N6 KINNEGAD – ATHLONE SCHEME PHASE 2: KILBEGGAN TO ATHLONE DUAL CARRIAGEWAY

SITE A016/033; E2661: WILLIAMSTOWN 3

FINAL REPORT

ON BEHALF OF WESTMEATH COUNTY COUNCIL

19 JUNE 2009

IAC Irish Archaeological Consultancy

PROJECT DETAILS

Project Reference No.	WH/00/112
Project	N6 Kinnegad – Athlone Road Scheme: Phase 2, Kilbeggan – Athlone Dual Carriageway
Ministerial Direction Reference No.	A016/033
NMS Registration Number	E2661
Excavation Director	Fintan Walsh
Senior Archaeologist	Shane Delaney
Consultant	Irish Archaeological Consultancy Ltd, 120b Greenpark Road, Bray, Co. Wicklow
Client	Westmeath County Council
Site Name	Williamstown 3
Site Type	Early Medieval/Medieval Charcoal Production Kilns
Townland	Williamstown
Parish	Ballyloughloe
County	Westmeath
NGR (Easting)	Area A 213347 & Area B 213373
NGR (Northing)	Area A 238262 & Area B 238247
Chainage	8180–8220
Height m OD	78m OD
RMP No.	N/A
Excavation Start Date	10 April 2006
Excavation Duration	4 days
Report Type	Final
Report Date	19 June 2009
Report By	Fintan Walsh

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This report has been prepared by Irish Archaeological Consultancy Ltd on behalf of Westmeath County Council and the National Roads Authority in advance of the construction of the N6 Phase 2: Kilbeggan to Athlone Dual Carriageway Scheme.

The excavation was carried out in accordance with the Directions of the Minister for the Environment, Heritage and Local Government (DOEHLG), in consultation with the National Museum of Ireland (NMI) issued under Section 14 of the National Monuments Acts 1930–2004.

CONSULTING ENGINEERS

Project Manager – Harry Meighan, ROD/RH WSP JV
Project Engineer – Morgan Hart, ROD/RH WSP JV
Project Resident Engineer – Michael Brazil, ROD/RH WSP JV
Resident Engineer – Cliff Webb, ROD/RH WSP JV

NRDO WESTMEATH COUNTY COUNCIL

Senior Engineer – John Ahern
Project Engineer – Michael Kelly
Project Liaison officer – Niall Kennedy

NATIONAL ROADS AUTHORITY

Engineering Inspector – John McGuinness
Senior Project Archaeologist – Ronan Swan
Project Archaeologist – Orlaith Egan

NATIONAL MONUMENTS, DOEHLG

Archaeologist – Martin Reid

IRISH ANTIQUITIES DIVISION, NATIONAL MUSEUM OF IRELAND

Keeper – Nessa O'Connor

REPORT PRODUCTION

Report Production – Fintan Walsh
Report Research – Jonathan Kinsella and Eimear O'Connor
Report Formatted and Edited by Fintan Walsh, Joanne O'Meadhra-Elder and Maeve Tobin

ABSTRACT

Irish Archaeological Consultancy Ltd (IAC), funded by Westmeath County Council (WCC) and the National Roads Authority (NRA), undertook an excavation in the townland of Williamstown at the site of Williamstown 3 in advance of the proposed N6 Phase 2: Kilbeggan to Athlone Dual Carriageway Scheme (Figure 1). The following report describes the final results of archaeological fieldwork at that site. The area was fully excavated by Fintan Walsh under Ministerial Direction (A016/033) and NMS Registration Number E2661 issued by the DOEHLG in consultation with the National Museum of Ireland. The fieldwork took place between 10 and 13 April 2006.

The site was located on flat, grazing land with modern field systems and surrounded to the south and east by marginal/bog-land. Previous archaeological discoveries in the area include four previously unrecorded sites including two burnt mound sites and two pits (Williamstown BGE 1B/97/1–3 and 98/1) which were discovered during work on the gas pipeline to the west carried out by Margaret Gowan and Co.

Two areas, Area A (10m by 10m) and Area B (15m by 15m) were opened at Williamstown 3. In Area A a single truncated charcoal production kiln was uncovered measuring 1.5m x 0.4m x 0.05m. The sides and base of this feature were scorched and the primary fill was 100% oak charcoal.

In Area B a large pit was identified which was 2.80m wide and 0.35m deep and contained charcoal rich clays and burnt animal bone. Oak charcoal (*Quercus* sp.) from this pit returned a 2 Sigma date range of AD 1043–1212. This pit also contained burnt animal bone. Carbonised hazelnut shell and cereal grain was also identified and included bread/club wheat (*Triticum aestivum/compactum)*, with lesser occurrences of oat (*Avena* sp.) and barley (*Hordeum* sp.). Carbonised wild species was represented by a cherry stone (*Prunus* sp.) fragment, tentatively identified as dwarf cherry (*Prunus cerasus*) and fragments of vetch/pea (*Vicia/Lathyrus* spp.) seeds. There was no evidence of *in situ* burning within the pit which would suggest that it was not a cereal drying kiln. It is possible that this feature was originally a charcoal production kiln and was backfilled with domestic waste after it was abandoned. This would account for the high carbonised grain and burnt animal bone content.

Three smaller charcoal production kilns were located to the southeast of this. A circular example (0.9m x 0.7m x 0.17m) had evidence of *in situ* burning at its base and a charcoal (oak) rich fill above this.

A second example immediately to the southeast (1.4m east–west x 1m x 0.22m) contained two fills and returned a 2 Sigma date range of AD 1298–1403. The primary was a charcoal deposit and the upper was a loose brown/grey silt/sand. The charcoal layer consisted hazel (*Corylus avellana*), alder (*Alnus glutinosa*) and blackthorn (*Prunus spinosa*) charcoal. This suggests that wood species, other than oak, were used to produce charcoal fuel at this time. To the northwest of these two pits a larger pit (2.19m east–west x 1.45m x 0.23m) contained a similar fill sequence.

It is likely that these features are related to small scale medieval industrial activity.

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1 INTRODUCTION

1.1 General

This final archaeological report describes the results of the excavation carried out at the site of Williamstown 3 in the townland of Williamstown, Co. Westmeath (Figures 1 and 2) as part of an archaeological mitigation program associated with the N6 Phase 2: Kilbeggan to Athlone Dual Carriageway Scheme. Archaeological fieldwork was carried out under ministerial direction by Fintan Walsh of Irish Archaeological Consultancy Ltd (IAC Ltd) and was funded by WCC & NRA under the National Development Plan 2000–2006, 2007–2013 and the EU Structural fund.

Williamstown 3 was identified as a result of archaeological assessment undertaken by IAC Ltd in August 2005 (Ministerial Direction No A016/029; NMS Reg. No. E2661). All features identified during the assessment phase (two possible hearths in Area A and an isolated pit in Area B) were subsequently re-identified and all features were excavated during the full resolution phase of the project which took place between 10 and 13 April 2006 with a team of 1 director, 1 supervisor and 5 site assistants.

The site was located in flat pastureland at a height of 78m OD to the north of the existing N6, c. 4km west of Moate town (Westmeath OS sheet 30). To the south was the site of a recorded ringfort – WM030:093. Williamstown 3 had not been previously identified and was not a recorded monument.

The site was assigned the following identification data:

Site Name: Williamstown 3; Ministerial Direction Number: A016/033; NMS Number: E2661; Route Chainage (Ch): 8180–8220; NGR: Area A 213347/238262 and Area B 213373/238247.

1.2 Proposed Development

The proposed N6 Kinnegad–Athlone Scheme is to be constructed in two phases. The Phase 2 Kilbeggan–Athlone scheme will consist of a dual carriageway that will run for a distance of approximately 29km. The location of the route is predominantly to the south of the existing N6 and there will be access to the local road network through the seven grade separated junctions located at Athlone, Farnagh, Moate and Kilbeggan. The cross-section of the mainline consists of 2m wide verges, 2.5m wide hard shoulders, 7m wide two-lane carriageways and a 3m wide central reserve. This central reserve will accommodate 1m hard strips and a safety barrier. In addition to the mainline dual carriageway there is a further 0.3km of standard dual carriageway to the south of Athlone Interchange to connect to the existing N6 and 1.2km to the south of Kilbeggan Interchange to connect to the existing N52.

1.3 Archaeological Requirements

The archaeological requirements for the N6 Kilbeggan to Athlone Dual Carriageway Scheme, are outlined in the Ministerial Directions issued to Westmeath 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 Westmeath 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 Kilbeggan South, Co. Westmeath and Creggan Lower, Co. Westmeath.

The proposed N6 was subjected to an Environmental Impact Assessment, the

archaeology and cultural history section of which was carried out by Sheila Lane and Associates and presented in 2003. The Record of Monuments and Places, the Sites and Monuments Record, Topographical files, aerial photography, the Westmeath Archaeological Urban Survey and literary sources were all consulted. One phase of geophysical survey was also conducted at selected sites along the proposed route by Target Archaeological Geophysics. As a result of the paper survey, field inspections and geophysical survey, a number of potential sites were recorded in proximity to this section of the overall route alignment.

Advance archaeological testing was completed by IAC Ltd and excavation of the sites identified during testing was conducted by IAC Ltd on behalf of Westmeath County Council.

1.4 Methodology

The topsoil was reduced 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 features were subsequently fully excavated by hand and recorded using the single context recording system with plans and sections being produced at a scale of 1:50, 1:20 or 1:10 as appropriate.

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

An environmental strategy was devised at the beginning of the excavation. Where relevant features exhibiting large amounts of carbonised material were the primary targets. If present, features containing metallurgical waste were fully sampled for analysis.

In the instances where artefacts were uncovered on site they were dealt with in accordance with the guidelines as issued by the NMI and where warranted in consultation with the relevant specialists. All artefacts, ecofacts and paper archive are currently stored in IAC offices, Lismore, Co Waterford and will ultimately be deposited with the National Museum of Ireland.

Radiocarbon dating of the site was carried out by means of AMS (Accelerator Mass Spectrometry) dating of identified and recommended charcoal samples. All calibrated AMS dates in this report are quoted to 2 Sigma.

All excavation and post excavation works were carried out in consultation and agreement with the Project Archaeologist, the National Monuments Section of the DOEHLG and the National Museum of Ireland.

2 EXCAVATION RESULTS

A small collection of early medieval-medieval charcoal production kilns were identified at Williamstown 3 and are described here as a single phase of archaeological activity (Phase 2). Phase 1 describes the subsoil, Phase 3 describes the topsoil. Detailed descriptions of the contexts are listed in Appendix 1. The site matrix is detailed in Figure 7.

2.1 Phase 1: Natural Drift Geology

The dominant bedrock geology identified along the corridor of the proposed route are Lower Carboniferous rocks, mainly limestone lithologies, which overlay Devonian Old Red Sandstone rocks. Carboniferous volcanic rocks were also identified as being present locally in the form of sills passing through the bedrock sequences (Riada Consult, 2003). The underlying geology of the area is overlain by occasional moraines and small glacial hillocks covered by grey brown podzolic soils.

The subsoil C2 above bedrock encountered at Williamstown 3 was uniform across the site and consisted of a firm yellow/orange brown sandy clay with underlying green gravels.

2.2 Phase 2: Medieval Charcoal Production Kilns and Associated Features

Two areas, Area A (10m by 10m; Plate 1) and Area B (15m by 15m; Plate 2) were excavated. In Area A one truncated charcoal production kiln was identified. Area B (20m to the southeast) contained three larger charcoal production kilns and a possible forth example.

Area A

2.2.1 Possible Charcoal Production Kiln C12

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
12	N/A	1.5	0.4	0.05	Oval cut, concave base	Charcoal pro. kiln cut
13	C12	0.8	0.4	0.05	Charcoal deposit	Upper fill
14	C12	1	0.6	0.03	Firm red burnt clay, no inclusions	*In situ* burning

Finds: None

Interpretation:
Possible charcoal production kiln C12 was the sole archaeological feature in Area A (Figure 4; Plates 1 and 3). This was heavily truncated and survived as a very shallow oval-shaped cut (78.05m OD at base of cut). Burnt clay deposit C14 was evident around the northern edges, and at the base of this feature and this was overlain by charcoal deposit C13. A sample of this charcoal was processed by soil floatation and identified to species. All of the charcoal retrieved (6.7g) was identified as oak (*Quercus* sp.), and was probably coppice material (Appendix 2.4). No finds were recovered and no date was obtained. However, this was probably contemporary with the charcoal production kilns in Area B immediately to the east.

Area B

2.2.2 Large Pit C19 and Posthole C20 (Possible Charcoal Production Kiln)

This large rectangular shaped cut (C19) was located in the northern half of Area B (Figures 5, 6; Plates 4 and 9).

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
19	N/A	2.8	1.9	0.34	Sub-rectangular cut, steep sides, flat base	Poss. charcoal pro. kiln
20	N/A	0.25	0.25	0.08	Circular cut, concave base	Cut of posthole
22	C19	3.05	2.2	0.32	Brown clayey sand, baked lumps of clay	Upper fill
23	C19	2.25	1.6	0.3	Black charcoal rich silt, burnt bone, stones	Primary fill
24	C20	0.25	0.25	0.08	Brown/grey clayey sand, no inclusions	Fill of posthole

Finds: None

Interpretation:
This feature is tentatively identified as a charcoal production kiln. It was sub-rectangular in plan, with rounded corners, sharp sloping sides and irregular/flat base (77.8m OD at base). It was cut into very rough, gravel/clay subsoil. A small, shallow posthole (C20) was identified at the southeast, and inside edge of the cut. Charcoal production kilns would have been 'set' by placing a post within the earth-cut-pit, the wood (in most cases oak) would have been stacked against this and covered by layers of straw or bracken and were then sealed by a layer of earth or turf. The post was removed and the charcoal production kiln was subsequently ignited as the wood was roasted to produce the charcoal over a number of days (Cf. Section 3.3). Posthole C20 (filled by brown/grey clay C24) may have been the remnants of such a post, although unlike this example, it would be expected that the posts would have been central to the feature.

The primary fill (C23) consisted of a charcoal rich clay containing high concentrations of oak charcoal. Burnt stones, burnt animal bone and carbonised seeds were also recorded from this deposit. However, it is possible that the burnt bone and seeds are from the interface/mixed layer between abandonment fill C22 and the charcoal deposit. The abandonment deposit C22 may have originally contained the bulk of this domestic refuse material, but unfortunately as this fill was not sampled or processed it is not possible to say if this 'domestic refuse' originated in this later layer. This argument would strengthen the assertion that this was a charcoal production kiln.

The burnt animal bone was highly fragmented. Out of 153 fragments only eight could be identified to species. Sheep, cattle and pig were identified and sheep dominated the small assemblage. These bones may have originally been discarded into a fire and this has rendered them totally calcined and white (McCarthy, Appendix 2.1).

A sample of the burnt stone was subject to petrographical analysis which showed that it consisted of decayed and burnt, angular coarse, yellow red quartz rich sandstone. This stone is readily available within the glacial tills/subsoils, but is not part of the local bedrock (Mandal, Appendix 2.6). A sample of the charcoal from C23 was processed by soil floatation and identified to species. A small sample (5g) of the overall charcoal retrieved (715g) was identified as oak (*Quercus* sp.), however it is very likely that all the material is oak (O'Carroll, Appendix 2.4). A small fragment (1g) of oak charcoal was extracted for AMS dating and returned a result of 897+/-24 BP (UBA 9145). The 2 Sigma calibrated result for this was AD 1043–1212 (Appendix 2.5) which dates this feature broadly to the early medieval/medieval period. However, it must be noted that as the charcoal was oak, and the sample could not be identified as brushwood or coppice (young oak), the date obtained must be treated with

caution. It is possible that this feature was much later in date, perhaps contemporary with charcoal production kiln C8, described below (Cf. Section 2.2.4).

