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

SITE A016/031; E2659: CREGGAN LOWER 2

FINAL REPORT

ON BEHALF OF WESTMEATH COUNTY COUNCIL

17 JUNE 2009

IAC Irish Archaeological Consultancy

PROJECT DETAILS

Project	N6 Kilbeggan-Athlone
Project Reference No.	WH/00/112
Ministerial Direction Reference No.	A016/031
NMS Registration Number	E2659
Excavation Director	Ed Lyne
Senior Archaeologist	Shane Delaney
Consultant	Irish Archaeological Consultancy Ltd, 120b Greenpark Road, Bray, Co. Wicklow
Client	Westmeath County Council
Site Name	Creggan Lower 2
Site Type	Bronze Age Burnt Mound
Townland	Creggan Lower
Parish	St. Marys
County	Westmeath
NGR (Easting)	E207588 (Area A) - E207601 (Area B)
NGR (Northing)	N240435 (Area A) - N240299 (Area B)
Chainage	1640–1790
Height m OD	54m OD
RMP No.	N/A
Excavation Start Date	23 January 2006
Excavation Duration	9 days
Report Type	Final
Report Date	17 June 2009
Report By	Ed Lyne

ACKNOWLEDGMENTS

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.

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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 Creggan Lower at the site of Creggan Lower 2 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 Ed Lyne under Ministerial Direction (A016/031) and NMS Registration Number E2659 issued by the DOEHLG in consultation with the National Museum of Ireland. The fieldwork took place between 23 and 31 January 2006.

Creggan Lower 2 comprised two areas of excavation, A and B. Area A consisted of the western extremities of a burnt mound or burnt spread situated on a slight rise in an area of undulating ground. It is thought that the majority of the site remains *in-situ* outside of the limits of the CPO to the east (Plates 5 and 6). Area B, some 200m south of Area A, consisted of some patches of burning and charcoal, and may represent nothing more than an episode of modern field clearance.

Area A consisted of a number of relatively shallow spreads of burnt stone and charcoal-rich soil which sealed a number of negative features; namely two pits (C13 and C15) and two probable stakeholes (C10 and C21). Taken in conjunction, the spreads measured c. 15m x 4m, with a maximum depth of 0.21m. A single possibly worked chert flake was recovered from the mound material.

A circular pit C13 (0.94m diameter x 0.28m deep) was located at the eastern edge of site crossing the CPO line and only partially exposed. It was filled by heat-affected stones and charcoal and is likely to have been used for the heating of water using hot stones. Elm charcoal from this pit returned a 2 Sigma calibrated date of Cal 1018–908 BC (2816 +/- 21 BP, UBA 9162). An almost square pit C15 was also excavated, (c. 1.5m east/west and north/south, and c. 0.5m in depth - capacity c. 1000ltrs). The basal fill contained sufficient quantities of burnt stone to suggest it may be contemporary with the main period of activity on site. A layer of twigs found in this pit seemed to be a deliberate deposit. This was waterlogged, ensuring the organic material survived. Analysis of the organic material identified hawthorn, bramble, elder and buttercup (Lyons, 2007). It is possible that this represents the gathering of fruit/seeds for eating or dyeing.

Creggan Lower 2 Area A was a typical burnt mound type site. It is likely given the similar dating (1190–940 BC - UBA 8584 / 1000–850 BC - UBA 8583 2 Sigma calibrations) of the nearby habitation site at Creggan Lower 1 (c. 250m to the west) that these sites were related.

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1 INTRODUCTION

1.1 General

This final archaeological report describes the results of the excavation carried out at Creggan Lower 2 in the townland of Creggan Lower, Co. Westmeath (Figure 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 Ed Lyne 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.

Creggan Lower 2 (Figure 3 and 4) was identified as a result of an archaeological assessment undertaken by IAC Ltd in August 2005 (Ministerial Direction No. A016/029). All features identified during the assessment phase (mound and possible pit) were subsequently re-identified and excavated (Figure 4, Plate 5) during the full resolution phase of the project which took place between 23 and 31 January 2006 with a team of 1 director, 2 supervisors and 8 site assistants.

The site is located in undulating pastureland at a height of 54m OD c. 200m east of the existing N6, c. 1km east of Athlone town (Westmeath OS sheet 29). Creggan Lower 2 had not been previously identified and was not a recorded monument.

The site was assigned the following identification data:

Site Name: Creggan Lower 2; Ministerial Direction No.: A016/031; NMS Registration No.: E2659; Route Chainage (Ch): 1640–1790; NGR: 207588/240435 (Area A) & 207601/240299 (Area B).

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 1 m 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 1.2 km 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.

To distinguish between Area A and Area B, context numbers in Area A were assigned starting at C1, and in Area B at C1001.

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

An environmental strategy was devised at the beginning of the excavation. Features exhibiting large amounts of carbonised material were the primary targets.

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

Detailed descriptions of contexts are given in Appendix 1. The site matrix is detailed in Figure 6.

2.1 Phase 1: Natural Drift Geology

The dominant bedrock geology identified along the corridor of the proposed route is 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 (C3 and C1003) encountered at Creggan Lower 2 were uniform across the areas excavated and consisted of sterile firm yellow-grey sandy clay.

2.2 Phase 2: Prehistoric Archaeological Activity

The prehistoric activity on site consisted of a series of pits and stakeholes sealed by a spread of burnt stones and charcoal.

2.2.1 Features C10, C12, C13, C15 and C21

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
10	N/A	0.12	0.12	0.2	Circular cut with concave base	Stakehole cut
11	C10	0.12	0.12	0.2	Black mid soft clay silt	Stakehole fill
12	N/A	1.74	>1	0.07	Grey firm clay with some charcoal inclusions	Clay spread
13	N/A	0.94	0.32	0.28	Semi circular cut with concave base	Cut of pit
14	C13	0.94	0.32	0.28	Black soft clay silt fill of pit	Fill of pit
15	N/A	1.5	1.5	0.5	Roughly square cut with flat base	Cut of square pit
16	C15	1.35	1.15	0.2	Light grey medium firm sandy clay	Top fill of pit
17	C15	1.35	1.25	0.13	Red brown very soft silt. Full of twigs	Middle fill of pit - twigs
18	C15	1.5	1.5	0.3	Light grey brown slightly clayey silt	Basal fill of pit
21	N/A	0.14	0.12	0.07	Circular in plan, sloping towards E	Cut of stakehole
22	21	0.14	0.12	0.07	Grey soft silty clay with charcoal inclusions	Fill of stakehole

Finds: None

Interpretation:
C12 consisted of a thin spread of grey clay with charcoal inclusions found surrounding pit C13 (Figures 4 and 5). It may represent material removed from C13, perhaps while emptying the pit at various times. Pit C13 was located at the eastern edge of site next to the CPO and was only partially exposed. It was semi-circular in shape, as exposed, measured 0.94m in diameter x 0.28m deep, and may represent a small trough or pit. As it was only partially exposed and excavated, it is difficult to be certain of its function beyond saying that it was one of the more substantial cut features on site. It was filled by C14, a clay-silt containing heat-affected stones and charcoal; material similar to C4, the burnt mound deposit which sealed much of the area. A single sample of elm (*Ulmus* sp.) charcoal from this context was submitted for AMS dating to Queens University Belfast Radiocarbon Dating Lab (Appendix 2.3). Based on the 2 Sigma reading the sample was dated to Cal 1018–908 BC (2816 +/- 21 BP, UBA 9162), dating the feature and site to the later Bronze Age.

The other significant pit on site was C15 (Figure 4 and 5, Plates 3 and 4), a square-shaped pit measuring c. 1.5m east to west and north to south, and c. 0.5m in depth. This pit was down-slope from C13, and contained some burnt stone material within

its fills (C16, C17, C18). The basal fill C18 did contain sufficient quantities of burnt stone at its east edge to suggest that it may be contemporary with the main period of activity on site. The middle fill (C17) consisted mainly of water-logged organic material, mostly twigs, and seemed to be a deliberate deposit (Plate 3). The upper fill (C16) was a stony gravel deposit, which appeared to have been dumped into a hollow made in C17. The pit may have been used as a well to supply water for use in the trough. It could also represent a storage pit, or perhaps a pit for processing plant material (Plate 4). Analysis of the organic material within C17 identified hawthorn, bramble, elder and buttercup (Lyons, Appendix 2.2). It is possible that this represents the gathering of fruit/seeds for eating or dyeing.

