species id/ Weight	Lab	Lab Code	Date Type	Calibrated date ranges	Measured radiocarbon age (BP)	13C/12C Ratio ‰
C45, Fill of a pit	13	Charcoal	<i>Corylus avellana</i> L. / 1.4g	QUB	UBA 11001	AMS (Std)	2400–2209BC (1 sigma), 2457–2205BC (2 sigma)	3846±27	-24.3
C46, Fill of ditch C7	9	Charcoal	<i>Corylus avellana</i> L. / 0.05g	QUB	UBA 15558	AMS (Std)	2466–2345BC (1 sigma), 2476–2286BC (2 sigma)	3904±35	-28.1

References for calibration datasets:

PJ Reimer, MGL Baillie, E Bard, A Bayliss, JW Beck, PG Blackwell, C Bronk Ramsey, CE Buck, GS Burr, RL Edwards, M Friedrich, PM Grootes, TP Guilderson, I Hajdas, TJ Heaton, AG Hogg, KA Hughen, KF Kaiser, B Kromer, FG McCormac, SW Manning, RW Reimer, DA Richards, JR Southon, S Talamo, CSM Turney, J van der Plicht, CE Weyhenmeyer (2009) Radiocarbon 51:1111–1150.

Comments:

* This standard deviation (error) includes a lab error multiplier.

** 1 sigma = square root of (sample std. dev.² + curve std. dev.²)

** 2 sigma = 2 x square root of (sample std. dev.² + curve std. dev.²)

where ² = quantity squared.

[] = calibrated range impinges on end of calibration data set

0* represents a "negative" age BP

1955* or 1960* denote influence of nuclear testing C-14

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.

APPENDIX 3 LIST OF RMP IN AREA

RMP No	Description
KK023-048001	Enclosure
KK023-048002	Hut
KK023-049001	Enclosure
KK023-049002	Enclosure
KK023-049003	Enclosure
KK023-063	Enclosure
KK023-061	Enclosure
KK023-062001	Enclosure
KK023-062002	Cultivation Ridge
KK023-060001	Field System
KK023-060002	Linear Earthwork
KK023-082	Enclosure

See Figure 2 for location.

APPENDIX 4 LIST OF SITE NAMES

Site Name	Site Code	E Number	Director	NGR
Baysrath 2	AR055	E3627	Fintan Walsh	251593/137855
Baysrath 3	AR056	E3628	Fintan Walsh	251672/138000
Baysrath 4	AR057	E3629	Fintan Walsh	251515/138280
Danganbeg 1	AR058	E3606	Emma Devine	251462/138754
Danganbeg 2	AR059	E3607	Emma Devine	251397/138939
Danganbeg 3	AR060	E3671	Emma Devine	251430/139245
Danganbeg 4	AR061	E3676	Emma Devine	251401/139372
Knockadrina 1	AR062	E3677	Ed Lyne	251422/139420
Tinvaun 1	AR063	E3678	Ed Lyne	251482/139625
Tinvaun 2	AR064	E3680	James Kyle	251445/139736
Tinvaun 3	AR065	E3608	James Kyle	251501/139832
Tinvaun 4	AR066	E3609	James Kyle	251508/139917
Stoncarthy West 1	AR067	E3610	James Kyle	251538/140023
Knockadrina 2	AR068	E3611	James Kyle	251647/140237
Rathduff 1	AR069	E3612	Ed Lyne	251286/142167
Rathduff Upper 1	AR070	E3613	Ed Lyne	251280/142559
Kellsgrange 1	AR071	E3575	James Kyle	250911/143732
Kellsgrange 2	AR072	E3577	James Kyle	250967/143861
Kellsgrange 3	AR073	E3576	James Kyle	250948/144003
Ennisnag 1	AR074	E3614	Richard Jennings	251416/145690
Ennisnag 2	AR075	E3615	Richard Jennings	251638/146068
Danesfort 12	AR076	E3616	Richard Jennings	251669/146186
Danesfort 13	AR077	E3617	Richard Jennings	251765/146384
Danesfort 2	AR078	E3540	Richard Jennings	251953/146745
Danesfort 4	AR079	E3539	Richard Jennings	251880/147579
Danesfort 3	AR080A	E3542	Richard Jennings	252221/146845
Danesfort 1	AR080B	E3541	Richard Jennings	252267/146707
Croan 1	AR081	E3543	Emma Devine	252280/147332
Danesfort 5	AR082	E3456	Emma Devine	252567/147767
Danesfort 6	AR083	E3538	Emma Devine	252764/147995
Danesfort 7	AR084	E3537	Emma Devine	252878/148099
Danesfort 8	AR085	E3461	Richard Jennings	253020/148246
Danesfort 9	AR086	E3458	Richard Jennings	253089/148345
Danesfort 10	AR087	E3459	Richard Jennings	253229/148414
Danesfort 11	AR088	E3460	Richard Jennings	253245/148462
Rathclogh 1	AR089	E3726	Patricia Lynch	253365/145515
Rathclogh 2	AR090	E3727	Patricia Lynch	253650/148848
Kilree 1	AR091	E3728	Patricia Lynch	254088/149310
Kilree 2	AR092	E3729	Patricia Lynch	254320/149500
Kilree 3	AR093	E3643	Patricia Lynch	254449, 149639
Kilree 4	AR094	E3730	Patricia Lynch	255330/150084
Dunbell Big 2	AR095	E3853	Yvonne Whitty	256684/151066
Holdenstown 1	AR096	E3681	Yvonne Whitty	256737/151253
Holdenstown 2	AR097/98	E3630	Yvonne Whitty	256891/151781
Holdenstown 3	AR099	E3854	Yvonne Whitty	256990/152085
Holdenstown 4	AR100	E3682	Yvonne Whitty	256828/152048
Dunbell Big 1	AR101	E3855	Yvonne Whitty	257034/152315
Rathcash 1	AR102	E3859	Tim Coughlan	258178/154199
Rathcash 2	AR103	E3860	Tim Coughlan	258294/154293
Rathcash East 1	AR104	E3892	Tim Coughlan	259419/154546
Rathcash East 2	AR105	E3893	Tim Coughlan	259555/154566
Rathcash East 3	AR106	E3861	Tim Coughlan	259821/154653
Blanchvillespark 1	AR107	E3894	Richard Jennings	260535/155212
Blanchvillespark 2	AR108	E3895	Tim Coughlan	260637/155449
Blanchvillespark 3	AR109	E3913	Tim Coughlan	260785/155653