The charred cereal grain assemblage included bread/club wheat (*Triticum aestivum/ compactum*) which was the dominant crop type identified, followed by oat (*Avena* sp.) and much lower incidences of barley (*Hordeum* sp.). Fragments of vesicular and eroded grains (indeterminate) were also recorded (Lyons, Appendix 2.2). Lyons also notes some carbonised wild species from this fill including a cherry stone (*Prunus* sp.) fragment, tentatively identified as dwarf cherry (*Prunus cerasus*) and fragments of vetch/pea (*Vicia/Lathyrus* spp.) seeds. In addition to this, fragments of hazelnut shell were also identified. The presence of wheat, barley and oat is consistent with the medieval date for this context. The hazelnut shell and cherry stones and vetch/pea may have been collected when the wood was gathered, if this was a charcoal production kiln.

A small fragment (25g) of non-porous metallurgical ceramic (3cm long axis) was recovered from C23 (Appendix 2.3). This sample is too small to draw any definite conclusions and it is obviously a residual piece. However, it is an indication that this feature was connected to metalworking, as it is well documented that the charcoal produced from charcoal production kilns was used as fuel for metalworking furnaces.

This feature conforms to some of the recognised typology for charcoal production kilns: rectangular; steep sides; flat base; scorched edges; primary charcoal deposit of oak charcoal. Although there was little in the way of *in situ* burning around the edges of the cut, the upper fill (C22) did contain lumps of burnt clay. However, the large quantities of burnt bone within the fills is unusual for this feature type, and the charcoal, although it is oak, did not survive as a thick charcoal deposit as would be expected. It is possible, therefore, that these deposits represent backfills of the feature after the last use. In this instance the majority of the charcoal would have been removed, raked out, perhaps taking with it quantities of burnt clay. The primary fill (C23) possibly represents a dumped/washed-in mixture of some remnants of this charcoal mixed with soils, and occupation waste, perhaps from nearby cooking.

It is difficult to explain the high occurrence of carbonised grain retrieved from this feature; however this may be the dumped refuse from nearby domestic activity, deposited along with the burnt bone, after the abandonment of the feature as a charcoal production kiln. It is also possible, although unlikely, that this feature was a cereal drying kiln at some stage in its lifespan.

On the basis of the typology and all the specialist evidence it is not possible to state definitively whether this feature was a charcoal production kiln, or pit backfilled with domestic refuse.

2.2.3 Charcoal Production Kiln C3

This was located in the southeast of the site, c. 8m southeast of possible charcoal production kiln/pit C19 (Figures 5, 6 and 7; Plate 5).

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
3	N/A	0.94	0.7	0.17	Oval cut, irregular sides and base	Charcoal pro. kiln cut
4	C3	0.74	0.69	0.1	Soft, mid brown sandy silt, no inclusions	Uppermost fill of kiln
5	C3	0.71	0.5	0.1	(50-60%) charcoal (40-50%) fine sandy silt	Charcoal deposit
6	C3	0.4	0.15	0.04	Soft-firm compaction, reddish clay	Burnt clay, *in situ*
7	C3	0.85	0.7	0.18	Mid brownish grey sandy silt, no inclusions	Primary fill

Finds: None

Interpretation:
Charcoal production kiln C3 (77.6m OD at base of cut) was sub-oval in plan and had very irregular sides and base. In this sense the cut did not conform to the general typology for this feature type (having a flat base), however there was evidence of burnt clay (C6) around the southern edge of the cut. The primary fill (C7) was a relatively sterile clay, possibly an attempt to flatten the base. The charcoal deposit (C5) overlay this. Charcoal (24g), obtained from a processed soil sample of this deposit was found to be almost entirely oak (*Quercus* sp.), while one fragment of hazel (*Corylus avellana*) was also identified (O'Carroll, Appendix 2.4). These deposits were overlain by a relatively sterile abandonment fill (C4). This charcoal production kiln was probably related to, and contemporary with, examples C8 and C10 and perhaps C19 (see note on oak charcoal date Cf. Section 2.2.2). Fragments of hazelnut shell were also recovered from the charcoal deposit C5 (Lyons, Appendix 2.2).

2.2.4 Charcoal Production Kiln C8

This was located in the southeast of the site, c. 1.5m southeast of charcoal production kiln C3 (Figures 5, 6; Plates 6 and 7).

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
8	N/A	1.4	1.01	0.22	Oval cut, sloping sides, flat base	Charcoal pro. kiln cut
9	C8	1.28	0.9	0.21	Charcoal	Charcoal deposit
18	C8	1.4	0.9	0.15	Mid brownish grey sandy silt, no inclusions	Abandonment fill

Finds: None

Interpretation:
Charcoal production kiln C8 (77.42m OD at base of cut) was oval-shaped in plan with steep sides and a flat base. There were some elements of *in situ* burning around the edges of the cut. The primary deposit (C9) constituted an almost 100% charcoal layer (Plate 6). Approximately 20g of charcoal was obtained from a processed soil sample of this deposit. This consisted 12g of hazel (*Corylus avellana*), 8g of blackthorn (*Prunus Spinosa*) and 0.01g of alder (*Alnus glutinosa*). The hazel and blackthorn was approximately 6–9 years old, possibly coppice wood (O'Carroll, Appendix 2.4). The hazel and blackthorn (1g) charcoal was extracted for AMS dating and returned a result of 606+/-22 BP (UBA 9144). The 2 Sigma calibrated result for this was AD 1298–1403 (Appendix 2.5). Fragments of vesicular and eroded grains were also recorded from C9 and are likely to be residual grains from C19.

2.2.5 Possible Charcoal Production Kiln C10

This possible charcoal production kiln was located between possible charcoal production kiln/pit C19 and C3 (Figures 5, 6; Plate 8).

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
10	N/A	2.19	1.45	0.23	Sub-rectangular cut, sloping sides, flat base	Charcoal pro. kiln cut
11	C10	1.44	1.3	0.2	Charcoal with soft black sandy silt	Charcoal rich layer
21	C10	2.2	1.34	0.13	Soft brownish/grey clayey sand	Abandonment fill

Finds: None

Interpretation:
This was tentatively identified as a charcoal production kiln. It was sub-rectangular in plan with gently sloping sides and a relatively flat base, although it was cut into uneven stony gravel (77.7m OD at base of cut). There was little evidence of scorching around the edges/base of the cut. The primary fill (C11) was a mixture of

charcoal and silty clay, unlike adjacent charcoal production kiln C8, which had a deposit of pure charcoal at the base. The fill C21 probably represents washed-in soils after the abandonment of the feature. Although this feature lacks the dense charcoal deposit and scorching which would be expected from a charcoal production kiln, it can be interpreted as a possible example of this feature type. If this was a charcoal production kiln the charcoal deposit (C11) may be a mixture of washed-in residual charcoal and soils after the charcoal was removed.

2.3 Phase 3: Topsoil

2.3.1 Topsoil

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
1	-	Site	Site	0.30	Soft light brown loam/clay	Topsoil

Finds: None

Interpretation:
The topsoil sealed all of the archaeological deposits and features at Williamstown 3.

3 SYNTHESIS AND DISCUSSION

3.1 Landscape Setting

The new route of the N6 runs from south of Kilbeggan town to east of Athlone Co. Westmeath, crossing through the northern part of Co. Offaly for approximately 7.5km of its entire length. The landscape of this area is comprised of generally flat to undulating terrain. The underlying geology of the area is dominated by carboniferous limestone and is overlain by occasional glacial features such as moraines and eskers. The eskers dominate to the north and south of most of the route, with moraines featuring along parts of the western section toward Athlone. The soil cover varies considerably across the scheme, passing through soil complexes, grey brown podzols, boglands and alluvial deposits. The area is drained by the River Shannon through its tributaries, the Brosna, Boor, Cloghatanny and Gageborough rivers.

The site at Williamstown 3 was located 4km west of the town of Moate on flat pasture (78m OD) in an area of gently undulating lowland. The underlying geology of the area is carboniferous limestone, which is overlain by occasional moraines and covered by soil complexes of the Patrickswell/Baggotstown soil series, thus consisting of fertile pasture interspersed with pockets of wetland. Approximately 500m southeast is a small stream which joins up with the Boor River at Toorydonnellan. The closest sizeable bog is the small bog located on the boundaries between the townlands of Boyanaghcalry, Williamstown, Magheramore, Killinroan and Mackanrany 700m to the northeast (6" OS map 1834–1842).

3.2 Archaeological Landscape

Early Medieval Landscape

Williamstown 3 is located roughly halfway between the towns of Athlone and Moate, both of which have origins in the early medieval period. The nearest recorded early medieval monument at Moate, Co. Westmeath is a ringfort to the west at Tullaghnageeragh (WM030-108), however the sites in closest proximity are castles dating to the later medieval period. A significant excavation, c. 11km to the ENE of Moate, at Gneevebeg uncovered an enclosed cemetery of probable early medieval date in addition to cereal-drying kilns, a ballaun stone and a number of pits and ditches (Wallace 2002).

The largest of the towns along the N6, Athlone, is situated on the banks of the River Shannon in Co. Westmeath. By the ninth century AD the territory to the immediate west of Athlone was occupied by the *Delbna Nuadat* and the region to the east was inhabited by a vassal tribe of the southern *Uí Néill* called the *Bregmine* who gave title to the barony of Brawny (Murtagh 2000, 9). Archaeological evidence in the form of five decorated grave slabs, dating between the middle eighth to tenth centuries, indicates that an unrecorded ecclesiastical site was situated in Athlone at this time (Murtagh 2000, 11). Athlone is associated with a battle in AD 894 between the Connachtmen and the men of Meath meanwhile Lough Ree, to the north, was repeatedly the focus of Viking activity between AD 922 and 937 (*ibid*.). Little is known about the development of Athlone west of the Shannon but the surviving castle, probably constructed in the 13th century, was possibly built on the site where the castle of the *Uí Conchobhair* stood in the early 12th century (Sullivan 1997); of which the precise location is unknown (Murtagh 2000, 13). Recent excavations in Athlone have failed to locate any trace of early medieval activity; instead they have revealed later activity dating mainly to the late middle ages and post medieval period.

The Hill of *Uisneach* located c. 14km to the NNW of Kilbeggan is often referred to as a central axis point or place of assembly of high importance, due to its location in *Mide* (Schot 2006, 41). During the early medieval period it was thought to hold contemporary significance with Tara and many mythological and annalistic tales refer to the area as one of territorial and spiritual consequence. Reanalysis of the excavations undertaken by MacAlister and Praeger in the 1920s at Rathnew, a figure of eight shaped enclosure at the Hill of *Uisneach*, has highlighted activity during the late Iron Age and early medieval period. It has been suggested that the conjoined bivallate ringfort with associated structures and souterrain may have functioned as a royal seat of the *Clann Cholmáin* further adding to the political and religious significance of this landscape (*ibid*. 65).

Crannógs also feature significantly in this region and include those excavated by Hugh Hencken during the 1920s at Ballinderry I, Co. Westmeath (Hencken 1936) and Ballinderry II, Co. Offaly (Hencken 1942), located c. 2km northeast and ENE respectively from Moate. Recently, the excavated evidence from both crannógs has been reinterpreted by Ruth Johnson (1999) at Ballinderry I and Conor Newman (2002) at Ballinderry II. These crannógs are centrally located in relation to many important early medieval ecclesiastical centres, such as Clonmacnoise, Gallen, Bealin, Durrow, Rahan and Inchbofin (Johnson 1999, 24).

Ballinderry I, located in the barony of Clonlonan, has been interpreted as a high status early medieval site with evidence for craft working, agriculture, trade, hunting or warfare and domestic and leisure activities (Johnson 1999). The tenth century Ballinderry game-board is thought to be the most striking piece of decorated wood of this period found outside Dublin and certainly adds to the significance of the settlement. The artefactual evidence for Hiberno-Scandinavian influence at Ballinderry I is strong and it has been suggested that this may be associated with a rise in the military and economic strength of the *Clann Cholmáin* in the region (Johnson 1999, 67). Newman's reassessment of the early medieval activity at Ballinderry II, located in the barony of Kilcoursey, revealed evidence for high status deer hunting, killing and feasting (Newman 2002). The abundance of deer bone and antler in the faunal assemblage and presence of c. 11 circular wicker structures are associated with numerous high quality artefacts dating to the sixth and seventh centuries. Artefacts including pins with zoomorphic design, sherds of E ware and gaming pieces indicate possible trade with northern Europe (Newman 2002, 111).

A more recent excavation of a crannóg was undertaken at Newtownlow, in the barony of Moycashel a short distance to the northeast of Kilbeggan (Bourke 1984, 1985). At Coolure, on Lough Derravaragh also within the barony of Moycashel, a crannóg was the focus of a recent archaeological survey, environmental investigation and artefactual and landscape research (O'Sullivan *et al* 2007). Historically, the impact of the Vikings in the region and specifically on Lough Ree is well summarised by Alfred Smyth (1979, 246–53). Ballaghkeeran Little, in the barony of Clonlonan, has been suggested as the location of a possible *longphort* site (Fanning 1983).

Excavations of ecclesiastical sites are rare in the archaeological record but a monastic enclosure was partially excavated at Clonfad, Co. Westmeath (Stevens 2006, 8–11). The findings revealed that a variety of industrial and craft activities occurred on the site including extensive evidence for ironworking and non-ferrous metalworking, notably the production of handbells, and bone working. Another ecclesiastical site excavated at Kilpatrick, located in the most northern barony of Westmeath in Fore, also revealed evidence for bone, antler and ironworking (Swan 1976, 89–96; 1994/95, 1–21).

Although brief, this discussion attempts to illustrate that the early medieval landscape of the N6 route was comprised of a series of important well organised secular settlements interspersed with ecclesiastical centres; all of which were linked through established routeways. This region, bordering Connaught and Leinster, has been shaped by activities associated with recurrent struggles for both territory and power which continued well into the later medieval period.

Medieval Landscape

A number of late medieval monuments are recorded in Moate town, and its surrounding townlands, located c. 4km to the east of Williamstown 3. These include, a motte-and-bailey at Moategranoge (WM030-111), a tower house (WM030-112), sheela-na-gig (WM030-112001) and burial ground (WM030-113) in Cartronkeel and an unclassified castle (WM030-109) is located at Baltrasna to the southwest.

Athlone town is located c. 7km to the west of Williamstown 3. This is the largest of the towns along the N6, and is situated on the banks of the River Shannon in Co. Westmeath. A Cluniac (reformed Benedictine) priory was established here at some stage during the 12th century on the west side of the Shannon indicating the emergence and beginnings of a town prior to the Anglo-Normans' arrival (Murtagh 2000, 14). Initially, it appears that Richard Tuit was granted the territory of Ballyloughloe on the east side of Athlone and by AD 1200, the Anglo-Norman conquest had moved westwards as Geoffrey de Constentin was granted a cantred on the opposite side of the Shannon (*ibid*.). Athlone became a strategic town of high importance and royal centre throughout the 13th century and the town grew accordingly (*ibid*., 21–4). However, by the 14th century, repeated attacks on the town by the Irish and the crown's concerns over Dublin meant it became peripheral to government policies and the inhabitants were probably Irish or Anglo-Irish at this point (*ibid*., 28). The number of recorded monuments in Athlone is high and those of interest here include an Anglo-Norman masonry castle (WM029-042002), a bridge (WM029-042004), a weir (WM029-042081), churches (WM029-042021 & WM029-042023) and 17 town defences, amongst many more monuments, that indicates the scale, industry and defensive concerns of the town throughout the late medieval period. A large number of excavations have also occurred throughout Athlone town in recent years on both sides of the Shannon revealing late and mainly post medieval features (for example Byrne 1998, 2000, 2002; Halpin 1991a, 1991b).