Two probable stakeholes were identified on site (C10 and C21). C10 was relatively isolated and no further interpretation is possible other than that it is a probable stakehole (Plate 5). It was filled by C11. Stakehole C21 was identified adjacent to pit cut C13, and was filled by C22. Its location close to the edge of pit C13 could suggest it was associated with it in some way. It must be said however that there was a certain amount of animal or root interference in this part of the site, and it is possible that C21 is in fact the result of natural processes.

2.2.3 Burnt Spreads C4, C5, C8, C9 and C1005

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
4	N/A	>3.3	>1.7	0.21	Black clay silt with heat affected stones	Burnt spread material
5	N/A	>6	>3	0.18	Dark clay silt with heat affected stones	Burnt spread material
8	N/A	>4.9	>3.9	0.12	Dark clay silt with heat-affected stones	Burnt spread material
9	N/A	N/A	N/A	0.05	Whitish grey clay with ash inclusions	Burnt spread material
1005	N/A	2.7	1.5	0.12	Black charcoal-rich slightly clayey silt	Spread of burning

Finds:

Context	Find Number	Material	Period	Description
8	E2659:8:1	Chert	Prehistoric	Possibly worked chert flake

Interpretation:
All of the above contexts consisted of burnt mound or burnt spread type material; although C1005 from Area B was less convincing as an archaeological deposit, and could simply represent an episode of scrub burning/field clearance. For this reason Area B was considered to be of no archaeological significance.

Contexts C4, C5, C8 and C9 from Area A (Figures 4–5, Plates 1, 2 and 7) were all found along the eastern edge of the site, where the site met the edge of the CPO line, and for this reason it would appear that the main archaeological deposits may in fact remain *in-situ* outside the limits of excavation (Plates 1, 2 and 7). Furthermore, excavating only the edge of the site meant that what appeared as four separate spreads (C4, C5, C8 and C9) might in reality have all been part of one larger spread, the bulk of which lies outside of the CPO. These spreads all consisted of dark grey to black silty clay with inclusions of heat affected stones and charcoal. A single find in the form of a possibly worked chert flake (E2659:8:1) was recovered from C8.

Burnt mounds or spreads, as will be discussed later on, generally date to the Bronze Age, and while various functions are suggested, they are often interpreted as cooking sites. The spreads of burnt stones represent episodes of burning stones in a fire, before placing them into a pit or trough of water which would then boil. Prior to the next use the pit would have been emptied of the now shattered stones, and this is what is uncovered as a burnt spread or mound.

2.3 Phase 3: Modern or Non Archaeological Contexts

A series of non-archaeological features were recorded on site. These comprised of furrows, an animal burrow and some boulder sockets (Figure 6).

2.3.1 C7, C19, C25, C1004 and C1006

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
7	N/A	N/A	N/A	0.12	Cut of modern furrow	Modern furrow
19	N/A	0.8	0.65	0.17	Triangular cut with uneven base	Boulder socket
20	C19	0.8	0.65	0.17	Grey brown moderately compact sandy silt	Fill of boulder socket
25	N/A	0.56	0.10	0.07	Curvilinear cut with uneven base	Possible burrow
26	C25	0.56	0.10	0.07	Grey medium compact silty clay	Fill of burrow
1004	N/A	N/A	N/A	0.01	Charcoal Staining – agricultural activity	N/A
1006	N/A	<2	c.1	0.15	Peaty deposit in a natural hollow	N/A

Finds: None

Interpretation:
The above contexts represent various non-archaeological horizons or features identified on site. C7 gave us evidence for recent agricultural practices carried out in the area in the form of a plough furrow, and suggested that what is now pastureland was used in the past for tillage. It was filled by topsoil (C1). This furrow truncated spreads C4 and C5. All the other contexts listed above would appear to have been the result of natural processes, with C25 representing a probable animal burrow and C19 representing a stone socket – i.e. where a large stone was dislodged from the natural subsoil in the past, presumably as a result of agricultural activity.

2.4 Phase 4: Topsoil

2.4.1 Topsoil

Context	Fill of	L(m)	W(m)	D(m)	Basic Description	Interpretation
1	N/A	Site	Site	0.35	Peaty soil	Topsoil
1001	N/A	Site	Site	0.3	Firm mid-brown clay silt	Topsoil

Finds: None

Interpretation:
Phase 4 represents the topsoil that sealed all of the archaeological deposits and features in both excavated areas at Creggan Lower 2. It consisted of firm mid-brown clay silt in Area B, while in Area A it was peaty in nature with a high water content.

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 Burnt Mound site at Creggan Lower 2 was located on a slight rise (54m OD) in an area of gently undulating lowland, c. 1km east of Athlone town. The underlying geology of the area is carboniferous limestone. The site was situated on the western margin of Crosswood bog as recorded by the OS 6" map (1834–1842). The edge of the bog has being significantly reduced by turbary plots and now lies over 400m from the site. Thus when excavated the site lay in reclaimed peat land, which accounts for the waterlogged nature of the site and the peaty soils encountered during the excavation. The positioning of the site in such a waterlogged area would have provided the necessary water source for the functioning of the burnt mound site. The only alternative water source is a small tributary of the River Shannon which flows approximately 500m north of the site.

3.2 Archaeological Landscape (The Bronze Age)

Apart from the publication of archaeological inventories in some midland counties – such as Offaly (O'Brien and Sweetman 1999) for example (there is no archaeological inventory for Co. Westmeath) – and peatland surveys by the Irish Archaeological Wetland Unit (Moloney *et al*. 1993) our knowledge of the prehistoric archaeology of the midlands is limited. We are reliant on data stored at the RMP (see Appendix 3) and information from a limited number of excavations within Westmeath and Offaly. The most important of these is Hencken's (1942) investigation at Ballinderry crannog II in the barony of Kilcoursey, Co. Offaly, which revealed a late Bronze Age settlement phase (see also Newman 1997 for a reappraisal of the archaeological evidence). However, this picture is quickly changing as a result of commercially-driven archaeology such as the gas pipeline to the west (Grogan *et al*. 2007) which runs mostly parallel a short distance to the north of the N6, and excavations in advance of this road scheme.

The gas pipeline has been extremely informative for revealing a range of archaeological sites in south Westmeath – a county that has traditionally witnessed only minor scholarly research – similar to, although in smaller quantities, those in landscapes that have received more extensive attention, (Grogan *et al*. 2007, 24). This is most apparent for the Bronze Age as both the gas pipeline and excavations along the N6 have identified a wealth of domestic and burial evidence covering the early, middle and late parts of the period.

The area immediately surrounding Kilbeggan contains direct evidence for a range of Bronze Age sites including barrows, cists and an early Bronze Age pit burial (Grogan *et al*. 2007, 138, fig. 6.6). The cists – at Ardballymore (WM037-009) and Kilgaroan (WM037-010) – are located in close proximity to a number of sites impacted by the N6 including those in the townlands of (moving east to west) Kilbeggan South, Tonaphort, Ballinderry Big, Kilgaroan, Ardballymore, Ballinderry Little, Correagh and

Kilbeg. This is significant because sites within the majority of these townlands (except Ballinderry Little 1 which was not dated) have produced early to late Bronze Age evidence almost exclusively represented by burnt mounds or components of these.

Prior to the gas pipeline, a small number of excavations had occurred to the north and the northeast of the N6 including the cemetery sites at Knockast (Hencken and Movius 1934; Grogan 2004), Edmondstown (Mount and Hartnett 1993) and Ballybrennan, Barrettstown and Redmondstown (see Waddell 1990). Added to this is the crannog at Coolure, on Lough Derravaragh within the barony of Moycashel, which was the focus of archaeological survey, environmental investigation and artefactual and landscape research (O'Sullivan *et al*. 2007). The island was first occupied in c. 850 BC, during the late Bronze Age, and several late Bronze Age weapons and ornaments have been recovered nearby in the small bay (*ibid*.). The gas pipeline excavations have added considerably to our knowledge of the Bronze Age in this region and Grogan *et al*. (2007, 139) have identified three principal Bronze Age focal zones in –

- The valleys of the Brosna and Clodiagh rivers to the south and east of Kilbeggan.
- The hilly terrain around the Hill of Uisneach.
- The slightly elevated area around Edmondstown to the west of Killucan.