Site Name	Site Code	E Number	Director	NGR
Blanchvillespark 4	AR110	E3914	Tim Coughlan	261442/156269
Blanchvillespark / Ballyquirk 1	AR111	E3862	Ruth Elliott	261531/156323
Ballyquirk 1	AR112	E3863	Ruth Elliott	261531/156323
Ballyquirk 2	AR113	E3864	Ruth Elliott	261811/156508
Ballyquirk 3	AR114	E3865	Ruth Elliott	261875/156559
Ballinvally 1	AR115	E3836	Emma Devine	263258/157521
Garryduff 1	AR116	E3852	Emma Devine	263933/157991
Kilmacahill 1	AR117	E3915	Tim Coughlan	264267/158369
Kilmacahill 2	AR118	E3833	Tim Coughlan	264380/158453
Jordanstown 1	AR119	E3834	James Kyle	264546/158643
Jordanstown 2	AR120	E3851	James Kyle	264893/159038
Kellymount 6	AR121	E3758	Przemaslaw Wierbicki	265130,159277
Jordanstown 3	AR122	E3916	Przemaslaw Wierbicki	265103/159227
Kellymount 1	AR123	E3756	Przemaslaw Wierbicki	265250/159397
Kellymount 2	AR124	E3757	Przemaslaw Wierbicki	265164/159463
Kellymount 3	AR125	E3856	Przemaslaw Wierbicki	265338/159597
Kellymount 4	AR126	E3857	Przemaslaw Wierbicki	265412/159803
Kellymount 5	AR127	E3858	Przemaslaw Wierbicki	265530,159977
Shankill 2	AR128	E3738	Richard Jennings	265924/160651.
Shankill 3	AR129	E3737	Richard Jennings	266052/161141
Shankill 4	AR130	E3838	Richard Jennings	266286/161526
Shankill 5	AR131	E3850	Richard Jennings	266374/161730
Shankill 6	AR132	E3840	Richard Jennings	266403/161836
Moanmore 1	AR133	E3835	Richard Jennings	266476/162016
Moanmore 2	AR134	E3843	Sinead Phelan	266756/162866
Moanmore 3	AR135	E3837	Sinead Phelan	266856/163259
Bannagagole 1	AR136	E3844	Sinead Phelan	266942/163569
Moanduff 1	AR137	E3839	Robert Lynch	267261/164397
Coneykeare 1	AR138	E3683	Sinead Phelan	267836/166209
Coolnakisha 1	AR139	E3768	Ellen O'Carroll	268175/167274
Coolnakisha 2	AR140	E3767	Ellen O'Carroll	268306/167559
Cranavonane 1	AR141	E3842	Tim Coughlan	268554/167895
Cranavonane 2	AR142	E3732	Ellen O'Carroll	268830/168154
Cranavonane 3	AR143	E3731	Ellen O'Carroll	269123/168362
Tomard Lower 1	AR144	E3733	Ellen O'Carroll	269349/168496
Paulstown 1	AR145	E3642	Ruth Elliot	265889/158499
Paulstown 2	AR146	E3632	Ruth Elliot	265664/158651
Rathgarvan or Clifden 1	AR147	E3760	Przemaslaw Wierbicki	257026/154123
Maddockstown 1	AR148	E3759	Przemaslaw Wierbicki	256886/154199
Templemartin 3	AR149	E3845	Emma Devine	255095/155200
Templemartin 4	AR150	E3841	Emma Devine	254920/155427
Templemartin 5	AR151	E3846	Emma Devine	254706/155636
Templemartin 1	AR152	E3849	Emma Devine	254504/155826
Templemartin 2	AR153	E3847	Emma Devine	254173/156236
Leggetsrath East 1	AR154	E3734	Emma Devine	253793/156484
Moanduff 2	AR155	E3735	Sinead Phelan	267470/164887
Moanduff 3	AR156	E3736	Sinead Phelan	267515/164979
Ballyquirk 4	AR157	E3848	Richard Jennings	262596/157025
Shankill 1	AR158	E3766	Przemaslaw Wierbicki	265707/160269
Rathgarvan or Clifden 2	AR159	E3921	Tim Coughlan	257095/154119
Ballynolan 1	AR160	E3755	Sinead Phelan	267714/165597
Rathduff Upper 3	UA2	E3974	Tim Coughlan	250991/143565
Rathduff Bayley	UA4	E4011	Tim Coughlan	251005/143564