Other recorded late medieval monuments in the immediate area, excluding those already mentioned, a number of unclassified castles at Williamstown (WM030-091), Magheramore (WM030-099), Killogeenaghan (WM030-089) (see Figure 2), most of which probably date to the later middle ages. A number of church sites are also recorded although it is difficult to establish if they originated during the early medieval period or after.

Early Medieval/Medieval Williamstown 3

Excavations at Williamstown 3 revealed a number of charcoal production kilns, and associated features. Five examples were noted, two of which were tentatively identified and may have been backfilled with occupation debris after the abandonment of these features as charcoal production kilns.

A number of definite features of this type have been uncovered along the N6 Kilbeggan to Athlone road scheme. The closest examples to Williamstown 3 were noted at Curries 1 and Curries 2 located on two gravel ridges c. 5km to the east. Two early medieval examples were excavated at Curries 1 (Lynch 2009b). The first, (charcoal production kiln C40; 1.21m x 1.28m x 0.14m), contained a charcoal deposit of 2% oak, 3% hazel, 10% alder and 85% willow. A sample of alder returned a date

of AD 783–994 (2 Sigma). The charcoal deposit within a second example (C3; 1.3m x 1m x 0.11m) was 100% oak. Brushwood oak returned at 2 Sigma date of AD 773–968.

Potentially six charcoal production kilns were identified at Curries 2, c. 100m east of Curries 1 (Lynch 2009c). Most of these charcoal production kilns were roughly sub-oval in plan with flat bases. The largest (C6) however was sub-rectangular and measured 2.74m by 1.58m by 0.21m had evidence of oxidised clay at its base and dated to AD 989–1148 (2 Sigma). The dominant taxon identified form the charcoal production kilns was oak which was exclusively present in charcoal production kilns C48 and C74, otherwise the dominant taxon in charcoal production kilns C6, C11 and C37 was alder suggesting that alder coppice as well as oak woods/coppice was being used interchangeably on the site. A single metallurgical furnace at this site is also evidence of small scale metalworking here.

In addition to this, another isolated, undated example (3.6m x 1.8m x 0.82m), was excavated at Culleenagower 1 c. 1.5km further to the east (Whitty 2008).

A cluster of charcoal production kilns were uncovered on the easternmost section of the scheme, to the south of Kilbeggan town. At Tonaphort 3 a rectangular example (C4) returned a 2 Sigma date of AD 777–970 (Coughlan 2009b). A large rectangular charcoal production kiln at Kilbeggan South 3 (C12), measuring 2.97m x 1.85m x 0.3m (length x width x depth), displayed evidence for a heat-scorched base and sides and its primary fill contained charcoal-rich material with a number of large well preserved pieces of carbonised wood (Coughlan 2009a). A sample of charcoal (elm) from this fill returned a 2 Sigma date of AD 1157–1251. The upper fill contained mixed clays and this possibly represents the collapse of the superstructure after the charcoal production kiln had gone out of use. An even larger oval-shaped charcoal production kiln from the same site (C19), 3.3m x 1.96m x 0.05m also produced a charcoal-rich primary fill with large well preserved pieces of carbonised wood and evidence for intense *in-situ* burning (*ibid*.). A similar date of AD 1052–1217 (2 Sigma) was obtained from charcoal (young oak) within the primary fill. At Ballinderry Big 3, a large rectangular-shaped charcoal production kiln (C12), 2.78m x 1.14m x 0.18m, displayed evidence for a scorched base and its primary fill consisted of over 50% charcoal inclusions (Lynch 2009a). Charcoal (oak branch) from this fill returned a date of AD 896–1014. A second example (C13) here was dated to AD 779–940 (2 Sigma). Finally, two features (C6 & C11) that were intensively heat-scorched and contained high levels of charcoal were excavated at Kilbeggan South 1 (Coughlan 2009c). The former returned a 2 Sigma date of AD 877–984 while the latter was dated between the middle 11th and early 13th centuries. Smaller examples were also noted such as the circular charcoal production kiln at Kilgaroan 1 (C7), 1.2m x 1.5m x 0.25m, which had oxidised edges and frequent charcoal lump inclusions in both its primary and upper fills (Bayley 2009). This charcoal production kiln was dated between the middle 16th and middle 17th centuries.

Approximately half way between Kilbeggan and Moate in the townland of Russagh a potential charcoal production kiln (C19) at Russagh 4 (0.91m x 1.4m x 0.08m) returned a 2 Sigma date of AD 994–1153 (O'Carroll 2006).

Other examples found along the scheme include two large sub-rectangular charcoal production pits at Monganstown 1 – on Section 1 between Kinnegad and Tyrellspass – which returned radiocarbon dates between the late ninth and early 11th centuries (Lehane and Johnston 2007) and at Stonehousefarm 3 – Section 2 between Tyrrellspass and Kilbeggan – that included oval and rectangular types. The primary

fill of the latter was charcoal-rich and included large pieces of charred wood (McDermott 2004).

It appears that the majority of charcoal production kilns date to the latter part of the early medieval period into the early part of the later Middle Ages and the findings on the N6 broadly mirror the findings from other dated examples (Carlin *et al* 2008; Kenny 2008). It is also apparent that these industrial features were located a safe distance away from settlement sites and in areas close to the required natural resources such as wood and bogland.

3.3 Archaeological Typology Background (Charcoal Production Kilns)

Charcoal production kilns were essential to the ironworking process as charcoal was produced as a fuel in the smelting and forging stages. Very little was known about charcoal production until recently (O'Sullivan and Harney 2008, 198), however, there has been an increased identification of such sites during the recent rise in development led excavations. As a result charcoal production kilns are now beginning to feature more in publications (Carlin *et al* 2008; Grogan *et al* 2007; Hull and Taylor 2006).

An unpublished paper by Niall Kenny (2008) has identified approximately 100 charcoal production kilns in Ireland. They range in form from rectangular to oval and circular, with sub-variations of these. It appears, on current evidence, that the classic type are large and rectangular in plan such as Hardwood 3, Co. Meath, where long carbonised pieces of oak were found placed along the long axis of the charcoal production kiln making up almost 100% of the deposit (Carlin *et al* 2008, 101; Illus. 5.8b, 102). Rectangular charcoal production kilns tend to be larger than oval and circular types with an average length of 2.5m but they can also be as long as 4m (Kenny 2008, 14–5). Oval charcoal production kilns tend to be shallower than the other types while the circular examples are usually smaller but deeper compared to rectangular and oval charcoal production kilns (*ibid*., 15).

Charcoal production kilns are usually identified as earth-cut pits, containing charcoal rich fills, often with evidence for extensive *in-situ* burning along the base and sides (Carlin *et al* 2008, 101). The large rectangular-shaped charcoal production kilns appear to represent the 'classic' type, as typified by those found on the M4 (Carlin *et al* 2008), but they can also be circular and oval-shaped (Kenny 2008). It is important to stress that charcoal production kilns, such as Hardwood 3 and Kilmaniheen West 10 and 12, Co. Kerry (Hull and Taylor 2006, 29–30), were recognisable because the carbonised wood had survived *in-situ* upon excavation. These charcoal production kilns were abandoned possibly because the charcoal became wet. Successful charcoal production kilns would have been stripped of their charcoal and may just be recognisable as heat-scorched pits probably containing only moderate amounts of charcoal. This may have lead in the past to identification problems in the field.

The majority of charcoal production kilns are located away from settlements and close to the raw materials required for the primary ironworking such as bog and woodlands. Large quantities of trees were required for charcoal production and, similarly, large quantities of iron ore, available within surrounding bogs (Mytum 1992, 230; Raftery 1994, 147) were needed during the smelting process. Kenny's (2008, 20–2) research has also shown that the majority are located on sloping and agriculturally unproductive ground where drainage was probably an important factor because it was imperative to keep the charcoal dry.

Radiocarbon dates are available from a number of charcoal production kilns. Of those dated, the majority appear to date to the latter part of the early medieval

period. The charcoal production kilns at Hardwood 3, Rossan 3, Ardnamullan and Newcastle 2, excavated along the M4, returned radiocarbon dates from between the eighth and 13th centuries (Carlin *et al* 2008, 88). Charcoal production kilns at Kilmaniheen West, Co. Kerry and Barefield, Co. Clare also returned radiocarbon dates spanning the latter part of the early medieval period (Hull and Taylor 2006). A circular charcoal production kiln at Mondaniel 2, Co. Cork was dated to AD 1420–1640 (Kenny 2008, 18) but, on current evidence, charcoal production kilns generally date to the latter part of the early medieval period into the early years of the later middle ages. It appears that charcoal production was at its most prolific during these years.

Charcoal is the material produced from the incomplete combustion of wood and was used as an effective fuel, much more so than wood or turf, during the smelting and forging stages of ironworking. It was produced through the placement of wood – mainly oak – against a vertical post in earth-cut pits that were covered by layers of straw or bracken and were then sealed by a layer of earth or turf. The post was removed and the charcoal production kiln was subsequently ignited as the wood was roasted to produce the charcoal over a number of days (Carlin *et al* 2008, 89–91). This was a labour intensive process that required careful supervision and plentiful raw materials. The identification of increasing numbers of charcoal production kilns emphasises that it was a widespread industrial activity. It was an essential component of the iron production process.

3.4 Discussion

One broad phase of archaeological activity was identified at Williamstown 3, a collection of charcoal production kilns. The two dates obtained (C19; AD 1043–1212 and C8; AD 1298–1403 (2 Sigma)) are consistent with the expected date range for this feature type (Cf. Section 3.3; Appendix 2.5). The earlier date was obtained from oak charcoal, and may be subject to the 'old wood effect'. However, on the basis that the earlier date is accurate, the dates suggest that this area was re-visited a number of times throughout the 11th to 14th centuries AD, and the idea that the charcoal production kilns could have been re-used an number of times cannot be discounted. On the this basis the available dates give a general date range for this site from the later part of the early medieval through to the earlier part of the medieval period. Charcoal production kilns tend to be identified as rectangular or oval pits, containing charcoal rich fills, often with evidence for extensive *in-situ* burning along the base and sides (Carlin *et al* 2008, 101). These features are usually identified by rich/dense charcoal deposits on the base, where the carbonised wood had survived *in-situ*, abandoned possibly because the charcoal became wet as is clearly demonstrated by the charcoal remains in charcoal production kiln C8. In cases where the charcoal production kilns had been successful, all the charcoal would have been removed, leaving a shallow pit with scorched edges.

The specific archaeological context of the site and its phases are described in detail below.

3.4.1 Phase 1: Natural Deposits

This phase represents the natural subsoil, which was cut or sealed by all subsequent archaeological features. The subsoil (C2) above bedrock encountered at Williamstown 3 was uniform across the site and consisted of firm yellow/orange brown sandy clay with underlying green gravels.

3.4.2 Phase 2: Early Medieval/Medieval Charcoal Production Kilns

Two areas, Area A (10m by 10m) and Area B (15m by 15m) were opened. In Area A one truncated charcoal production kiln was identified (C12). Area B, (20m to the southeast), contained the remainder, three larger examples and a possible forth.

The early medieval/medieval charcoal production kilns at Williamstown 3 (AD 1040–1400) are located within a relatively busy early medieval landscape. The surrounding area is well-populated with ringfort sites including WM030-093 located c. 200m to the southwest and WM030-091 located c. 350m to the northwest (Figure 2).

Potential medieval settlement is indicated by the sites of two unclassified castles: (WM030-091) c. 600m to the northwest; and a second (WM030-099) c 1.2km to the northeast (Figure 2).

Charcoal Production Kiln C12

Charcoal production kiln C12 (1.5m x 0.4m x 0.05m; 78.05m at base) was the sole archaeological feature in Area A (Figure 4; Plates 1 and 3). This was heavily truncated and survived as a very shallow oval-shaped cut with elements of burnt clay (C14) around the northern edges, and at the base. The overlying charcoal deposit (C13) was oak (*Quercus* sp.), and was probably coppice material (Appendix 2.4). Although this was undated, it was probably contemporary with the charcoal production kilns in Area B immediately to the east, and is described below.

Large Pit C19 (Possible Charcoal Production Kiln)

The largest feature in this excavation area was tentatively identified as a charcoal production kiln (Figures 5 and 6; Plates 4 and 9). This charcoal production kiln/pit (2.8m x 1.9m x 0.34m) was sub-rectangular in plan, with rounded corners, sharp sloping sides and irregular/flat base (77.8m OD at base).

The primary fill (C23) consisted of a charcoal rich clay containing high concentrations of oak charcoal. Burnt stones, burnt animal bone (sheep, cattle and pig; McCarthy, Appendix 2.1) and carbonised seeds were also recorded form this deposit. However, it is possible that the burnt bone and seeds are from the interface/mixed layer between abandonment fill C22 and the charcoal deposit. The abandonment deposit C22 may have originally contained the bulk of this domestic refuse material, but unfortunately as this fill was not sampled or processed it is not possible to say if this 'domestic refuse' originated in this later layer. This argument would strengthen the assertion that this was a charcoal production kiln.

A small, shallow posthole (C20; 0.25m x 0.25m x 0.08m; Plate 10) located at the southeast, and inside edge of the feature may have been part of a temporary structure onto which the wood was stacked prior to firing (Cf. Section 3.3). The charcoal rich deposit C23 was a mixture of soil and charcoal rather than a charcoal dense deposit which would be expected from a charcoal production kiln. The small portion of the charcoal that was analysed (5g) of the overall charcoal retrieved (715g) was identified as oak (*Quercus* sp.), however a visual assessment of the remainder suggests that all the assemblage is oak (O'Carroll, Appendix 2.4). A small fragment of this charcoal (1g) returned an AMS result of 897+/-24 BP (UBA 9145). The 2 Sigma calibrated result for this was AD 1043–1212 (Appendix 2.5) which dates this feature broadly to the early medieval/medieval period and is broadly contemporary with the Curries 2 charcoal production kilns. However, this date must be treated with caution as it may be subject to the 'old wood effect'. It is possible therefore that this feature was later in date and perhaps contemporary with charcoal production kiln C8. On the basis of the constituent parts of this deposit it is clear that this feature does not represent the remains of an 'unsuccessful charcoal production kiln' as there is no

dense charcoal deposit. There was also a high concentration of abraded charred cereal grains recorded from this feature including bread/club wheat (*Triticum aestivum/ compactum*), oat (*Avena* sp.) and barley (*Hordeum* sp.) (Lyons, Appendix 2.2). Lyons also identified fragments of vesicular and eroded grains (indeterminate species), some carbonised wild species including a cherry stone (*Prunus* sp.) fragment, tentatively identified as dwarf cherry (*Prunus cerasus*) and fragments of vetch/pea (*Vicia/Lathyrus* spp.) seeds as well as a few fragments of hazelnut shell. All these species are consistent with the medieval date for this context. Due to the quantity of carbonised seeds within this fill it is tempting to conclude that this feature was used as a cereal drying kiln at some stage during its life. However one would expect clear evidence of *in situ* burning at the base or within the lower levels of the fill sequence if this was the case. Alternatively the primary deposit (C23) or the interface between C22 and C23 may simply be backfilled, or washed-in occupation waste, from possible unidentified domestic activity outside the limits of the site. In this instance it is tempting to see that this occupation material entered the pit after it fell out of use as a charcoal production kiln. If this was the case the burnt stones identified within the fill may have been affected by the scorching at the base of the feature, and re-incorporated into C23.

This feature conforms to some of the recognised typology for charcoal production kilns and while there was little in the way of *in situ* burning around the edges of the cut, the upper fill (C22) did contain lumps of burnt clay which may have been 'raked out' when the charcoal was removed.

The presence of a small fragment (25g) of non-porous metallurgical ceramic was not enough to draw any definite conclusions and it is obviously a residual piece. However, it is an indication that this feature may have had an association with metalworking. It is well documented that the charcoal produced from charcoal production kilns was used as fuel for metalworking furnaces.