Before the gas pipeline and N6 excavations south Westmeath was considered a 'quiet' zone but a much more intensive Bronze Age landscape has emerged possibly related to the major Bronze Age centre at Knockast (*ibid*., 161). The pipeline revealed a dominance of Bronze Age archaeology mainly dating to the middle and late parts of the period. Settlement, for example, is indicated by the middle Bronze Age house at Knockdomny 3km northwest of Moate town (Hull 2006), and by a number of burnt mounds such as Ballynagarbry, directly to the west of Moate, and at Williamstown (Grogan *et al*. 2007, 139). The N6 traversed the latter townland and revealed a burnt spread dating to the late Bronze Age.

Important late Bronze Age settlements were uncovered in advance of the N6 including the possible house/workshop at Creggan Lower 1 and the house, boundary fences and pits at Tober. When added to the large rectangular late Bronze Age house at Ballinderry crannog II (Newman 1997 has since argued for the presence of a second rectangular Bronze Age structure) – identified as a thin black deposit which contained occupational debris and fragments of timbers and brushwoods and which produced many finds, mostly from the house, including pottery, knives, flesh-hooks, awls, rings, pins, beads and a variety of stone objects (Hencken 1942, 6–8) – it demonstrates how this was a well-settled and established region notably in the later part of the period. This interpretation is further reinforced by the large number of burnt mounds that were discovered along the N6 and some notable clusters within certain townlands, for example, at Cregganmacar, Burrow or Glennanummer and Kilbeg.

In Athlone, at the western edge of the scheme and close to Creggan Lower, an assortment of high-status Bronze Age artefacts – mainly dating to the middle and late periods – are well represented including, for example, a gold lunula, bronze flat axes and rapiers and later gold items such as bar torcs, penannular bracelets, dress fasteners and ring money (Murtagh 2000, 9). The distribution of further high-status artefacts including the hoards from Ballinderry, Killulagh, Brockagh and Enniscoffey provide further evidence of a well settled Bronze Age landscape in this region (Eogan 1983; Grogan *et al.* 2007, 161). Both the pipeline and N6 excavations have

demonstrated how quickly perceptions and knowledge of archaeological landscapes can change as new sites are revealed in areas previously thought to be mostly devoid of such.

Excavations in advance of the N6 have added considerably to the numbers of burnt mounds found in counties Westmeath and Offaly and, once again, highlight the prolific distribution of these sites. The findings from the N6 do not broadly diverge from the pattern of middle and later Bronze Age date ranges however Iron Age examples have also been revealed.

The closest examples of similar sites to Creggan Lower 2 are located approximately 5km to the east at Williamstown. At both Williamstown 1 (Lyne 2009a) and Williamstown 2 (Lyne 2009b), large burnt mounds overlay two possible troughs. The fill of a trough from the former produced a middle Bronze Age date while the latter site was dated – similarly to Creggan Lower 2 – to the later Bronze Age although it was in use slightly later. Excavations in advance of the gas pipeline to the west also traversed the townland of Williamstown and a burnt mound and a number of troughs (all undated) were revealed (Molloy 2007, 351–2). Boyanaghcalry 1 lay immediately east of Williamstown and also consisted of a burnt mound that sealed a trough (Walsh 2009). Dates from both the burnt mound and the trough showed that the site was in use during the middle Bronze Age.

A number of other burnt mound sites are located in this vicinity including Seeoge (Lyne 2009c, 2009d), Aghafin 1 (Lynch 2009a) and Cregganmacar (Lynch 2009b, 2009c, 2009d, 2009e). These range in date from the early Bronze Age (Cregganmacar 4) to a number of Iron Age examples (Seeoge, Aghafin 1 and Cregganmacar 1) and also unsurprisingly include burnt mounds dating to the middle and later parts of the Bronze Age. Burnt mounds are therefore prolific along the N6 in the area between Creggan Lower and the Cregganmacar sites which are located approximately 10km to the east. Creggan Lower 2 is broadly contemporary with a number of burnt mound sites including Williamstown 2, Seeoge, Aghafin 1 and Cregganmacar 2 and 3 but the most important site in relation to it is not a burnt mound but the possible late Bronze Age house within the same townland at Creggan Lower 1 which has produced very similar radiocarbon dates (Lyne 2009e).

The burnt mound site at Creggan Lower 2 is paralleled by a large number of similar sites that have been revealed along the N6 between Athlone and Kilbeggan. Many of these occur in proximity to Creggan Lower and have been dated most commonly to the Bronze Age but also the Iron Age. Excavations on other sections of the N6 have also uncovered various burnt mound sites, for example at Stonehousefarm 6.1 and 6.2 (McDermott 2004), while the gas pipeline to the west has similarly also revealed a number of examples in this region (Grogan *et al* 2007). The quantity of burnt mound sites testifies to an established and well-populated Bronze Age landscape.

3.3 Archaeological Typology Background (Burnt Mounds)

Fulacht Fiadh or burnt mound sites are one of the most common field monuments found in the Irish landscape. The last published survey (Power *et al*. 1997), carried out over a decade ago, recorded over 7,000 burnt mound sites and in excess of 1,000 sites have been excavated in recent years through development led archaeological investigations. In spite of this no clear understanding of the precise function of these sites has being forthcoming.

Burnt mound sites were typically located in areas where there is a readily available water source, often in proximity to a river or stream or in places with a high water table. In the field burnt mounds may be identified as charcoal-rich mounds or spreads

of heat shattered stones, however, in many cases the sites have been disturbed by later agricultural activity and are no longer visible on the field surface. Nevertheless even disturbed spreads of burnt mound material often preserves the underlying associated features, such as troughs, pits and gullies, intact.

Ó Néill (2003–2004, 82) has aptly identified these sites as the apparatus and by-product of pyrolithic technology. This technology involved the heating or boiling of water by placing fire-heated stones into troughs of water. Small shallow round-bottomed pits, generally referred to as pot boiler pits or roasting pits, are often associated with burnt mound sites. The purpose of these pits remains unclear. Occasionally large pits are also identified and may have acted as wells or cisterns. Linear gullies may extend across the site, often linked to troughs and pits, and demonstrate a concern with onsite water management. Post and stakeholes are often found on burnt mound sites and these may represent the remains of small structures or wind breakers.

Burnt mound sites are principally Bronze Age monuments and reach their pinnacle of use in the middle/late Bronze Age (Brindley *et al*. 1989−90; Corlett 1997). Earlier sites, such as Enniscoffey Co. Westmeath (Grogan *et al*. 2007, 96), have been dated to the Neolithic and later sites, such as Peter Street, Co. Waterford (Walsh, 1990, 47), have been dated to the medieval period. Thus although burnt mound sites generally form a component of the Bronze Age landscape, the use of pyrolithic technology has a long history in Ireland.

Although there is a general consensus that burnt mound sites are the result of pyrolithic technology for the heating or boiling of water, the precise function of these sites has, to date, not been agreed upon. Several theories have been proposed but no single theory has received unanimous support. The most enduring theory is that burnt mounds sites were used as cooking sites. O'Kelly (1954) and Lawless (1990) have demonstrated how joints of meat could be efficiently cooked in trough of boiling water. The use of burnt mound sites for bathing or as saunas has been suggested as an alternative function (Lucas 1965, Barfield and Hodder 1987, O' Drisceoil 1988). This proposal is largely influenced by references in the early Irish literature to sites of a similar character and is very difficult to prove, or disprove. Others, such as Jeffrey (1991), argue that they may have been centres of textile production for the fulling or dyeing of cloth. More recent demonstrations by Quinn and Moore (2007) have shown that troughs could have been used for brewing, however, this theory has been criticised by leading Irish environmentalists due to the absence of cereal remains from most Burnt Mound sites (McClatchie *et al*. 2007).

3.4 Discussion

Creggan Lower 2 comprised two areas of excavation, A and B. Area A consisted of the western extremities of a burnt mound or burnt spread. It is thought that the majority of the site remains in-situ outside of the limits of the CPO to the east (Plates 5 and 6). Area B, some 200m south of Area A, consisted of some patches of burning and charcoal, and may in fact represent nothing more than an episode of modern field clearance.