Charcoal Production Kilns C3, C8 and Possible Example C10

These three features were located to the southeast of C19. Charcoal production kiln C3 (0.94m x 0.7m x 0.17m; 77.6m OD at base) was sub-oval in plan and had very irregular sides and base (Plate 5). There was some scorching around the southern edge of the cut. The charcoal deposit (C5) was found to be almost entirely oak (*Quercus* sp.), while one fragment of hazel (*Corylus avellana*) was also identified (O'Carroll, Appendix 2.4). Charcoal production kiln C8 (1.4m x 1m x 0.22m; 77.42m OD at base) was also oval-shaped in plan with steep sides and a flat base with some elements of *in situ* burning around the edges of the cut (Plates 6 and 7). The primary deposit (C9) constituted an almost 100% charcoal layer which consisted 12g of hazel (*Corylus avellana*), 8g of blackthorn (*Prunus Spinosa*) and 0.01g of alder (*Alnus* sp.). The hazel and blackthorn was approximately 6–9 years old, possibly coppice wood (O'Carroll, Appendix 2.4). The hazel and blackthorn (1g) charcoal returned a result of 606+/-22 BP (UBA 9144), the 2 Sigma calibrated result was AD 1298–1403 (Appendix 2.5).

Charcoal production kiln C10 (2.19m x 1.45m x 0.23m; 77.7m OD at base of cut) was sub-rectangular in plan with gently sloping sides and a relatively flat base (Plate 8). There was little evidence of scorching around the edges/base of the cut. The primary fill (C11) was a mixture of charcoal and silty clay. Like pit/charcoal production kiln C19, the fill of this feature (C21) was probably a result of washed-in soils after the abandonment of the feature, rather than the charcoal remains that would be expected from a charcoal production kiln. This material was similar to the deposit (C23) in C19; it is possible that this is contemporary with that episode.

The low incidents of charred grain in charcoal production kilns C3 and C8 may be residual material from deposit C23 in pit C19 which was incorporated into these features inadvertently. The presence of this material within these charcoal production kilns does not have an implication on their interpretation.

The contemporary archaeological landscape

A number of similar sites to Williamstown 3 have been uncovered along the N6 Kilbeggan to Athlone road scheme. The closest examples to Williamstown 3 were at Curries 1 and Curries 2 located on two gravel ridges c. 5km to the east. Two charcoal production kilns with earlier dates than Williamstown were excavated at Curries 1 dated to AD 783–994 and AD 773–968 (Lynch 2009b). Potentially six charcoal production kilns were identified at Curries 2 the largest dating to AD 989–1148 which could be broadly contemporary with Williamstown 3. A single metallurgical furnace identified at Curries 2 is also evidence of small scale metalworking (Lynch 2009c). In addition to these an undated example was excavated at Culleenagower 1 c. 1.5km further to the east (Whitty 2009).

Clusters of charcoal production kilns were uncovered on the easternmost section of the scheme, to the south of the early medieval and medieval town of Kilbeggan. Examples here dated to AD 1052–1217 and 1157–1251 at Kilbeggan South 3. Close-by at Ballinderry Big 3 (Lynch 2009a) earlier examples were dated to AD 779–940 and AD 896–1014; a rectangular example at Tonaphort 3 was dated to AD 777–970 (Coughlan 2009b) while a much later example at Kilgaroan 1 was dated between the middle sixteenth and middle seventeenth centuries (Bayley 2009). These clusters show that this feature type was prominent in the outskirts of early medieval and medieval centres. This trend of locating charcoal production kilns away from settlements and close to the raw materials required for the primary ironworking (bog and woodlands) is well documented (Mytum 1992, Raftery 1994). The charcoal production kilns at Williamstown 3 are also evidence of this peripheral industrial activity within the early medieval/medieval Williamstown landscape.

The Early Medieval – Medieval Environment

Four wood species were identified from the Williamstown 3 charcoal assemblage (see Appendix 1.3 for background to sampling/processing). Oak (*Quercus* sp.) was the dominant taxon identified and was nearly exclusively present in the charcoal production kilns C3, C12 and C19. This suggests that oak was plentiful in the surrounding environment in the early medieval period (O'Carroll, Appendix 2.4). O'Carroll also states that the oak was possibly selected from a coppiced wood.

Hazel (*Corylus avellana*), alder (*Alnus glutinosa*) and blackthorn (*Prunus Spinosa*) charcoal present in charcoal production kiln C8 and the later date for this feature (AD 1298–1403) may be an indication that the oak coppice woods, identified in charcoal production kilns C3 and C12 and possible the possible charcoal production kiln C19 may have depleted by the 14th century and other less preferable wood types were being used for charcoal production. This is based on the idea that the earlier date for C19 (AD 1043–1212) is accurate, bearing in mind that the oak charcoal used for dating may have an inherent age. Both oak and alder charcoal were prominent in two contemporary charcoal production kilns at Curries 2.

Charred cereal grains identified primarily from C19 included bread/club wheat, oat and barley. Some carbonised wild species including a cherry stone fragment, tentatively identified as dwarf cherry, fragments of vetch/pea seeds as well as a few fragments of hazelnut shell were also found (Lyons, Appendix 2.2). These species are consistent with the medieval date for this context. Lyons notes that these cereals

would have been cultivated and consumed by all social classes during the medieval period and that oat would also have been used as animal fodder.

This suggests a landscape of coppice woodland with clearings for crop cultivation around the early medieval settlement (ringforts) and medieval settlement (potential castle) at Williamstown during the 11th – 14th centuries.

3.4.3 Phase 3: Topsoil

Post-abandonment (c. 15th century AD), the site would have been left to overgrow and would have been cultivated throughout the coming centuries resulting in the topsoil horizon (C1) which sealed the entire site.

4 CONCLUSIONS

The site at Williamstown 3 comprised five rectangular and oval shaped cuts interpreted as charcoal production kilns dating to the later part of the early medieval and earlier part of the medieval period 11th–14th century AD. The Williamstown charcoal production kilns conformed to the general typology for this feature: shallow rectangular/oval shaped cut; flat base; scorched edges; sometimes thick charcoal deposit at base (usually of oak). The charcoal, which at Williamstown was predominantly oak, would have been used as the fuel for metalworking furnaces and perhaps cereal drying kilns. The Williamstown charcoal production kilns are located within a relatively busy early medieval-medieval landscape and may represent peripheral industrial activity associated with the ringforts and/or potential castle sites within the wider area.

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PLATES

Plate 1: E2661: Area A, during excavation, facing southeast

Plate 2: E2661: Area B, during excavation, facing northwest

Plate 3: E2661: Charcoal production kiln C12 (Area A), pre-excavation, facing west

Plate 4: E2661: C19, during excavation, facing south

Plate 5: E2661: Charcoal production kiln C3, during excavation, facing east

Plate 6: E2661: Charcoal production kiln C8, during excavation, facing north, with charcoal deposit C9 *in situ*

Plate 7: E2661: Charcoal production kiln C8, during excavation, facing north

Plate 8: E2661: Charcoal production kiln C10, during excavation, facing south

Plate 9: E2661: C19, during excavation, facing east

Plate 10: E2661: Posthole C20, during excavation, facing west

APPENDIX 1 CATALOGUE OF PRIMARY DATA

Appendix 1.1 Context Register

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description	Finds
1	N/A	N/A	N/A	0.3	Topsoil.	Soft light brown loam clay.	N/A
2	N/A	N/A	N/A	N/A	Subsoil.	Firm yellow / orange to brown sandy clay with green gravel underlay.	N/A
3	N/A	0.94	0.7	0.17	Cut of charcoal production kiln.	Oval cut. Sharp break of slope at top at south and not perceptible at north. Sloping sides. Stepped break of slope on to an irregular base.	None
4	C3	0.74	0.69	0.1	Abandonment fill of charcoal production kiln.	Soft, mid brown sandy silt, no inclusions.	None
5	C3	0.71	0.5	0.1	Charcoal deposit	(50-60%) charcoal (40-50%) fine sandy silt.	None
6	C3	0.40	0.15	0.04	Burnt clay deposit.	Soft-firm compaction, reddish clay.	None
7	C3	0.85	0.7	0.18	Primary fill of charcoal production kiln.	Soft compaction, mid brownish grey sandy silt, no inclusions.	None
8	N/A	1.4	1.01	0.22	Cut of charcoal production kiln.	Oval cut. Sharp break of slope at top at south. Sloping sides. Sharp break of slope at base at west and gradual at east. Flat base.	None
9	C8	1.28	0.9	0.21	Charcoal deposit.	100% charcoal deposit.	None
10	N/A	2.19	1.45	0.23	Cut of charcoal production kiln.	Sub-rectangular cut, east–west orientation. Sharp break of slope at top. Sloping sides. Break of slope at base not perceptible. Flat base.	None
11	C10	1.44	1.3	0.2	Charcoal deposit.	Charcoal rich silt.	None
12	N/A	0.8	0.35	0.05	Cut of charcoal production kiln.	North–south orientation. Break of slope at top not perceptible. Gently sloping sides. Break of slope at base not perceptible. Flat base.	None
13	C12	0.8	0.4	0.05	Charcoal deposit.	Charcoal deposit.	None
14	C12	1	0.6	0.03	*In situ* burning.	Firm red burnt clay, no inclusions.	None
15	N/A	N/A	N/A	N/A	N/A	Same as C12.	None
16	N/A	N/A	N/A	N/A	N/A	Same as C13.	None
17	N/A	N/A	N/A	N/A	N/A	Same as C14.	None
18	C8	1.4	0.9	0.15	Abandonment fill of charcoal production kiln.	Soft compaction. Mid brownish grey sandy silt, no inclusions.	None
19	N/A	2.8	1.9	0.34	Cut of possible charcoal production kiln.	Sub-rectangular in plan. East–west orientation. Rounded corners but not perceptible at SW. Gradual break of slope at top. Sloping sides. Break of slope at base not perceptible but gradual at NE. Flat base.	None
20	N/A	0.25	0.25	0.08	Cut of posthole.	Circular cut in plan. Sharp break of slope at top. Sloping sides. Break of slope at base not perceptible, Concave base.	None

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description	Finds
21	C10	2.2	1.34	0.13	Upper fill of pit/kiln.	Soft brownish/grey clayey sand.	None
22	C19	3.05	2.2	0.32	Upper fill of pit/kiln.	Soft compaction. Brown clay/sand, with baked lumps of clay and stone inclusions.	None
23	C19	2.25	1.6	0.3	Charcoal deposit.	Soft compaction. Black charcoal rich silt with concentrations of cremated bone. Inclusions of occasional stones (some burnt).	None
24	C20	0.25	0.25	0.08	Fill of posthole.	Soft compaction. Brown/grey clayey sand, no inclusions.	None

Appendix 1.2 Catalogue of Artefacts

There were no artefacts recovered from this site.

Appendix 1.3 Catalogue of Ecofacts

A total of seven soil samples were taken at Williamstown 3, four of these were processed by flotation and sieving through a 250/300µm mesh and the results including charcoal and seeds are listed below. Animal bone samples were retrieved from the soil processing, the total results are listed below. Metallurgical waste was hand collected during excavation with appropriate associated soils and control samples, these are listed below.

1.3.1 Animal Bone/Burnt Bone

Context number	Sample number	Feature	Sample weight (g)
C23	7	Possible charcoal production kiln	235.5g

1.3.2 Charcoal

Context number	Sample number	Feature	Sample weight (g)
C9	1	Charcoal deposit, charcoal production kiln C8	346.4
C5	2	Charcoal deposit, charcoal production kiln C3	24g
C13	3	Charcoal deposit, charcoal production kiln C12	6.7g
C23	7	Charcoal deposit, charcoal production kiln C19	716.2g

1.3.3 Carbonised Seeds

Context number	Sample number	Feature	Sample weight (g)
C5	2	Charcoal deposit, charcoal production kiln C3	0.1g
C9	1	Charcoal deposit, charcoal production kiln C8	0.1g
C23	7	Charcoal deposit, charcoal production kiln C19	1.7g

1.3.4 Metallurgical Waste and Associated Samples

Context number	Sample number	Feature	Sample weight (g)
C23	7	Fill of C19 pit Area B	25g

Appendix 1.4 Archive Checklist

Project: N6 Kilbeggan – Athlone	**Irish Archaeological Consultancy Ltd**	
Site Name: Williamstown 3		
NMS Reg. Number: E2661		
Ministerial Directive: A016/033		
Site director: Fintan Walsh		
Date: 20 November 2008		
Field Records	**Items (quantity)**	**Comments**
Site drawings (plans)	3	
Site sections, profiles, elevations	1 section drawing sheet	
Other plans, sketches, etc.	0	
Timber drawings	0	
Stone structural drawings	0	
Site diary/note books	1	
Site registers (folders)	1	
Survey/levels data (origin information)	c. 20	
Context sheets	24	
Wood Sheets	0	
Skeleton Sheets	0	
Worked stone sheets	0	
Digital photographs	37	
Photographs (print)	0	
Photographs (slide)	0	
Finds and Environ. Archive		
Flint/chert	0	
Stone artefacts	0	
Pottery (specify periods/typology)	0	
Ceramic Building Material (specify types eg daub, tile)	0	
Metal artefacts (specify types - bronze, iron)	0	
Glass	0	
Other find types or special finds (specify)	0	
Human bone (specify type eg cremated, skeleton, disarticulated)	0	
Animal bone	230g	
Metallurgical waste	1	
Enviro bulk soil (specify no. of samples)	7	
Enviro monolith (specify number of samples and number of tins per sample)	0	
Security copy of archive	1	On IAC server

Appendix 1.5 Copy of Registration No. Document from DoEHLG

National Monuments
Acts (1930-2004)
Ministerial Directions
Record Number for
archaeological activity

AN ROINN COMHSHAOIL, OIDHREACHTA AGUS RIALTAIS ÁITIÚIL
DEPARTMENT OF THE ENVIRONMENT, HERITAGE
AND LOCAL GOVERNMENT

File: Direction No. A16

Registration Number: E2661

Directions have been issued to Murty Hanly on behalf of Westmeath County Council in order to regulate archaeological activities carried out on N6 Kilbeggan to Athlone (Phase 2).

Application having been duly made to me by Ed Lyne of 28 Whitethorn Walk, Lusk Village, Co. Dublin.

For a registration number to record excavation at the site of Williamstown site 033 being part of the townland of WILLIAMSTOWN in the County of Westmeath.

This registration is not an archaeological licence or consent but it is issued solely for archive purposes and to allow for the material from the activity to be registered with the National Monuments Service and the National Museum.

Signed Aileen Hunt 31 October 2006

Appendix 1.6 Copy of Ministerial Direction Document

Section 14A(2) National Monuments Acts 1930-2004

Directions to Westmeath County Council for the carrying out of archaeological works on the N6 Kinnegad to Athlone dual carriageway road scheme (Phase 2 * Kilbeggan to Athlone).

1. Introduction

The project is an approved road development, having been approved by An Bórd Pleanála on 26th March 2004.

The development will consist of a dual carriageway that will run for a distance of approximately 57.5km.

In line with recommendations in the Environmental Impact Assessment for the scheme, archaeological investigations included site specific testing followed by a centreline test trench with staggered offsets. The request for directions has an attached strategy document that covers the proposed resolution works

These directions relate to Phase 2 works and are issued following the receipt by the Minister of reports on the testing work carried out in Phase 1.

2. Directions

All aspects of the archaeological works should be conducted in accordance with provisions of the policy and advice notes on archaeological excavations issued by the Department and in line with the provisions of the Code of Practice agreed with the National Roads Authority. Archaeological works shall be carried out in accordance with the Strategy for Proposed Works submitted with the application seeking Directions.