3.4.1 Phase 1: Natural deposits

This phase represents the natural subsoil, which was cut or sealed by all subsequent archaeological features. For the purposes of recording on-site this phase of activity was allocated the context numbers C3 (in Area A) and C1003 (in Area B). At the site of Creggan Lower 2 the subsoil was uniform throughout consisting of a firm yellow-grey sandy clay.

3.4.2 Phase 2: Prehistoric Archaeological Activity

Area A consisted of four relatively shallow spreads of burnt stone and charcoal-rich soil (C4, C5, C8 and C9) which sealed a number of negative features; namely two pits (C13 and C15) and two probable stakeholes (C10 and C21) (Figure 4, 5 and 6). Spreads of burnt stone and charcoal of this type are known as 'burnt mounds', and may have had a number of possible functions including cooking, bathing, tanning, brewing or even some ritual significance. This site provided only one artefact in the form of a possible worked chert flake (E2659:8:1) which came from one of the spreads of burnt stone (C8).

Burnt mounds or spreads generally date to the Bronze Age. Scale and form vary widely, with a horseshoe or kidney shaped mound often suggested as the classic form. Whatever the specific function of a given burnt-mound site, the same basic practice was being carried out. Stones were gathered together and burnt in a fire, before being placed into a pit or trough of water which would then boil. Prior to the next use the pit would have been emptied of the by then shattered and heat-affected stones, and this is what is uncovered as a burnt spread or mound.

As their function depended upon the availability of water, they were generally located close to a water source in the form of a lake, river, pond, bog or wetland. Creggan Lower 2 initially appeared to be located on a relatively dry rise on an east facing slope, but once the topsoil was stripped, the lower parts of the site quickly became waterlogged. Examination of the OS 6" map (1834–1842) indicated that during the 19th century the site was situated on the western margin of Crosswood bog (an ideal location for a burnt mound site).

Spreads C4, C5, C8 and C9 in Area A were all found along the eastern edge of the site, where the site met the limit of the CPO, and it would appear that the main archaeological deposits at this site may remain *in-situ* outside the limits of excavation. Furthermore, excavating only the edge of the site meant that what appeared as four separate spreads (C4, C5, C8 and C9), might in reality be part of one large spread, the bulk of which probably lies outside the limit of excavation as defined by the CPO. Elm (*Ulmus*) charcoal was recovered from a pit fill in Area A (Appendix 2.1).

The burnt spreads (generally C4) sealed four cut features of probable archaeological significance, and one spread, C12. C12 consisted of a thin spread of clay with charcoal inclusions, found surrounding C13. It may represent episodic removal of fill material from C13. Pit C13 was located at the eastern edge of site next to the CPO and was only partially exposed. It may represent a small trough or pit. It was filled by C14; material similar to C4, the deposit which sealed much of the area. A single sample of charcoal from this context was identified by Ellen O'Carroll as elm (Appendix 2.1), and was subsequently submitted for AMS dating to Queens University Belfast Radiocarbon dating lab (Appendix 2.3). Based on the 2 Sigma reading the sample was dated to Cal 1018–908 BC (2816 +/- 21 BP, UBA 9162), placing the site within the later Bronze Age date range.

The other significant pit on site was C15, a square-shaped pit measuring c. 1.5m x c. 1.5m and c. 0.5m in depth. This pit was down-slope from C13. Of its three fills, the basal fill C18 contained sufficient quantities of burnt stone to suggest it was contemporary with the main period of activity on site. The middle fill C17 consisted mainly of waterlogged organic material, mostly twigs, and seemed to be a deliberate deposit. The upper fill C16 was a stony gravely deposit, which seemed to have been dumped into a hollow made in C17. This pit may represent a well, used to collect water for use in the trough. It could also represent a storage pit, or given the kind of

material recovered within C17 possibly something more complex. A floated sample of C17 produced a range of plant material. To further the interpretation and understanding of the site through the identification of botanical remains, the sample was sent to Susan Lyons for specialist analysis and report (Appendix 2.2).

The sample contained uncarbonised wild taxa in the form of hawthorn (*Crataegus* sp.), bramble/blackberry *(Rubus fruticosus)*, elder (*Sambucus nigra)* and buttercup *(Ranunculus* sp). The hawthorn, bramble/blackberry and elder are all commonly found on the margins of woodland whilst the buttercup is more common to disturbed ground or wasteland. The Specialist felt that the plant remains recovered were a collection of natural species likely to share no direct correlation with the function of the feature. However, the excavation of C17 indicated that this may have been a deliberate deposit within pit C15. It must be considered a possibility therefore that hawthorn, bramble and elder may actually have been deliberately processed or utilised on the site.

Two probable stakeholes C10 and C21 were identified on site. C10 was relatively isolated and no further interpretation is possible other than that it is a probable stakehole. C21 was identified adjacent to pit C13. Its location close to the edge of the pit could suggest it was associated with it in some way. There was however some animal or root interference in this part of the site, and it is possible that C21 is in fact the result of natural processes.

Area B was located some 200m south of Area A, and consisted of a single shallow charcoal-rich spread C1005. This was unconvincing as an archaeological deposit. It is likely that it represents an episode of scrub burning/field clearance. This is perhaps backed up by the results of charcoal identification, which shows a wide range of species represented: alder (*Alnus glutinosa)*, oak (*Quercus* sp), ash (*Fraxinus excelsior*), hazel (*Corylus avellana*), cherry (*Prunus* spp), and pomoideae (Appendix 2.1). It is probable that Area B is in fact of no archaeological significance, and requires no further discussion.

The site at Creggan Lower 2 Area A falls into the category site type referred to as a burnt mound or *fulacht fiadh*, and thanks to the recovery of uncarbonised wild taxa in the form of hawthorn (*Crataegus* sp.), bramble/blackberry *(Rubus fruticosus)*, elder (*Sambucus nigra)* and buttercup *(Ranunculus* sp), we can hypothesise that in this instance it may have been an area for processing foodstuffs, or perhaps an area for the dyeing of material. The fact that this site is contemporary with Creggan Lower 1, a settlement site where bone was being worked into various tools, suggests that these sites should be viewed together, and between the two sites there may have been production of various commodities, bone implements and perhaps coloured textiles.

This area of Westmeath (Section 3.2) has produced many high-status middle to late Bronze Age artefacts, and it could be suggested that Creggan Lower was part of this world, albeit as a centre of production and perhaps trade. It should be borne in mind that the sites at Creggan Lower are located just four kilometres south of the shores of Lough Ree, and a similar distance east of the banks of the River Shannon, placing them within 30 minutes walk of the greatest routeway (and presumably means of trade and exchange) in prehistoric Ireland.

3.4.3 Phase 3: Modern or Non-Archaeological Features

All of the activity and features represented in this phase were non-archaeological horizons or features identified on site during the course of excavation. Evidence for recent agricultural practices carried out in the area came in the form of a plough

furrow C7, and suggests that what is now pasture land was used in the past for tillage. All the other contexts from this phase appear to be the result of natural processes, in the form of boulder sockets and animal burrows.

3.4.4 Phase 4: Topsoil

This phase represents the topsoil that sealed all of the archaeological deposits and features on site in both Areas A and B. The topsoil was removed by mechanical excavator fitted with a toothless bucket under strict archaeological supervision. In Area A the topsoil was peaty and somewhat waterlogged in nature, and is consistent with having been reclaimed in the relatively recent past.

4 CONCLUSIONS

Creggan Lower 2 comprised two areas of excavation, A and B. Area A consisted of the western extremities of a burnt mound or burnt spread. It is likely that the majority of the site remains *in-situ* outside of the limits of the CPO to the east (Plates 5 and 6). Area B, some 200m south of Area A, consisted of some patches of burning and charcoal, and may in fact represent nothing more than an episode of modern field clearance. It is felt that Area B is in fact of no archaeological significance, and requires no further discussion.

Area A consisted of a number of relatively shallow spreads of burnt stone and charcoal-rich soil (C4, C5, C8 and C9) which sealed a number of negative features; namely two pits (C13 and C15) and two probable stakeholes (C10 and C21). These features are typical of burnt mound sites. Radiocarbon dating of fill C14 from pit C13 produced a calibrated 2 Sigma result of 1018–908 BC (2816 +/- 21 BP, UBA 9162) placing it within the later Bronze Age date range. This dating evidence coincides with the general chronology for this site type based on previously excavated examples. What remains unclear is the precise use or function of the site beyond being a place to heat water. It must be considered a possibility that the recovery of the seeds of such berries as hawthorn, bramble and elder may suggest that these were being processed or utilised on site, either as a foodstuff or perhaps for dyeing.

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PLATES

Plate 1: E2659: Pre-excavation of site, facing east

Plate 2: E2659: Section of burnt spread C4, facing north

Plate 3: E2659: Pit C15 mid-excavation, facing northeast

Plate 4: E2659: Pit C15 post-excavation, facing southwest

Plate 5: E2659: Stakehole C10, post-excavation

Plate 6: E2659: Creggan Lower 2 facing north – post-excavation

Plate 7: E2659: Section of burnt spread C4, facing east

APPENDIX 1 CATALOGUE OF PRIMARY DATA

Appendix 1.1 Context Register

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description	Finds	Context Above	Context Below
1	N/A	N/A	N/A	N/A	Peaty topsoil.	Topsoil.		-	Various
2					VOID			-	-
3	N/A	N/A	N/A	N/A	Firm yellow-grey sandy clay.	Subsoil.		Various	-
4	N/A	>3.25	>1.7	0.21	Black soft clay silt with white heat affected stones and charcoal.	Burnt spread material.		1	14
5	N/A	>3.25	>1.7	0.21	Black soft clay silt with white heat affected stones and charcoal.	Burnt spread material.		1	3
6					Void	Void.		-	-
7	N/A	N/A	N/A	0.12	Cut of modern furrow, which slightly truncates (C4) and (C5).	Modern.		1	4, 5
8	N/A	>4.9	>3.84	0.12	Dark greyish brown to black compact clay silt with pockets of charcoal 20%, heat affected stones and small stones 5%.	Burnt spread material.	Chert flake.	1	3
9	N/A	N/A	N/A	0.05	Dark whitish grey clay with ash inclusions.	Burnt spread material.		1	3
10	N/A	0.12	0.12	0.2	Circular plan, vertical sides. Break of slope top: sharp. Break of slope base: sharp with a circular concave base.	Stakehole cut.		11	3
11	C10	0.12	0.12	0.2	Black mid soft clay silt.	Stakehole fill.		4	10
12	N/A	1.74	>1	0.07	Grey firm clay with some charcoal inclusions.	Clay spread.		4	3
13	N/A	0.94	0.32	0.28	Semi circular in plan, gradual sides towards S and sharp from N–E. Break of slope top: gradual. Break of slope base: gradual with a semi circular concave base.	Cut of pit.		14	3
14	C13	0.94	0.32	0.28	Black soft clay silt with charcoal and heat affected stones.	Fill of pit.		4	13
15	N/A	1.5	1.5	0.5	Roughly square in plan. Corners at N, S and W sharp, more gradual at E. Roughly square base.	Cut of roughly square pit.		1	3
16	C15	1.35	1.15	0.2	Light grey medium firm sandy clay very stoney/gravelly.	Top fill of pit.		1	17
17	C15	1.35	1.25	0.13	Red brown very soft silt. Full of twigs.	Middle fill of pit C15. Deposit of twigs.		16	18
18	C15	1.5	1.5	0.3	Light grey brown medium slightly clayey silt with occasional inclusions of stone and many fire cracked stones at E edge.	Bottom fill of pit C15. Contains fire cracked stones.		17	15
19	N/A	0.8	0.65	0.17	Triangular in plan, E and S side very steep rest is gradual. Break of slope top: E and S very sharp, rest is imperceptible. Break of slope base: E and S very sharp, rest is imperceptible. Uneven base.	Probable boulder socket.		20	3

Context	Fill of	L(m)	W(m)	D(m)	Interpretation	Description	Finds	Context Above	Context Below
20	C19	0.8	0.65	0.17	Mid greyish brown moderately compact sandy silt with inclusions of decomposed roots at top of fill and decomposed root fibres throughout the rest of the fill.	Fill of probable boulder socket.		1	19
21	N/A	0.12	0.07	0.14	Circular in plan, sloping towards E. Brake of slope top: straight with concave sides. Brake of slope base: gradual with a circular shape of base.	Cut of stakehole sealed by C4.		22	3
22	C21	0.12	0.07	0.14	Grey soft silty clay with inclusions of charcoal.	Fill of possible stakehole, sealed by C4.		4	21
23					VOID			-	-
24					VOID			-	-
25	N/A	0.56	0.095	0.07	Curvilinear cut N–E with curved corners. Brake of slope top: SE and SW sharp, N sloping-not perceptible. SE and SW sides are steep and N part sloping. Brake of slope base: gradual with shape of base uneven rounded.	Possible collapsed animal burrow.		26	3
26	C25	0.56m	0.095	0.07	Grey medium compact silty clay with inclusions of flecks of charcoal and stones.	Possible animal burrow. Fill is under C12.		1	25
1001					Firm mid-brown clay silt.	Topsoil Area B.		-	Various
1002					Patches of sandy subsoil.	Subsoil Area B.		1001	1003
1003					Natural Geology.	Natural Geology Area B.		1002	-
1004					Charcoal staining NE corner of Area B. Interpreted as evidence of recent agricultural activity.	NA		1001	1003
1005	N/A	2.7	1.5	0.12	Black soft charcoal-rich slightly clayey silt with inclusions of charcoal and a few heat shattered stones.	A black spread. Possible *in situ* burning though no burnt natural clay underneath. Possibly of no archaeological significance.		1001	1003
1006	N/A	<2	c. 1	0.15	Peaty deposit in a natural hollow.	NA		1001	1003

Appendix 1.2 Catalogue of Artefacts

Registration Number	Context	Item No.	Simple Name	Full Name	Material	No. of Parts	Description
E2659:8:1	8	1	Flake	Chert flake	Stone	1	Possible chert flake

Appendix 1.3 Catalogue of Ecofacts

A total of 11 soil samples were taken at Creggan Lower 2, four of these were processed by floatation and sieving through a 250µm mesh and the results including charcoal, seeds and shell are listed below.

1.3.1 Charcoal

A total of two charcoal samples were recovered following floatation and were subsequently sent for identification. The sample from C1005 was subsequently interpreted as the result of modern burning.

Context number	**Sample number**	**Feature**	**Sample weight (g)**
14	5	Small pit Area A	0.5
1005	9	Area of burning Area B (modern)	24.2

1.3.2 Seeds/Grains

Sample 6 produced a range of seeds. These were subsequently sent for specialist identification.

Context number	**Sample number**	**Feature**	**Sample weight (g)**
17	6	Secondary fill of pit C15	Negligible

1.3.3 Mollusc Shell

Context number	Sample number	Feature	Sample weight (g)
17	6	Secondary fill of pit C15	0.1

Appendix 1.4 Archive Checklist

Project: N6 Kilbeggan – Athlone	**Irish Archaeological Consultancy Ltd**	
Site Name: Creggan Lower 2		
NMS Reg Number: E2659		
Ministerial Directive: A016/031		
Site director: Ed Lyne		
Date: October 2008		
Field Records	**Items (quantity)**	**Comments**
Site drawings (plans)	5	
Site sections, profiles, elevations	9	On 4 sheets
Other plans, sketches, etc.	0	
Timber drawings	0	
Stone structural drawings	0	
Site diary/note books	1 book	
Site registers (folders)	1 folder	Digitised
Survey/levels data (origin information)	1 book	Digitised
Context sheets	30	Digitised
Wood Sheets	0	
Skeleton Sheets	0	
Worked stone sheets	0	
Digital photographs	48	
Photographs (print)	0	
Photographs (slide)	0	
Finds and Environ. Archive		
Flint/chert	1 flake	
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	0	
Metallurgical waste	0	
Enviro bulk soil (specify no. of samples)	11 samples	
Enviro monolith (specify number of samples and number of tins per sample)	0	
Security copy of archive	Yes	

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: E2659

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 Creggan Lower 031 being part of the townland of CREGGAN LOWER 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 ..... 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

CHARCOAL IDENTIFICATIONS

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

MINISTERIAL DIRECTION NUMBER: A016/031
NMS REGISTRATION NUMBER: E2659
CREGGAN LOWER 2

Ellen O'Carroll MA DIP. EIA Mgt
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Introduction

Two samples were analysed for the purpose of AMS dating. One of the samples (C1005) was subsequently interpreted as being derived from a modern burning episode.