3. Project Archaeologist

The Project Archaeologist appointed for the road development should ensure that the archaeological works are carried out in accordance with the terms of the directions.
· Any changes to the agreed method statement for the excavations should be submitted to the National Monuments Section for approval.
· Any proposal to change any named director of a specific excavation should firstly be notified to the National Monuments Section for approval.

4. Conduct of Archaeological Excavations:

a) The archaeological excavations should be carried out in accordance with the specifications set out in the strategy document submitted to the Minister.
b) The National Monuments Section should be notified of the commencement date of the works on site.
c) The names of the archaeological consultants, including site directors should be submitted to the National Monuments Section in advance of the works commencing.

d) Where necessary the layout of the archaeological trenches should be adjusted to include additional archaeological features and deposits or areas of archaeological potential.
e) All archaeological objects recovered in the course of the test excavations should be treated and conserved in line with the advice notes and guidelines issued by the National Museum of Ireland.
f) A report on the progress of the archaeological works shall be submitted to the National Monuments Section every 4 weeks.

5. Record Number for the scheme:

The record number for the recording of archaeological works is A016/000. Sub-numbers may be allocated by the Project Archaeologist to the additonal works. These numbers should be notified to the National Monuments Section for agreement with full details of the archaeological works involved.

6. Detection Device:

Detection devices may be used as appropriate in the course of archaeological works to recover archaeological objects. Details of proposed methodologies should be notified to the National Monuments Section.

7. Reports:

1. A report on the results of the archaeological excavations should be submitted to the National Monuments Section within 4 weeks of the completion of the works on site. Should additional time be required to complete the report the National Monuments Section should be notified before the expiration of the 4-weeks period. A copy of the report should be sent to the National Museum of Ireland.
2. A summary of the excavation results for the site should be published in the Excavations Bulletin for the year when works are undertaken.

8. National Monuments (Subsection 14A(4)):

If during the carrying out of the archaeological excavations a site should prove to be a National Monument within the meaning of the National Monuments Acts (1930-2004) all works should stop and the National Monuments Section should be informed immediately.

9. Inspection of Works

Officers, servants or agents of the Minister may inspect the archaeological works at any time and full co-operation should be given to them in carrying out the inspections.

APPENDIX 2 SPECIALIST REPORTS

REPORT ON FAUNAL REMAINS FROM WILLIAMSTOWN 3 A019/033

MARGARET MCCARTHY, MA MIAI
ARCHAEOLOGICAL CONSULTANT

A small and very fragmented assemblage of burnt animal bone of medieval date was recovered from a single feature at Williamstown. The bones were found in the primary fill (C23) of a large pit (C19) which was associated with three smaller pits. The bones from the large pit may have originally been discarded into the fire and this has rendered them totally calcined and white.

The samples are small and for the most part un-diagnostic. Sheep were the dominant species contributing six bones out of an identifiable sample of just eight fragments. The identified elements include single fragments of skull, mandible, tibia, radius as well as two vertebrae. Epiphyseal fusion data from the fused distal portion of a tibia indicated that this individual was over two years of age at slaughter. Cattle and pigs were also represented, cattle by the proximal midshaft portion of a tibia and pig by a metacarpal from an animal over one year of age at death.

Table 1: Identification of animal bone from large pit (C19)

	Cattle	**Sheep**	**Pig**	**LM***	**UNID***
Skull	-	1	-	-	-
Mandible	-	1	-	-	-
Radius	-	1	-	-	-
Tibia	1	1	-	-	-
Vertebra	-	2	-	-	-
Metacarpus	-	-	1	-	-
LBF*	-	-	-	12	133
TOTAL	1	6	1	12	133

LM* Large mammal UNID* Unidentifiable LBF* Long bone fragment

The sample of bones recovered during excavations at Williamstown 3 is obviously too small to be able to reconstruct the local animal husbandry at the time the site was occupied during the medieval period. There is no evidence however that the animal bones accumulated by means other than the disposal of domestic refuse and this is borne out by the predominance of the three main livestock species in the assemblage.

SUSAN LYONS MSC MIAI
ENVIRONMENTAL ARCHAEOLOGIST

N6 KILBEGGAN TO ATHLONE: PLANT REMAINS ASSESSMENT FROM WILLIAMSTOWN 3 A016/033 [E2661]

PROJECT CODE: PM/028
CLIENT: IAC LTD
DATE: AUGUST 2008

Introduction
This report discusses the plant remains assemblage recovered from the soil samples associated with the archaeological excavations at Williamstown 3, Co. Westmeath, along the N6: Phase 2 Kilbeggan to Athlone Dual Carriageway Scheme.

Background
An archaeological excavation was carried out at Williamstown 3, Co. Westmeath by Fintan Walsh of *Irish Archaeological Consultancy Ltd* (IAC Ltd) on behalf of Westmeath County Council and the National Roads Authority as part of the archaeological mitigation program associated with the N6 Phase 2: Kilbeggan to Athlone Dual Carriageway Scheme under the Ministerial Direction Number A016/033 [E2661].

The site is located in the townland of Williamstown to the north of the existing N6, c. 4km west of Moate town and situated immediately to the north of a recorded ringfort – WM030:093 (Walsh 2007). The excavation at Williamstown 3 revealed evidence for early medieval-medieval charcoal production kilns. Radiocarbon dating of charcoal from the site has returned an early medieval date of Cal AD 1043–1212 and Cal AD 1298–1403 (2 Sigma calibration) for the activities at the site.

Sample strategy
An on-site soil sampling strategy was implemented and features and deposits deemed archaeologically significance were sampled. Soil samples were processed by a system of flotation, whereby each sample was soaked in water in order to suspend the carbonised material; the floated material (flot) was then poured off and trapped in a sieve (mesh size 300µm). The flot was then dried and stored in a sealed plastic bag for further specialist analysis. The remaining material (retent) was wet-sieved through a 1mm mesh and air-dried. This would then have been sorted by eye and any material of archaeological significance would have been removed and recorded. The samples were processed by post-excavation staff at *IAC Ltd* under the supervision of Sarah Cobain.

The remains of three flots (Context 5, Context 9 and Context 23) were subsequently submitted to Susan Lyons in October 2007 to identify and analyse the carbonised material within. The primary objective of this project was to identify where possible any botanical remains present in order to help with interpreting the function or use of the site or indeed the features themselves.

Methodology
The carbonised material was viewed under a low powered binocular microscope (magnification x 0.8 to x5) and any botanical materials recovered were removed and identified to genus/species level where applicable. The plant remains were recorded using an abundance key to highlight the concentrations of material identified from each sample; + = rare (1–5), ++ = occasional (6–10), +++ = common (11–50) and ++++ = abundant (>50).

Identifications were made using reference to the author's seed collection and standard seed atlases and references; *Flora of the British Isles* (Clapham, Tutin, Warburg 1957), *Zadenatlas der Nederlandsche Flora* (Beijerinck 1976), *New Flora of the British Isles 2nd Edition* (Stace 1997) and *Digital Seed Atlas of the Netherlands* (Cappers, Bekker and Jans 2006).

Results

Preservation was by charring and the results are summarised in Table 1.

Table 1. Composition of the plant remains from Williamstown 3 (A016/033)

Context Number	Sample Number	Context Description	Carbonised cereal grain	Carbonised hazelnut shell	Carbonised wild taxa	Comments
5	2	Secondary fill of pit C3		+		
9	1	Primary fill of pit C8	+			Cereal indet +
23	7	Primary fill of pit C19	++++	++	+	*Triticum aestivum/ compactum* ++++ *Avena* sp. ++ Cereal indet + *Hordeum* sp. + *Vicia/Lathyrus* sp. + *Prunus* cf *cerasus* +

Key: + = rare (1–5), ++ = occasional (6–10), +++ = common (11–50) and ++++ = abundant (>50)

Carbonised cereal grain – The highest concentration of charred cereal grains were recorded from Context 23 (primary fill of pit C19). Bread/club wheat (*Triticum aestivum/compactum)* was the dominant crop type identified followed by oat (*Avena* sp.) with much lower incidences of barley (*Hordeum* sp.). The absence of cereal chaff and the abraded nature of the grains hindered further species identification to take place.

Fragments of vesicular and eroded grains were also recorded from Context 9 (primary fill of pit C8) and Context C23 and these appear in the tables as indeterminate grain. Due to the abraded nature of this material it was difficult to identify these grains to species level. Cereal grains can become eroded and abraded as a result of charring at high temperatures, that the grain was damp when burnt or that this material had degraded due to redeposition and/or exposure.

Carbonised wild species – A cherry stone (*Prunus* sp.) fragment, tentatively identified as dwarf cherry (*Prunus cerasus*) was recorded from Context 23. Context C23 also contained fragments of vetch/pea (*Vicia/Lathyrus* spp.) seeds. The carbonisation process would have inevitably distorted and altered the morphology of the material and as such further species identification proved difficult to undertake.

Carbonised hazelnut shell – Fragments of carbonised hazelnut (*Corylus avellana)* shell were recorded from Context C5 (secondary fill of pit C3) and Context C23.

Discussion

Carbonised plant remains

Wheat and barley are both crops cultivated since the prehistoric period, while oat, in its cultivated form, is primarily dated as a cultivated crop from the early medieval period in Ireland (Monk 1986). The recovery of wheat, barley and oat collectively from Context 23 supports the medieval date that was obtained for the site. These crop types have also been recorded from other later medieval dated sites, such as Kilferagh, Co. Kilkenny (Monk 1987a) and Ballyveelish, Co. Tipperary (Monk 1987b). These cereals would have been cultivated and consumed by all social classes during the medieval period and into modern times, with oat also being possibly used as animal fodder.

Carbonised hazelnut shell and cherry stones are both plant types common to woodland environments and are frequently recorded from archaeological sites (Greig 1991). Their presence is usually interpreted as the waste debris of gathered foodstuffs that have been discarded onto fires, material collected with wood for fuel or kindling or the remnants of drying or parching (hazelnuts) near or over a fire. Since the remains recovered from Williamstown 3 were in such small quantities, it is difficult to fully interpret how they came to be charred.

Species of vetch/pea are likely to have grown as cornfield weeds during the prehistoric period (Greig 1991, 301) but becoming common to many different habitats during the medieval and later periods (Greig 1991, 301). The presence of vetch/pea in their cultivated form are frequently under-represented on Irish archaeological sites and to date little is known as to how they contributed to the agricultural economy during the medieval and post medieval period. While they would have been used in human consumption, many varieties of legumes would also have been used as animal fodder and as a fuel resource (Greig 1991, 323).

The emergence of these plant types as cultivated crops has been said to coincide with the Anglo-Norman era in Ireland dating to c. 1200 AD. One suggestion for the rise in the use of legumes during this period is the introduction of a crop rotation system, where crops familiar to the Anglo-Norman population would have been allowed to thrive in a controlled environment (Monk 1986, 34). To date the evidence for field/garden peas on later medieval archaeological sites, such as Kilferagh, Co. Kilkenny (Monk 1987a), Ballyveelish, Co. Tipperary (Monk 1987b) and Trim, Co. Meath (Mitchell cited in Sweetman 1978) is generally recorded in low numbers. Based on such small assemblages and in the absence of chaff, in the form of pods and bracts, it is difficult to fully interpret the use of this material and how it contributes to the agricultural economy at these sites.

Distribution of plant remains

The only feature to contain a sizeable cereal grain assemblage was Context 23 (primary fill of pit C19). Carbonised cereal grain represents the charred residual material left behind as a result of corn drying (kilning) or a conflagration event within a kiln. This together with the high charcoal content recorded on site and hazelnut shell identified potentially offer evidence for the fuel used and/or the remnants of the superstructure of a kiln.

However whether Context C19 is the remains of a kiln is difficult to ascertain, especially since no obvious *in situ* burning was recorded from the feature. The presence of burnt bone retrieved from the excavation may imply that Context C19 was instead used or re-used as a rubbish pit, where domestic and kilning debris was discarded.

It is also true to say that such burning incidences and occupational activity would have resulted in charred grain, fuel debris and domestic debris becoming spread over a wider area and finding its way into many negative open features. Over time, this material would have become incorporated into deposits inadvertently or used to backfill features and this may explain the presence for low incidences of cereal grain and hazelnut shell in Context C5 and Context C9.

Conclusions

The cereal grains identified from Context C23 is indicative of domestic activity associated with corn drying dating to the medieval period. Whether pit (C19) once served as a corn drying kiln/storage facility or rubbish pit is difficult to ascertain. Many of the other plant remains in the form of carbonised hazelnut shell, cherry stone and

vetch/pea species may have been brought to the site inadvertently as weeds of cultivation, as gathered foodstuffs or as fuel. Whether the present of vetch/pea represents cultivated legumes is difficult to ascertain based on such a small assemblage.

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ARCHAEO-METALLURGICAL APPRAISAL OF SAMPLES FROM WILLIAMSTOWN 3 (A016/033)

DR. EFFIE PHOTOS JONES

SASAA no	Sample	Context	Typology	Description	Weight (g)	Dimensions
303.2	7	23	metallurgical ceramic?	Single small fragment of probably metallurgical ceramic, non-porous, dark grey, light, siliceous.	25g	3cm long axis

CHARCOAL IDENTIFICATIONS

N6 KINNEGAD – ATHLONE SCHEME
PHASE 2: KILBEGGAN TO ATHLONE
DUAL CARRIAGEWAY

MINISTERIAL DIRECTION NUMBER: A016/033
NMS REGISTRATION NUMBER: E2661
WILLIAMSTOWN 3

Ellen O'Carroll MA DIP. EIA Mgt
Archaeological Consultancy & Wood Specialist
8 Cumberland Street, Dun Laoghaire, Co. Dublin
Mob: + 353 (0) 086 8241753
Tel/Fax:+ 353 (0)1 2360795
Email: eocarroll@ireland.com

Introduction

Four samples were submitted for analysis. The charcoal was sent for species identification prior to ^{14}C dating and also to give an indication of the range of tree species, which grew in the area at the time of use of the site. Charcoal analyses may provide information on the utilization of certain species for various functions. Wood used for fuel at pre-historic sites would generally have been collected at locations close to the site. Therefore charcoal identifications may, but do not necessarily, reflect the composition of the local woodlands. Larger pieces of charcoal, when identified, can provide information regarding the use of a species for certain structural requirements or particular functions.

Williamstown 3 comprised two areas, Area A (10m by 10m) and Area B (15m by 15m). In Area A a single truncated charcoal production kiln (C12) was uncovered measuring 1.5m x 0.4m x 0.05m. The sides and base of this feature were scorched and the primary fill was 100% oak charcoal.

Area B contained a large pit which was 2.80m wide and 0.35m deep and contained charcoal rich clays and burnt animal bone. Three smaller charcoal production kilns were located to the southeast of this. A circular kiln (0.9 m x 0.7 m x 0.17 m) had evidence of *in situ* burning at its base and a charcoal (oak) rich fill above this. A second kiln immediately to the southeast (1.4 m east–west x 1 m x 0.22 m) contained two fills and was dated to AD 1298–1403. To the northwest of these two pits a larger pit (2.19 m east–west x 1.45 m x 0.23 m) contained a similar fill sequence.

These features were not associated with any structural remains. No finds were recovered from the excavation of Williamstown 3.

The samples analysed were retrieved from C5, C9, C13 & C23, charcoal fills of the charcoal production kilns.

Method

The process for identifying wood, whether it is charred, dried or waterlogged is carried out by comparing the anatomical structure of wood samples with known comparative material or keys (Schweingruber 1990).

The identification of charcoal material involves breaking the charcoal piece along its three sections (transverse, tangential and radial) so clean sections of the wood pieces can be obtained. This charcoal is then identified to species under a Nikon SMZ800 zoom stereomicroscope at magnifications x 10 – 190 and a transmitted light compound microscope at magnifications of x 10 – 400. By close examination of the micro-anatomical features of the samples the species were determined.