Results

Table 1: Identifications at Creggan Lower 2

Site no.	Context no.	Context type	Sample no.	Species	Comment
A016-31	14	Fill of pit C13	5	Elm (0.5g, 5g)	Dating sample: CAL 1018–908BC
A016-31	1005	Modern spread/ Burning	9	Alder (1.9g, 8f), Oak (0.5g, 3f), Ash (4.5g, 35 f), hazel (0.9g, 5f), Cherry (0.1g, 2f). Pomoideae (0.5g, 1f)	Iron stained charcoal. Hazel twigs (modern deposit)

Discussion and conclusions

Elm was identified from the fill of pit C13. The charcoal identifications were completed for dating purposes only therefore a proper quantification and analysis of the results is not obtainable within the framework of this report. The context C1005 has been classified as a modern pit.

English elm *(Ulmus procera)* and wych elm *(Ulmus glabra)* cannot be separated by their wood structure. As suggested by Mitchell (1986) elm declined (although would not have completely died out) with the advent of farming and possibly elm disease epidemic around 3700BC. It generally prefers damp woods particularly on limestone.

References

Mitchell, G F 1986 *Shell guide to reading the Irish landscape,* Country House.

SUSAN LYONS MSC MIAI
ENVIRONMENTAL ARCHAEOLOGIST

N6 KILBEGGAN TO ATHLONE: PLANT REMAINS ASSESSMENT FROM CREGGAN LOWER 2 A016/031 [E2659]

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 Creggan Lower 2, Co. Westmeath, along the N6 Phase 2 Kilbeggan to Athlone Dual Carriageway Scheme.

BACKGROUND

An archaeological excavation was carried out at Creggan Lower 2, Co. Westmeath by Ed Lyne 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 A016/031.

Creggan Lower 2 is located in Creggan Lower townland, to the immediate east of the existing N6, c. 1km east of Athlone town (Lyne, 2007). The excavation was divided into two areas; Area A consisted of the southern extremities of a burnt mound or burnt spread type site along with a number of relatively shallow spreads of burnt stone and charcoal-rich soil which sealed a number of negative features, namely two pits and two probable stakeholes. Based on the morphology and form of the burnt mound feature, the site is thought to date to the Bronze Age period (Lyne, 2007). Area B, some 200m east of Area A, showed some evidence for burning, but was interpreted as having no archaeological significance (Lyne, 2007).

SAMPLE STATEGY

An on-site soil sampling strategy was implemented and features and deposits deemed archaeologically significant 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 one flot (Context 17) were subsequently submitted to Susan Lyons in October 2007 to identify and analyse the plant 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.

METHODOLOGY

The flot material was viewed under a low powered binocular microscope (magnification x0.8 to x5) and any carbonised or potentially waterlogged botanical materials were removed and identified to genus/species level where applicable. The plant remains were recorded using an abundance key to highlight the concentrations/quantities 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, A R, Tutin, T G, Warburg, E F, 1957), *Zadenatlas der Nederlandsche Flora* (Beijerinck, W.1976), *New Flora of the British Isles 2nd Edition* (Stace, C, 1997) and *Digital Seed Atlas of*

the Netherlands (Cappers, R.T.J, R.M. Bekker and Jans, J.E.A. 2006).

RESULTS

All plant remains identified were uncarbonised and were deemed potentially waterlogged. The results are summarised in Table 1.

Uncarbonised wild taxa – Context 17 contained what may be considered once waterlogged plant remains, which had dried out. These included species associated with the margins of woodland and scrub; hawthorn (*Crataegus* sp.), bramble/blackberry *(Rubus fruticosus)*, elder (*Sambucus nigra)* and buttercup *(Ranunculus* sp.), common to disturbed ground and waste places.

DISCUSSION

The archaeobotanical assemblage recorded from Context 17 (fill of pit C15) at Creggan Lower 2 contained no convincing plant remains reflecting domestic activity. The potentially waterlogged plant remains recovered are generally indicative of disturbed/waste ground, such as buttercup and woodland environments, such as elder, brambles and hawthorn. It is likely these species were growing locally in and around the site.

The seeds of fruit bearing plants, brambles and blackberries are also identified as gathered foodstuffs and have been interpreted from plant remain assemblages as being anthropogenic or cess material (Greig, 1991). However, since these seeds are present in low quantities they may also have entered this feature via other means such as faunal (e.g. bird droppings) and/or fluvial (e.g. surface run-off) transport.

CONCLUSIONS

The plant remains recovered from Context 17 at Creggan Lower 2 are likely to be a collection of natural species which entered the feature inadvertently. Since the assemblage was void of domesticates and cultivated species it is difficult to ascertain the exact function of the feature or indeed the level of occupational activity at the site.

REFERENCES

Beijerinck, W 1976 *Zadenatlas der Nederlandsche Flora*. Backhuys & Meesters, Amsterdam.

Cappers, RTJ, Bekker, RM & Jans, JEA 2006 *Digital Seed Atlas of the Netherlands*. Barkhuis Publishing & Groningen University Library, Groningen, Netherlands.

Clapham, A R, Tutin, T G, Warburg, E F 1957 *Flora of the British Isles.* Cambridge University Press, Cambridge.

Greig, J 1991 The British Isles, In van Zeist, Wasylikowa & Behre (eds) *Progress in Old World Palaeoethnobotany,* 299–334. Rotterdam.

Lyne, E 2007 *N6 Kinnegad – Athlone Scheme Phase 2: Kilbeggan to Athlone Dual Carriageway Site A016/031 Creggan Lower 2: Preliminary Archaeological Report.* IAC Ltd unpublished report.

Stace, C 1997 *New Flora of the British Isles* (2nd edition). Cambridge University Press, Cambridge.

Table 1. Composition of the plant remains from Creggan Lower 2 (A016/031)

Context Number	Sample Number	Context Description	Uncarbonised plant remains	Comments
17	6	Secondary fill of pit C15	+++	*Rubus fruticosus* +++ *Crataegus* sp. ++ *Sambucus nigra* + *Ranunculus* sp. +

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

RADIOCARBON DATING RESULTS
CREGGAN LOWER 2

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-9162
Date of Measurement: 2008-05-22
Site: A016/031 Creggan Lower Co.Westme
Sample ID: S5 C14
Material Dated: Elm
Pretreatment: AAA
Submitted by: IAC

^{14}C Date: 2816±21
AMS δ^{13}C: -25.9

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
```

```
S5 C14
UBA-9162
Radiocarbon Age BP    2816 +/-    21
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 BC 1000- 969                        0.502
                             962- 931                         0.498
  95.4 (2 sigma)      cal BC 1018- 908                        1.000
```