The diagnostic features used for the identification of charcoal are micro-structural characteristics such as the vessels and their arrangement, the size and arrangement of rays, vessel pit arrangement and also the type of perforation plates.

The charcoal samples were identified by weight and fragment count whereby each species was grouped together and a total weight and fragment count was obtained.

Results

Table 1: Results from charcoal identifications

Context no.	Context type & date	Sample no	Species	Weight and comment
5	Fill of pit,	4	Oak (24g*, 100+f*), Hazel (1f, 0.01g)	
13	Fill of hearth,	3	Oak (6.7g, 50+f)	Possible coppice material
9	Fill of pit (dating sample) AD1298–1433	1	Hazel (12g 40f,) Alder (0.01g, 1f) & Blackthorn (8g, 20f)	Hazel and Blackthorn brushwood. 6–9yrs. Possible coppice/hazel
23	Fill of pit (dating sample) AD1043–1212	7	All oak (5g, 50f)	Hundreds of grammes more of oak charcoal

* = grammes
* = fragment count

Table 2: Results from charcoal identifications

Botanical name	Species	Weight
Quercus spp	Oak	35.7 g
Corylus avellana	Hazel	12 g
Prunus Spinosa	Blackthorn	8 g
Alnus glutinosa	Alder	0.01g

Discussion & Conclusions

Oak (*Quercus* sp.) was the dominant taxon identified from the charcoal remains. Oak was nearly exclusively present in the charcoal production kilns C3, C19 and C12. Based on the date and the size of these pits and also the association with large quantities of oak wood it may be prudent to classify them as charcoal production or charcoal burning pits. The hazel, alder and blackthorn charcoal present in C9 and the later date may indicate that this is a feature associated with separate activity at the site. The pit did contain large fragment counts of hazel and blackthorn brushwood. The hazel was reminiscent of coppice material. Is it possible that the oak coppiced woods used for various functions within the earlier pits had depleted by the 14th centuries and hazel and blackthorn was used instead of oak for activities associated with industrial processes in the area?

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. Oak also has unique properties of great durability and strength. Sessile oak (*Quercus petraea*) and pedunculate oak (*Quercus robur*) are both native to and common in Ireland. The wood of these species cannot be differentiated based on its microstructure. Pendunculate oak is found on heavy clays and loams particularly where the soil is of alkaline pH. Sessile oak is found on acid soils often in pure stands and although it thrives on well-drained soils it is also tolerant of flooding (Beckett 1979, 40–41). Both species of oak grow to be very large trees (30–40m) and can live to an age of about 400 years.

The oak identified suggests that there was a supply of oak in the surrounding environment in the early medieval period. The oak was possibly selected from a coppiced wood. A coppice tree is where the tree is cut down at its base and as a consequence several new shots or straight growing trees will grow out of this one stump. The use of quickly renewable oak coppiced trees would have been the most efficient method of sustaining a continuous supply of fuel for use in these charcoal production pits.

The existence of these charcoal production pits conjures up many scenarios of an organized well-structured society which places our ancestors away from obvious settlement centres and refocuses attention into the broader landscape, in which so much of the day would have been spent. The charcoal burner would have roamed around from place to place in order to access new areas of coppiced woodlands as previously coppiced areas regenerated.

Alder is a widespread native tree and occupies wet habitats along stream and river banks. It is an easily worked and split timber and therefore quite commonly manufactured into planks.

Hazel is a native species and was very common up to the end of the 17th century. McCracken (1971, 19) points out that "it was once widespread to a degree that is hard to imagine today". With the introduction of brick, steel and slate the crafts associated with hazel became obsolete, and today the woods that supplied hazel have diminished rapidly.

Hazel is normally about 3–5m in height and is often found as an understory tree in broadleaf woods dominated by oak. It also occurs as pure copses on shallow soils over limestone as seen today in The Burren in Co. Clare and survives for 30 to 50 years. Its main advantage is seen in the production of long flexible straight rods through the process known as coppicing. Hazel also makes good fuel.

Prunus spinosa (blackthorn) is sometimes difficult to differentiate with cherry and particularly in relation to charcoal. 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.

Comparative material

Pits where oak is the main species identified from the charcoal remains suggests charcoal-burning pits.

Recent excavations along the many road schemes have produced a large quantity of isolated pits some of which may have functioned as charcoal production pits. Pits where oak is the main species identified from the charcoal remains suggests charcoal-burning pits. Charcoal-burning pits can in a lot of cases be isolated features and un-associated with any other structure types therefore the charcoal identifications can and has in the past helped the excavator in the interpretation of the site.

A series of isolated pits were uncovered during the construction of the Mayo-Galway Gas pipeline (05E0584) in Pollraddy, Cloonsheen, Davros and Maltpool townlands. The identifications from the aforementioned sites produced thousands of grammes of oak-charcoal therefore based on the charcoal identifications as well as discussions with the director they have now been interpreted as charcoal-production pits. The pits were all of similar size and all produced oak as their dominant species when identified.

In another part of the country in Co. Meath there is a similar scenario where oak charcoal was identified from isolated pits determining their function as charcoal production pits. Two charcoal burning pits were excavated at Ardnamullan 1, Co. Meath (02E1147) by Stephen Linnane of ACS and were dated to AD 1020–1250. These pits were isolated rectangular pits measuring approximately 20cm in depth. Over 250 grammes of oak charcoal were identified from one of the pits and 200

grammes from the second pit.

There were many charcoal production pits identified from the Charlestown by-pass in Co. Mayo (A020–46, Gortanure townland, Co. Roscommon). These pits also produced manly oak charcoal.

Summary & Conclusions

The charcoal analysed is most likely to be representative of fuel used in a charcoal burning pit and possibly associated with industrial activities in the area. The oak wood selected for the charcoal-production pit was probably selected from nearby coppiced woods. The high fragment counts of hazel and blackthorn brushwood material may also be associated with charcoal burning and industrial activities in the later historic periods.

Further analysis, discussions and comparisons of results will form part of a final integrated charcoal and pollen study of the sites and the surrounding environment on this scheme which is being undertaken as part of the authors PHD thesis. These results will be published accordingly.

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RADIOCARBON DATING RESULTS
WILLIAMSTOWN 3

CHRONO LABORATORY, QUEENS UNIVERSITY BELFAST

Colette Rynhart
Irish Archaeological Consultancy Ltd
120b Greenpark Road
Bray
Co. Wiklow, Ireland
Rep. of Ireland
VAT No. IE8288812U

^{14}CHRONO Centre
Queens University Belfast
42 Fitzwilliam Street
Belfast BT9 6AX
Northern Ireland

Radiocarbon Date Certificate

Laboratory Identification: UBA-9144
Date of Measurement: 2008-05-13
Site: A016/033 Williamstown Co. Westme
Sample ID: S1 C9
Material Dated: Alder and Blackthorn
Pretreatment: AAA
Submitted by: IAC

^{14}C Date: 606±22
AMS δ^{13}C: -29.5

Information about radiocarbon calibration

```
            RADIOCARBON CALIBRATION PROGRAM*
                       CALIB REV5.0.2
        Copyright 1986-2005 M Stuiver and PJ Reimer
*To be used in conjunction with:
Stuiver, M., and Reimer, P.J., 1993, Radiocarbon, 35, 215-230.
          Annotated results (text) - -
          Export file - c14res.csv
```

```
S1 C9
UBA-9144
Radiocarbon Age BP    606 +/-   22
Calibration data set: intcal04.14c                # Reimer et al. 2004
  % area enclosed       cal AD age ranges           relative area under
                                                  probability distribution
  68.3 (1 sigma)      cal AD 1306- 1328                   0.411
                             1341- 1363                   0.413
                             1385- 1395                   0.176
  95.4 (2 sigma)      cal AD 1298- 1371                   0.778
                             1378- 1403                   0.222
```

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 References for calibration datasets:
PJ Reimer, MGL Baillie, E Bard, A Bayliss, JW Beck, C Bertrand, PG Blackwell,
  CE Buck, G Burr, KB Cutler, PE Damon, RL Edwards, RG Fairbanks, M Friedrich,
  TP Guilderson, KA Hughen, B Kromer, FG McCormac, S Manning, C Bronk Ramsey,
  RW Reimer, S Remmele, JR Southon, M Stuiver, S Talamo, FW Taylor,
  J van der Plicht, and CE Weyhenmeyer (2004), Radiocarbon 46:1029-1058.

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.
```

Colette Rynhart
Irish Archaeological Consultancy Ltd
120b Greenpark Road
Bray
Co. Wiklow, Ireland
Rep. of Ireland
VAT No. IE8288812U

^{14}CHRONO Centre
Queens University Belfast
42 Fitzwilliam Street
Belfast BT9 6AX
Northern Ireland

Radiocarbon Date Certificate

Laboratory Identification: UBA-9145
Date of Measurement: 2008-05-13
Site: A016/033 Williamstown Co. Westme
Sample ID: S7 C23
Material Dated: Oak
Pretreatment: AAA
Submitted by: IAC

^{14}C Date: 897±24
AMS δ^{13}C: -30.3

Information about radiocarbon calibration

```
          RADIOCARBON CALIBRATION PROGRAM*
                    CALIB REV5.0.2
      Copyright 1986-2005 M Stuiver and PJ Reimer
*To be used in conjunction with:
Stuiver, M., and Reimer, P.J., 1993, Radiocarbon, 35, 215-230.
         Annotated results (text) - -
         Export file - c14res.csv
```

```
S7 C23
UBA-9145
Radiocarbon Age BP     897 +/-   24
Calibration data set: intcal04.14c                  # Reimer et al. 2004
  % area enclosed       cal AD age ranges             relative area under
                                                   probability distribution
  68.3 (1 sigma)      cal AD 1048- 1085                    0.465
                             1123- 1138                    0.152
                             1150- 1183                    0.383
  95.4 (2 sigma)      cal AD 1043- 1106                    0.428
                             1118- 1212                    0.572
```

```
 References for calibration datasets:
PJ Reimer, MGL Baillie, E Bard, A Bayliss, JW Beck, C Bertrand, PG Blackwell,
  CE Buck, G Burr, KB Cutler, PE Damon, RL Edwards, RG Fairbanks, M Friedrich,
  TP Guilderson, KA Hughen, B Kromer, FG McCormac, S Manning, C Bronk Ramsey,
  RW Reimer, S Remmele, JR Southon, M Stuiver, S Talamo, FW Taylor,
  J van der Plicht, and CE Weyhenmeyer (2004), Radiocarbon 46:1029-1058.

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.
```

PETROGRAPHICAL REPORT ON STONE SAMPLES TAKEN DURING ARCHAEOLOGICAL EXCAVATIONS AT WILLIAMSTOWN 3, CO. WESTMEATH. (A016/033)

EURGEOL DR STEPHEN MANDAL MIAI PGEO

1. Introduction

This report is based on the macroscopic (hand specimen) examination of stone samples taken during archaeological excavations at Williamstown 3, Co. Westmeath (Ministerial direction Number A016/033). The purpose of the study was to identify the rock types from which the stone objects were made, to highlight potential sources for them, and to comment on their possible function. It is important to note that macroscopic petrographical studies have been considered of limited value in comparison to microscopic (thin section and geochemical analysis) studies. On the other hand, macroscopic studies provide an excellent preliminary assessment tool and have proven to be of considerable value in petrographical studies (e.g. see Mandal 1997; Cooney and Mandal 1998).

2. Results

Site	Ministerial Direction	Sample	Notes
Williamstown 3	A016/033	7	Decayed & burnt; Angular blocks, Sandstone, coarse, yellow-red quartz rich

3. Solid Geology and Soils of the Site

The bedrock under the site consists of Lower Carboniferous Age Navan Group limestone, sandstone and mudstone (see below).

The geology of the area is predominantly made up of Carboniferous Age rocks. The oldest rocks in the area occur as inliers (areas of older rocks surrounded by younger rocks) of Devonian age Old Red Sandstone; red conglomerates, sandstones and mudstones. These are stratigraphically overlain unconformably by the Upper Carboniferous (basal Courceyan) Navan Group (NAV), consisting of limestones, sandstones and mudstones. The Old Red Sandstone (a coarse to very coarse quartz iron rich sandstone very common in the southwest of Ireland) represents the erosion and (mainly riverine) deposition of the mountains uplifted during the Caledonian Orogeny. The Upper Carboniferous rocks represent periods of shallower and deeper water deposition respectively.

Overlying these rocks stratigraphically are the Upper Courceyan age Ballysteen Formation (BA) consisting of fossiliferous dark grey muddy limestone, in turn overlain by the Waulsortian Limestones (WA) of massive unbedded lime-mudstones. These are overlain comformably by the Chadian-Asbian age Allenwood Formation (AW); thick bedded limestone which is locally peloidal, and the Lucan Formation (LU); dark limestones and shales (known as Calp). These Carboniferous rocks, which make up much of the Midlands of Ireland, represent the northward return of the sea at the end of the Devonian, c. 360 million years ago, owing to the opening of a new ocean to the south called the Palaeo-Tethys in what is now central Europe (see Morris *et al*. 2003; Gatley *et al*. 2005)

Bedrock is not generally exposed in the area, instead it is covered by boulder clay, which are the result of glacial action during the last glaciation. Eskers - elongated ridges of stratified gravel, probably formed by streams flowing beneath or on a glacier - are common in the area. The soils of the area consist of grey/brown podzols (luvisols), and are generally very fertile (Aalen *et al.* 1997)

4. Potential Sources

It is likely that the sources for all of the samples are local. There are abundant sources for limestone, sandstone, quartz sandstone and quartzite. It is, however, important to note that these rock types were probably not sourced from bedrock, but from secondary sources, such as in the glacial tills / sub-soils at the site.

5. Discussion

Whilst it is not possible to determine a definitive source for these stone samples based on macroscopic examination alone, it can be stated that these rock types are available locally in outcrop and within the glacial tills / sub-soils. It is therefore highly probable that the material in these samples were sourced in the immediate vicinity of the site.

Fifteen samples were examined from sites across the N6 Kilbeggan to Athlone scheme. All are decayed; all but the sample from Moyally 3 (A016/047: Sample 7) and that from Kilbeggan South 1 (A016/082: Sample 10) are clearly burnt. All bar one are composed of angular pieces; crushed and broken stone. It is not possible to determine with a degree of certainty whether the material was used in its broken state, or if large blocks were deliberately broken. The exception is that from Burrow – Glennanummer 3 (A016/054: Sample 25) which consists of sub-rounded blocks, possibly indicative of the selective crushing of cobbles. Nine of the samples, including that from this site consist of coarse grained quartz sandstone; the samples from Burrow – Glennanummer 3 (A016/054: Sample 25) and Ballinderry Big 1 (A016/076: Sample -23) also contain limestone. Coarse grained sandstone of this type is typical of burnt mound material. The remaining six samples consist of limestone, which is atypical of burnt mound material – fine grained rock types such as limestone do not absorb heat in the manner that coarse rock types such as sandstone and dolerite (e.g. see Mandal 2004).

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APPENDIX 3 LIST OF RMP SITES IN AREA

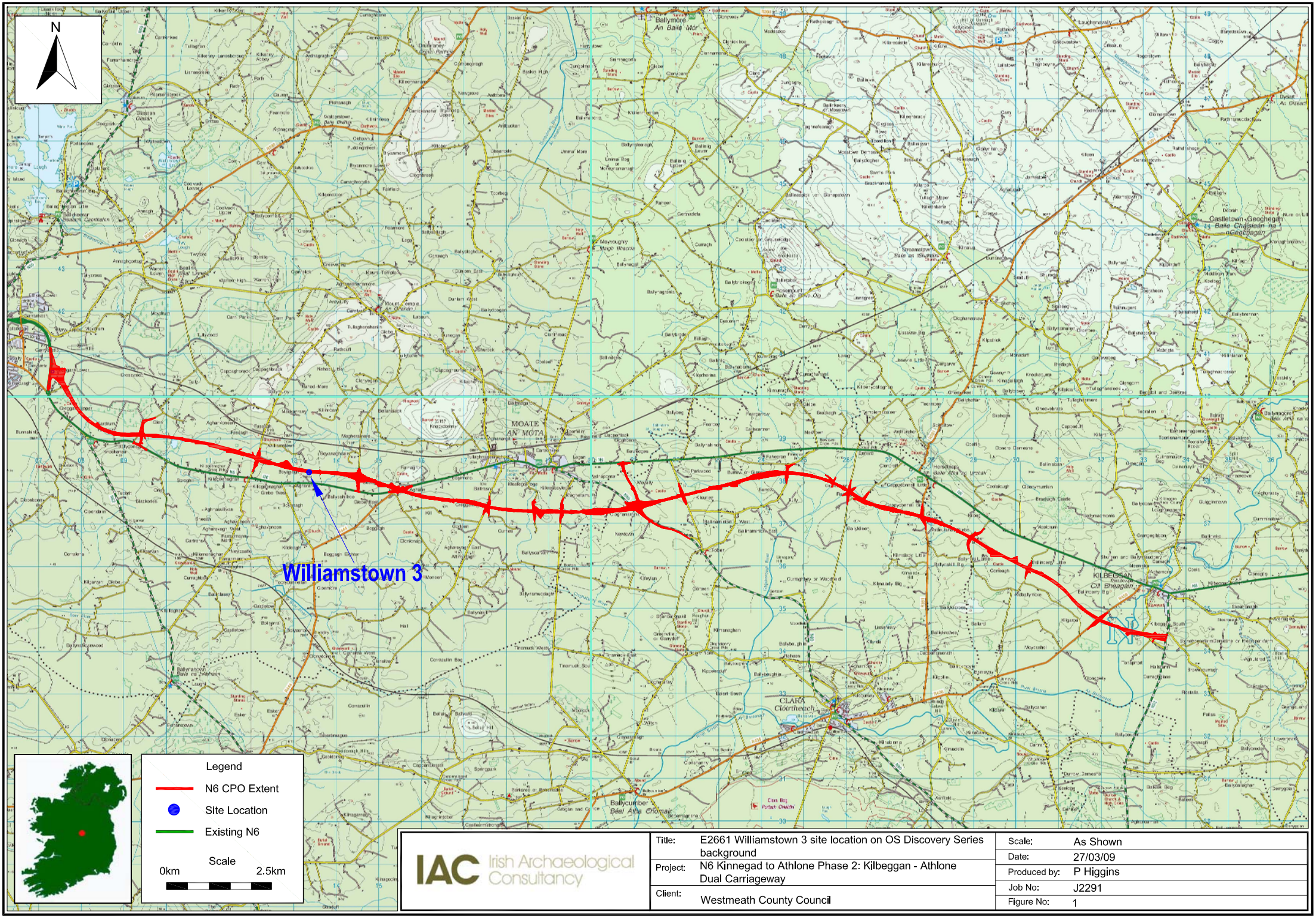
RMP No	Description
WM030-068	Ringfort (Rath/Cashel)
WM030-087	Grave Yard
WM030-088	Ringfort (Rath/Cashel)
WM030-089	Castle Site
WM030-090	Ringfort (Rath/Cashel)
WM030-091	Castle
WM030-092	Ringfort (Rath/Cashel)
WM030-093	Ringfort (Rath/Cashel)
WM030-094	Earthwork
WM030-095	Ringfort (Rath/Cashel)
WM030-098	Ringfort (Rath/Cashel)
WM030-099	Castle Site
WM030-100	Ringfort (Rath/Cashel)
WM030-101	Ringfort (Rath/Cashel)
WM030-119	Architectural Fragment