```
 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.
```

APPENDIX 3 LIST OF RMP SITES IN AREA

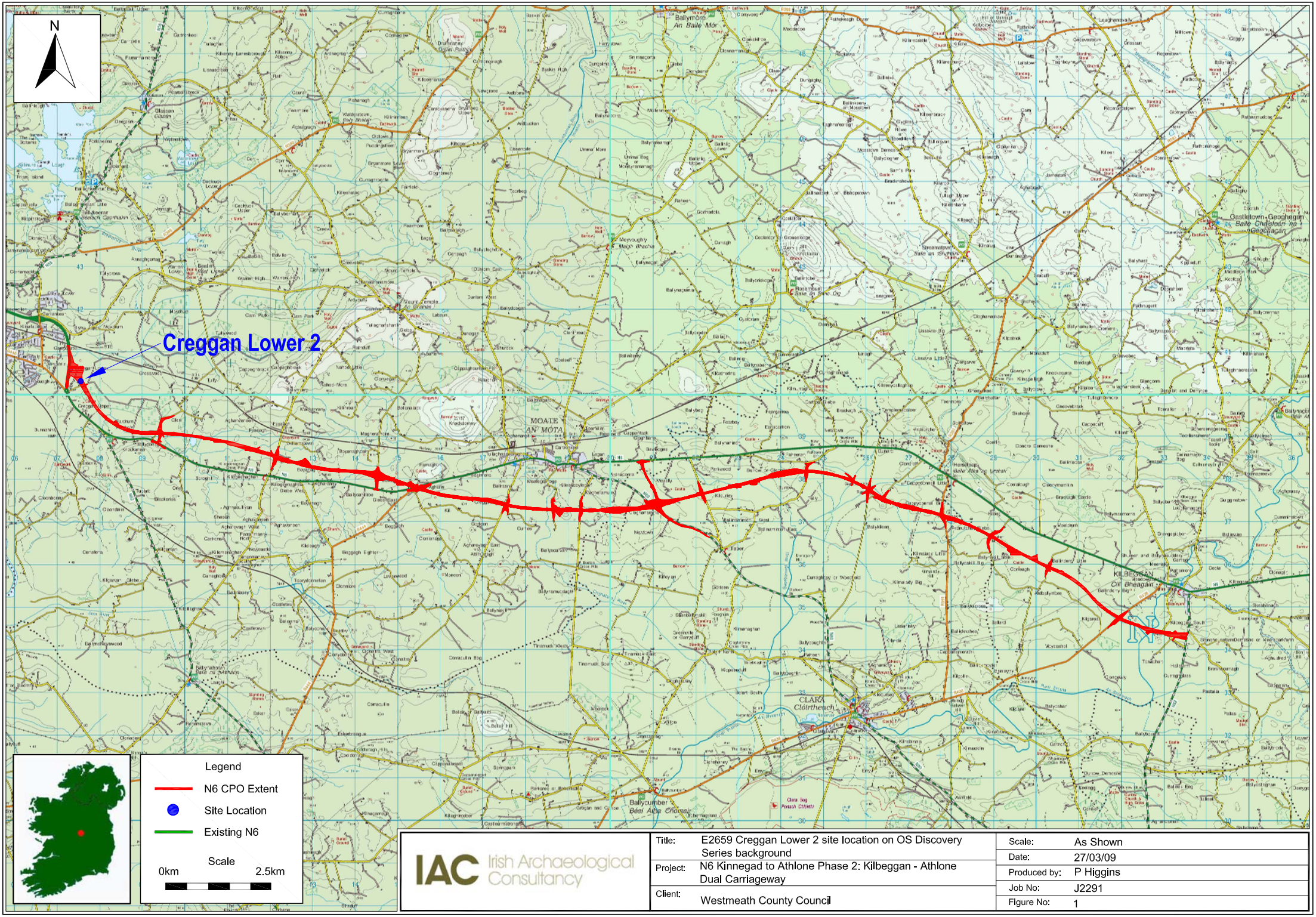
RMP No	Description
WM029-025	Castle
WM029-026	Earthwork Site
WM029-027	Earthwork
WM029-028	Castle
WM029-029	Earthwork
WM029-033	Earthwork
WM029-034	Castle Site
WM029-036	Earthwork

See Figure 2 for location.

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:	E2659 Creggan Lower 2 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

WM029-025

WM029-026

WM029-027

Creggan Lower 1

Creggan Lower 2

WM029-028

WM029-029

WM029-033

WM029-034

WM029-036

GARRYCASTLE

CREGGAN LOWER

CREGGAN UPPER

CROSSWOOD

BALLYDONAGH

KNOCKANEA

FARDRUM

Legend

N6 CPO Line

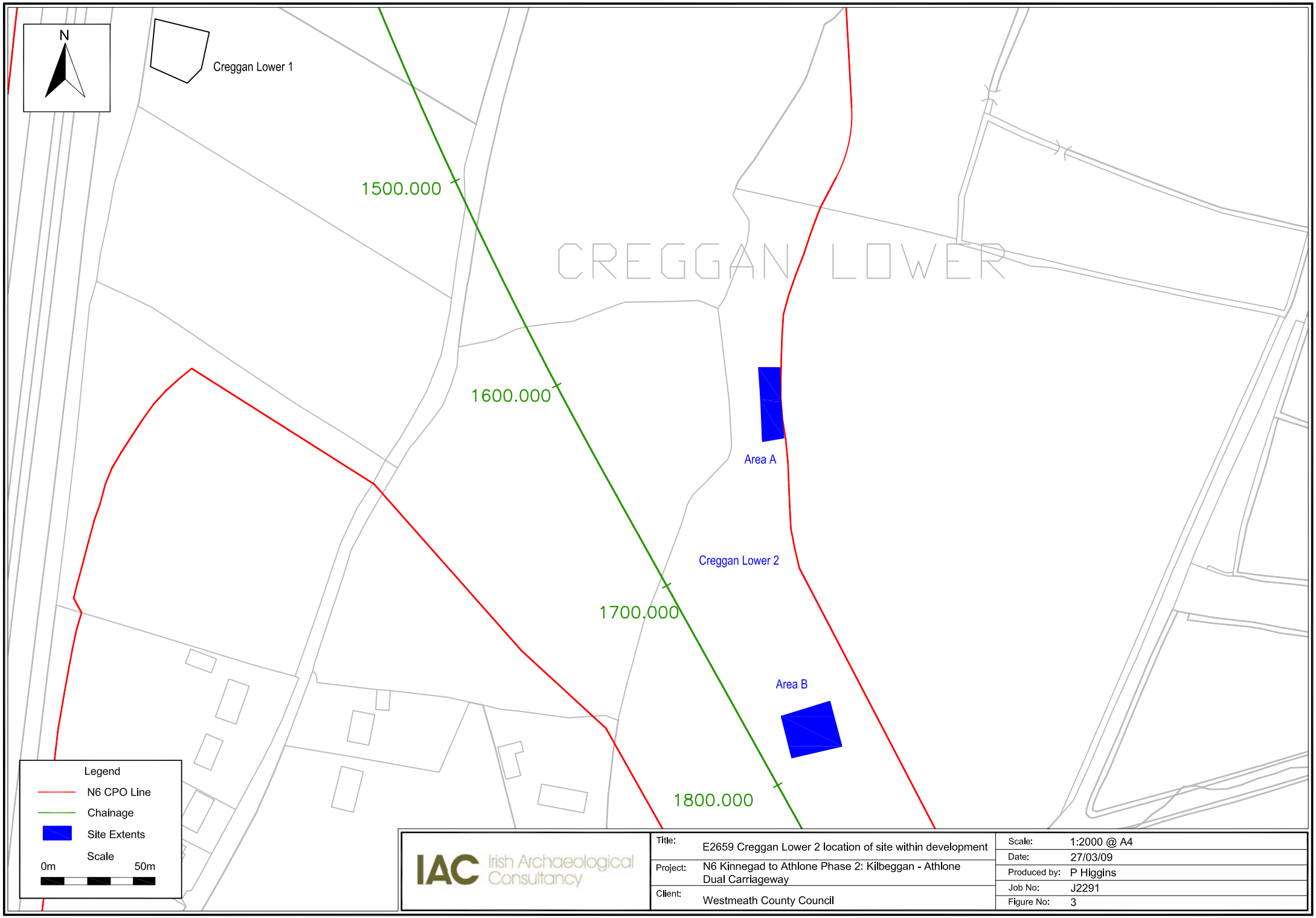
RMPs

Scale

0m 250m

Title:	E2659 Creggan Lower 2 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