WM036-001	Ringfort (Rath/Cashel)
WM036-002	Ringfort (Rath/Cashel) Site
WM036-00301	Ringfort (Rath/Cashel)
WM036-00302	Souterrain
WM036-004	Ringfort (Rath/Cashel)
WM036-005	Ringfort (Rath/Cashel)
WM036-006	Earthwork
WM036-007	Ringfort (Rath/Cashel)
WM036-009	Church
WM036-01301	Castle
WM036-01302	Church Site
WM036-014	Earthwork Site

See Figure 2 for location details.

APPENDIX 4 LIST OF N6 SCHEME SITE NAMES

Site Name	Ministerial Direction No.	NMS Registration Number
Seeoge 2	A016/007	E2635
Moyally 7	A016/015	E2643
Kilcurley 1	A016/019	E2647
Cappydonnell Big 1	A016/025	E2653
Ardballymore 2	A016/028	E2656
Creggan lower 1	A016/030	E2658
Creggan lower 2	A016/031	E2659
Williamstown 1	A016/032	E2660
Williamstown 3	A016/033	E2661
Williamstown 4	A016/034	E2662
Boyanaghcalry 1	A016/035	E2663
Seeoge 1	A016/036	E2664
Aghafin 1	A016/037	E2665
Cregganmacar 1	A016/038	E2666
Cregganmacar 2	A016/039	E2667
Cregganmacar 3	A016/040	E2668
Curries 1	A016/041	E2669
Curries 2	A016/042	E2670
Culleenagower 1	A016/043	E2671
Moyally 2	A016/044	E2672
Moyally 1	A016/046	E3274
Moyally 3	A016/047	E2674
Moyally 5	A016/048	E2675
Moyally 6	A016/049	E2676
Tober 1	A016/051	E2677
Burrow or Glennanummer 1	A016/052	E2678
Burrow or Glennanummer 2	A016/053	E2679
Burrow or Glennanummer 3	A016/054	E2680
Russagh 4	A016/055	E2681
Russagh 1	A016/056	E2682
Russagh 2	A016/057	E2683
Russagh 3	A016/058	E2684
Kilbeg 1	A016/059	E2688
Kilbeg 2	A016/060	E2689
Kilbeg 4	A016/062	E2691
Kilbeg 5	A016/063	E2692
Kilbeg 6	A016/064	E2693
Kilbeg 7	A016/065	E2694
Correagh 1	A016/066	E3374
Ballinderry Little 1	A016/067	E2695
Ardballymore 1	A016/068	E2696
Kilgaroan 1	A016/069	E2697
Kilgaroan 2	A016/070	E2698
Kilgaroan 3	A016/071	E2699
Kilgaroan 4	A016/072	E2700
Kilgaroan 6	A016/074	E2702
Ballinderry Big 1	A016/076	E3275
Ballinderry Big 2	A016/077	E3276
Ballinderry Big 3	A016/078	E3277
Tonaphort 1	A016/079	E3278
Tonaphort 2	A016/080	E3279
Tonaphort 3	A016/081	E3280

Site Name	Ministerial Direction No.	NMS Registration Number
Kilbeggan South 1	A016/082	E3281
Kilbeggan South 2	A016/083	E3282
Kilbeggan South 3	A016/084	E3283
Cregganmacar 4	A016/085	E2703
Williamstown 2	A016/086	E2704
Kilbeg 8	A016/087	E3966



IAC Irish Archaeological Consultancy

Title:	E2661 Williamstown 3 site location on OS Discovery Series background
Project:	N6 Kinnegad to Athlone Phase 2: Kilbeggan - Athlone Dual Carriageway
Client:	Westmeath County Council

Scale:	As Shown
Date:	27/03/09
Produced by:	P Higgins
Job No:	J2291
Figure No:	1

N

AGHANVONEEN

FASSAGH

WILLIAMSTOWN

MAGHERAMORE

BOYANAGHCALRY

KNOCK

FARNA

WM030-068

WM030-094

WM030-095

WM030-087

WM030-091
Castle site

WM030-119

WM030-099
Castle site

WM030-100

WM030-089

WM030-098
Ringfort

Williamstown 1

WM030-092
Ringfort

Williamstown 2

Williamstown 3

Williamstown 4

Boyanaghcalry 1

WM030-088

WM030-090
Ringfort

WM30-093
Ringfort

WM030-101
Seeoge 1

Seeoge 2

SEEOGE

BOYANAGH
EARL

AGHARANNY

GLEBE WEST

BOYANAGH
(MALONE)

GLEBE EAST

WM036-001

WM036-002

WM036-003

WM036-004

WM036-013

WM036-014

BALLYCAHILLROE

WM036-007

WM036-006

AGHAVONEEN

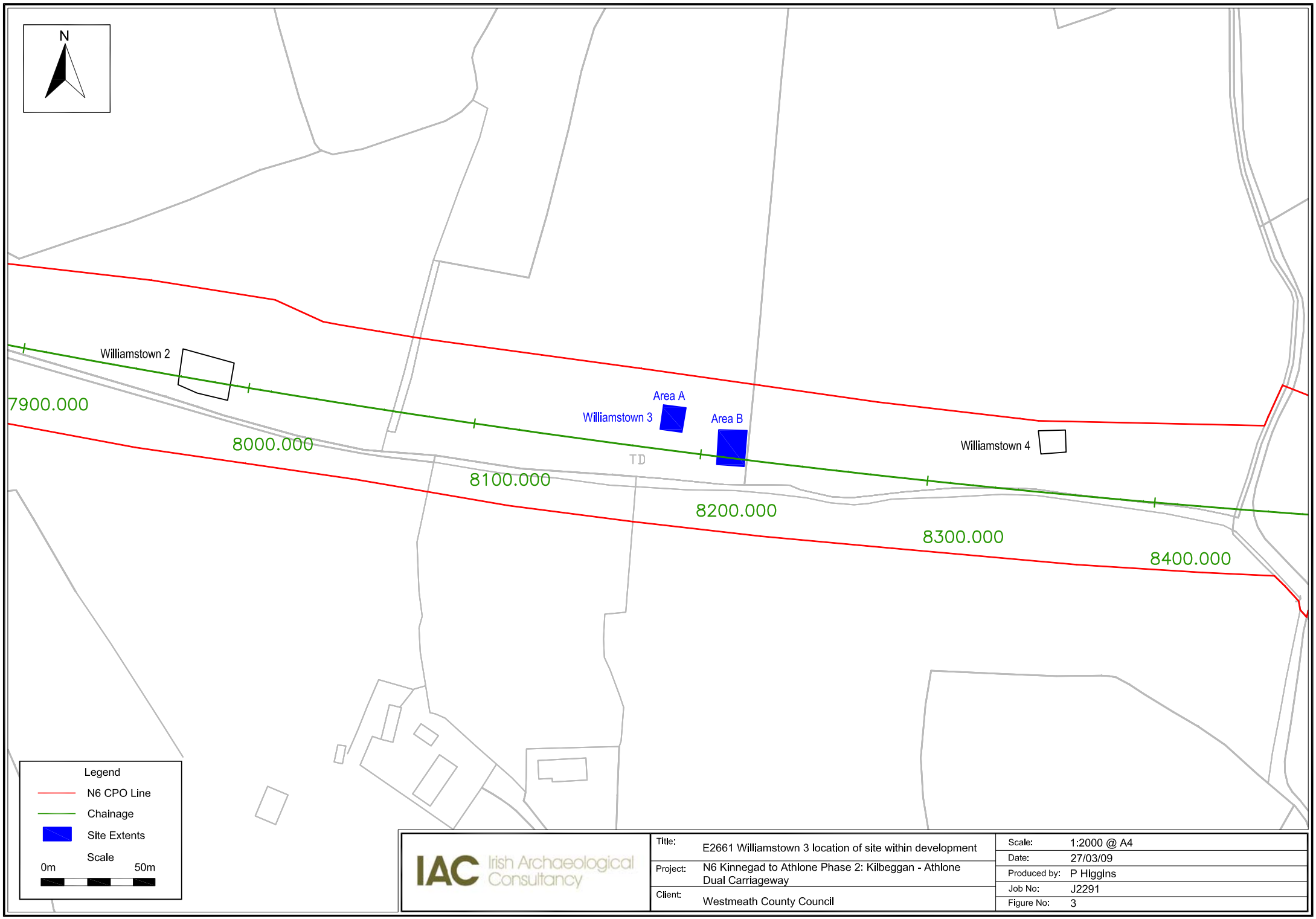
WM036-005

WM036-009

BOGGAGH
(EIGHTER)

Legend
N6 CPO Line
RMPs
Scale
0m 250m

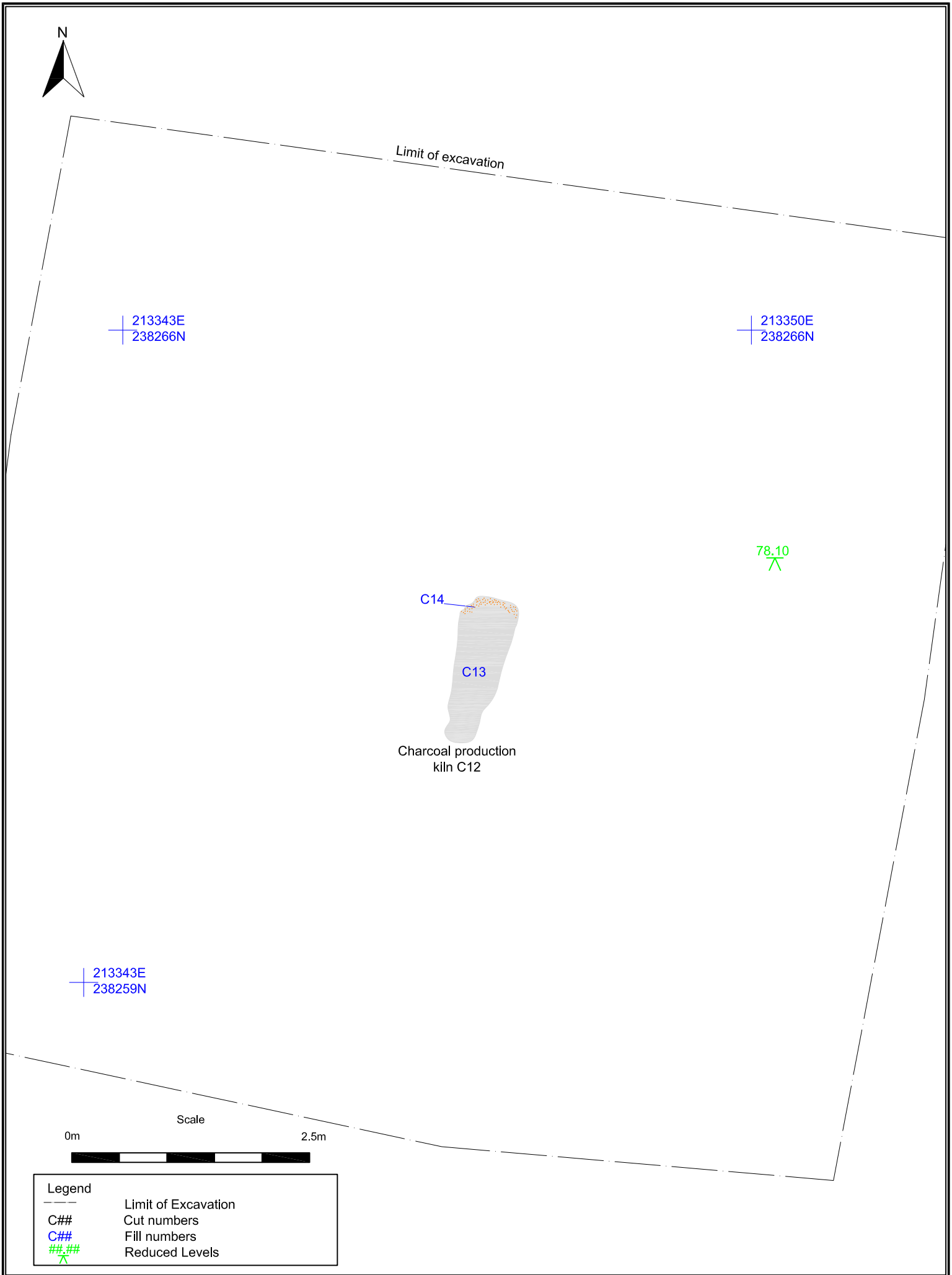
Title:	E2661 Williamstown 3 showing RMPs with OS background		
Project:	N6 Kinnegad to Athlone Phase 2: Kilbeggan - Athlone Dual Carriageway		
Client:	Westmeath County Council		
Scale:	1:10000 @ A3	Job No: J2291	IAC Irish Archaeological Consultancy
Date:	27/03/09	Figure No: 2	
Produced by:	P Higgins		



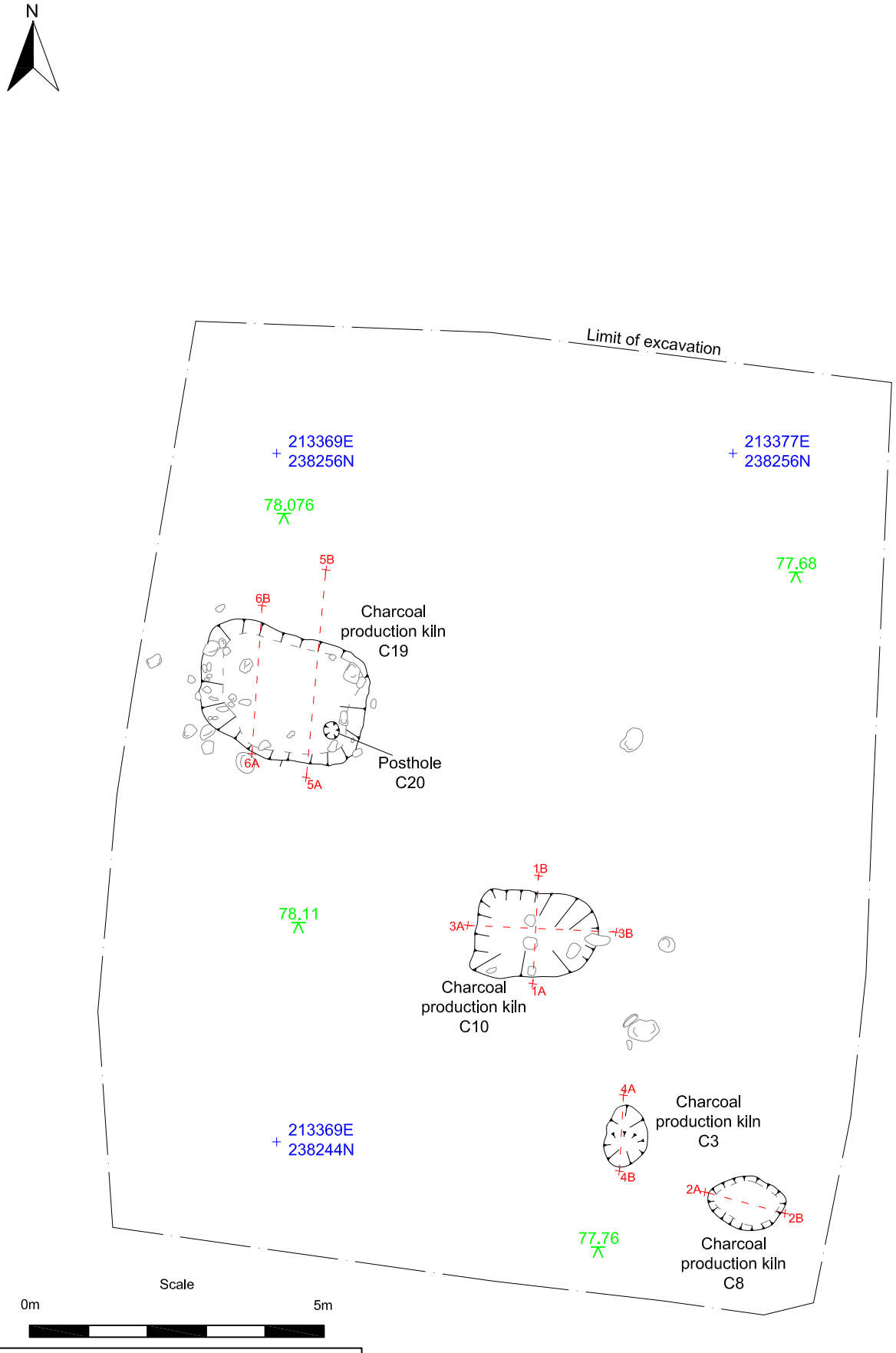
IAC Irish Archaeological Consultancy

Title:	E2661 Williamstown 3 location of site within development
Project:	N6 Kinnegad to Athlone Phase 2: Kilbeggan - Athlone Dual Carriageway
Client:	Westmeath County Council

Scale:	1:2000 @ A4
Date:	27/03/09
Produced by:	P Higgins
Job No:	J2291
Figure No:	3

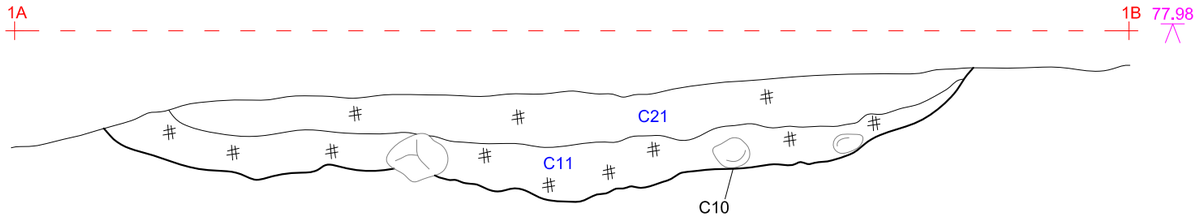


IAC Irish Archaeological Consultancy	Title: E2661 Williamstown 3 site plan area A	Scale:	1:50 @ A4
	Project: N6 Kinnegad to Athlone Phase 2: Kilbeggan - Athlone Dual Carriageway	Date:	27/03/09
		Produced by:	G Kearney
	Client: Westmeath County Council	Job No:	J2291
		Figure No:	4

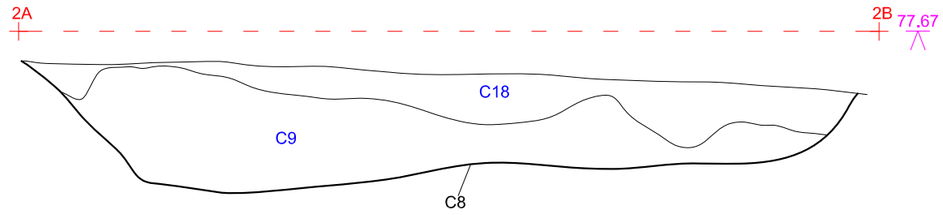


IAC Irish Archaeological Consultancy	Title: E2661 Williamstown 3 site plan area B	Scale:	1:100 @ A4
	Project: N6 Kinnegad to Athlone Phase 2: Kilbeggan - Athlone Dual Carriageway	Date:	27/03/09
		Produced by:	G Kearney
	Client: Westmeath County Council	Job No:	J2291
		Figure No:	5

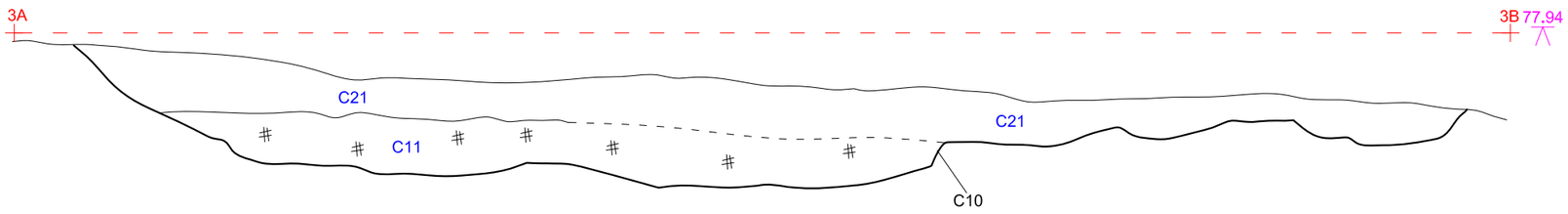
Williamstown 3
East facing section of C10



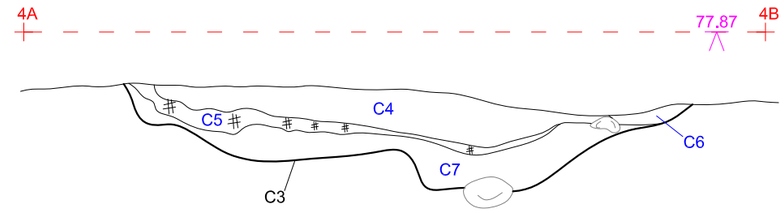
Williamstown 3
South facing section of C8



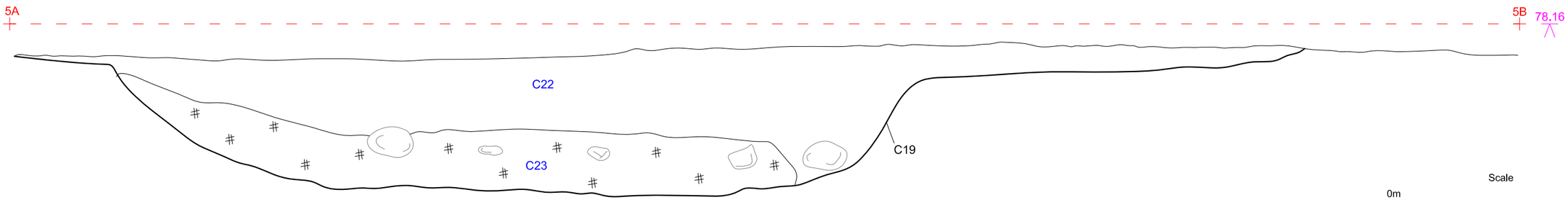
Williamstown 3
South facing section of C10



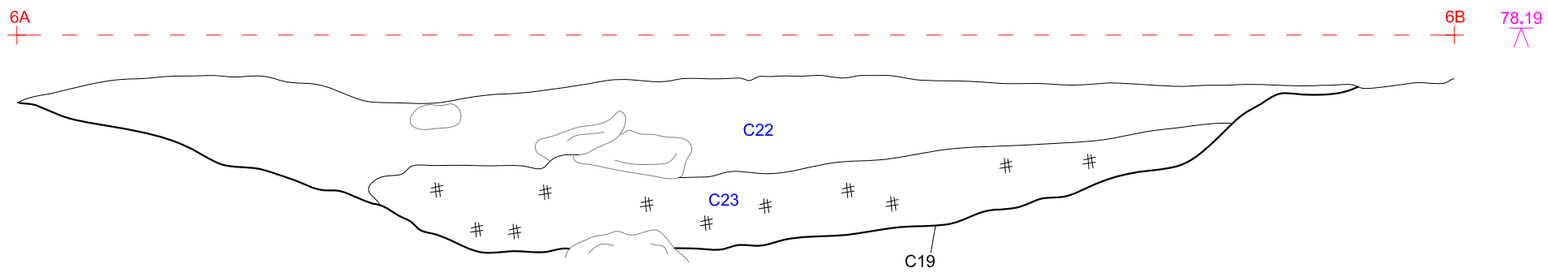
Williamstown 3
West facing section of C3



Williamstown 3
East facing section of C19



Williamstown 3
East facing section of C19



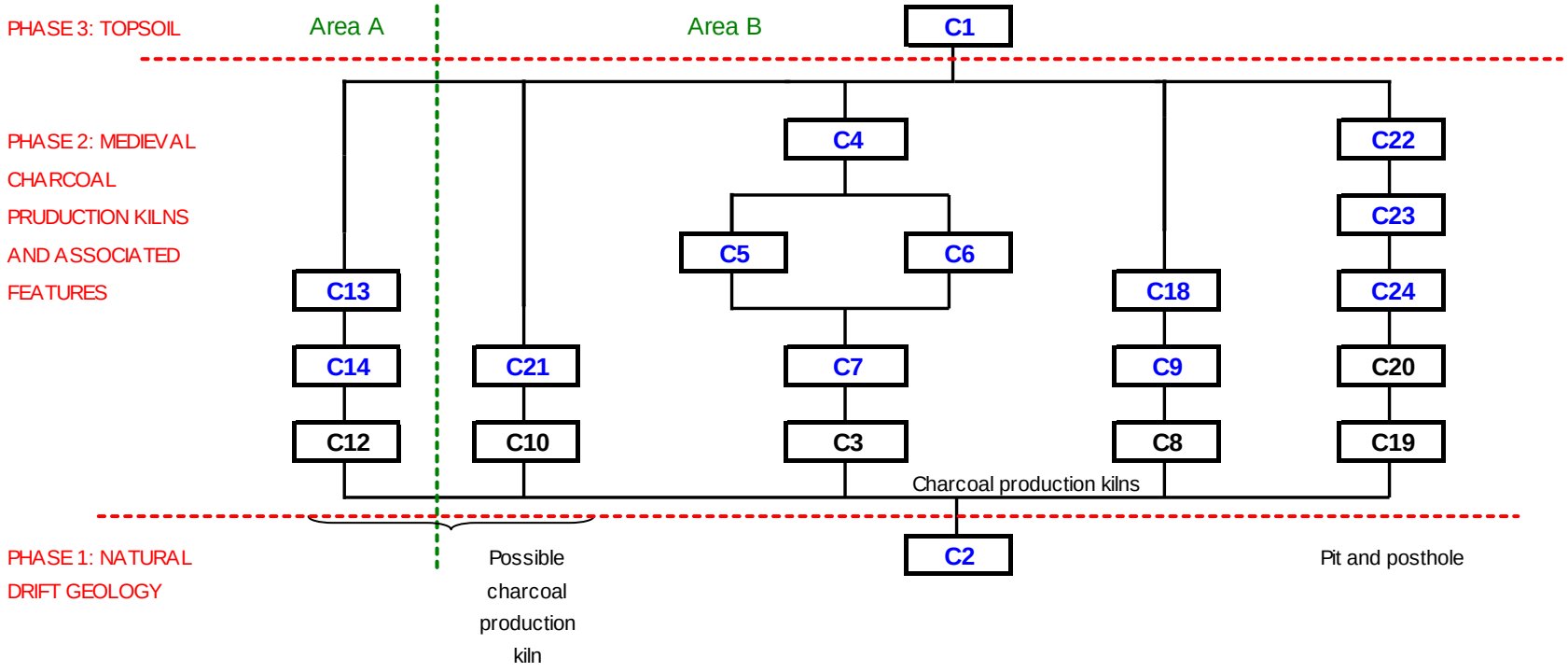
Scale
0m 0.5m

Legend

C##	Cut number
C##	Fill number
	Stone
#	Charcoal
78.19	Reduced Levels

Title:	E2661 Williamstown 3 sections 1 - 6
Project:	N6 Kinnegad to Athlone Phase 2: Kilbeggan - Athlone Dual Carriageway
Client:	Westmeath County Council
Scale: 1:10 @ A3	Job No: J2291
Date: 27/03/09	Figure No: 6
Produced by: G Kearney	

IAC Irish Archaeological Consultancy



CXXX = SPREADS AND FILL CONTEXTS
CXXX = CUT CONTEXTS

IAC Irish Archaeological Consultancy	Title:	E2661 Williamstown 3 matrix	Scale: N/A
	Project:	N6 Kinnegad to Athlone Phase 2: Kilbeggan - Athlone Dual Carriageway	Date: 27/03/09
	Client:	Westmeath County Council	Produced by: G Kearney
			Job No: J2291
			Figure No: 7