Date:	27/03/09	Figure No:	2
Produced by:	P Higgins		

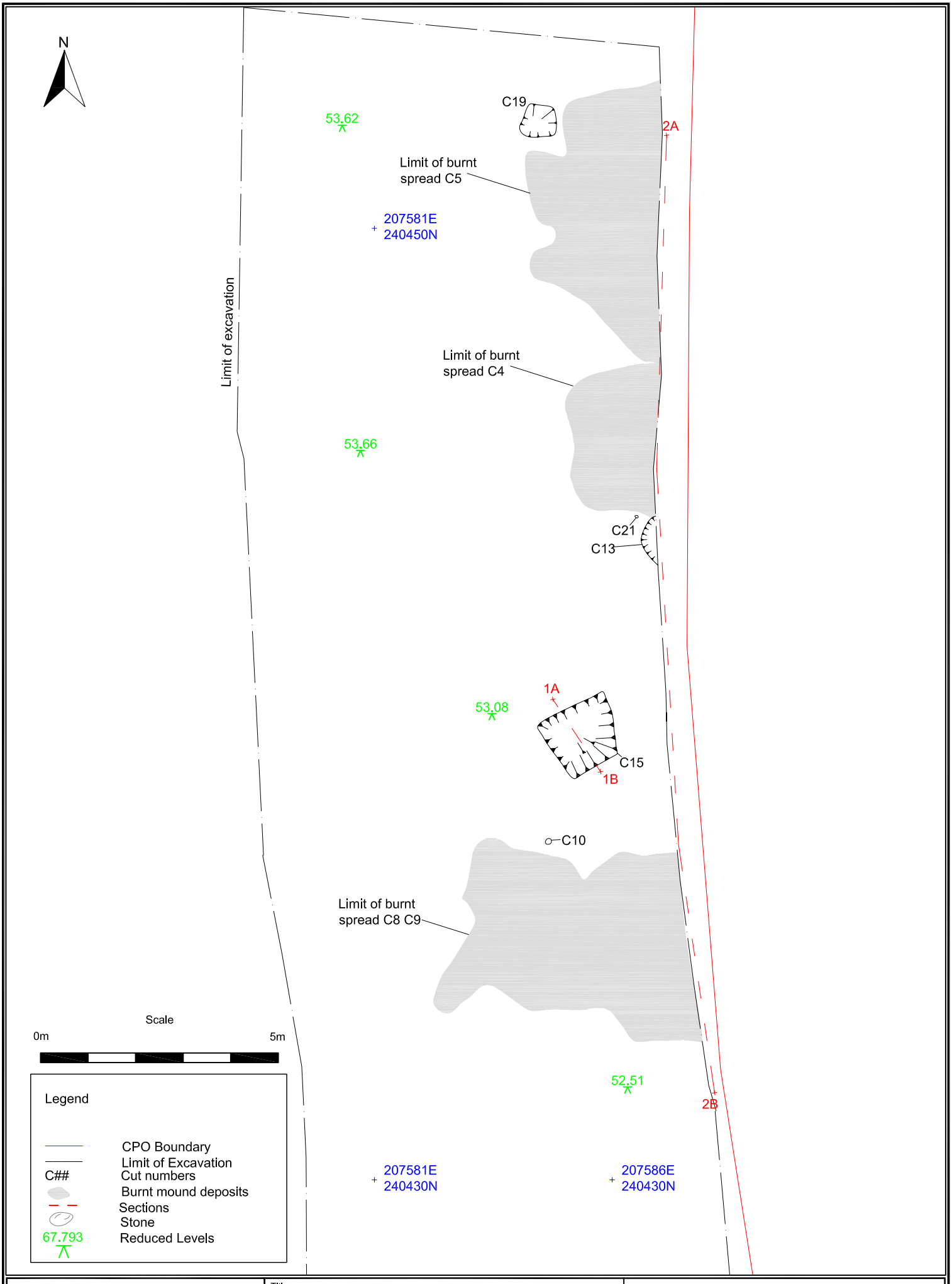
IAC Irish Archaeological Consultancy



IAC Irish Archaeological Consultancy

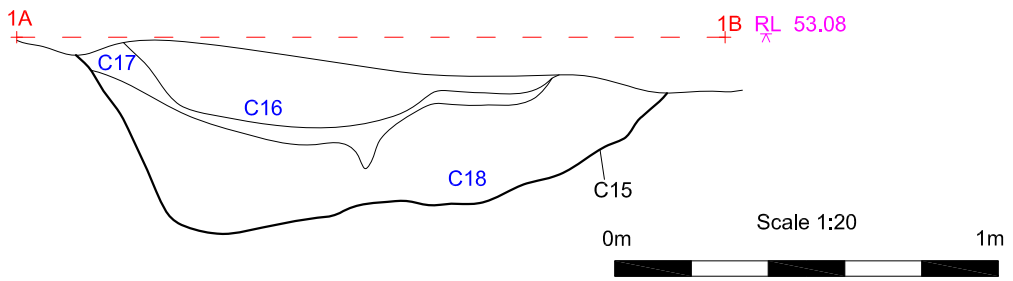
Title:	E2659 Creggan Lower 2 location of site within development
Project:	N6 Kinnegad to Athlone Phase 2: Kilbeggan - Athlone Dual Carriageway
Client:	Westmeath County Council

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

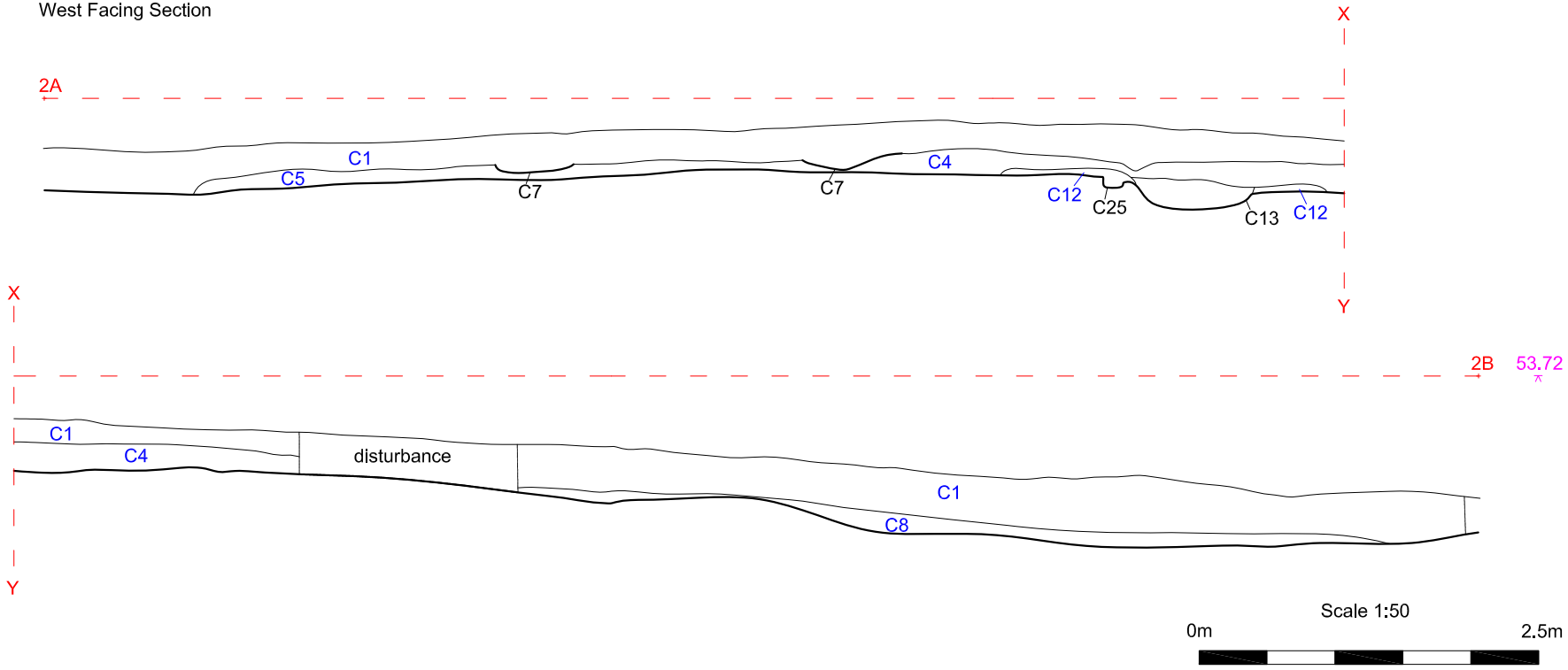


IAC Irish Archaeological Consultancy	Title: E2659 Creggan Lower 2 site plan	Scale:	1:100 @ A4
	Project: N6 Kinnegad to Athlone Phase 2: Kilbeggan - Athlone Dual Carriageway	Date:	27/03/09
		Produced by:	G Kearney
	Client: Westmeath County Council	Job No:	J2291
		Figure No:	4

Creggan Lower 2
West Facing Section of C15



Creggan Lower 2
West Facing Section



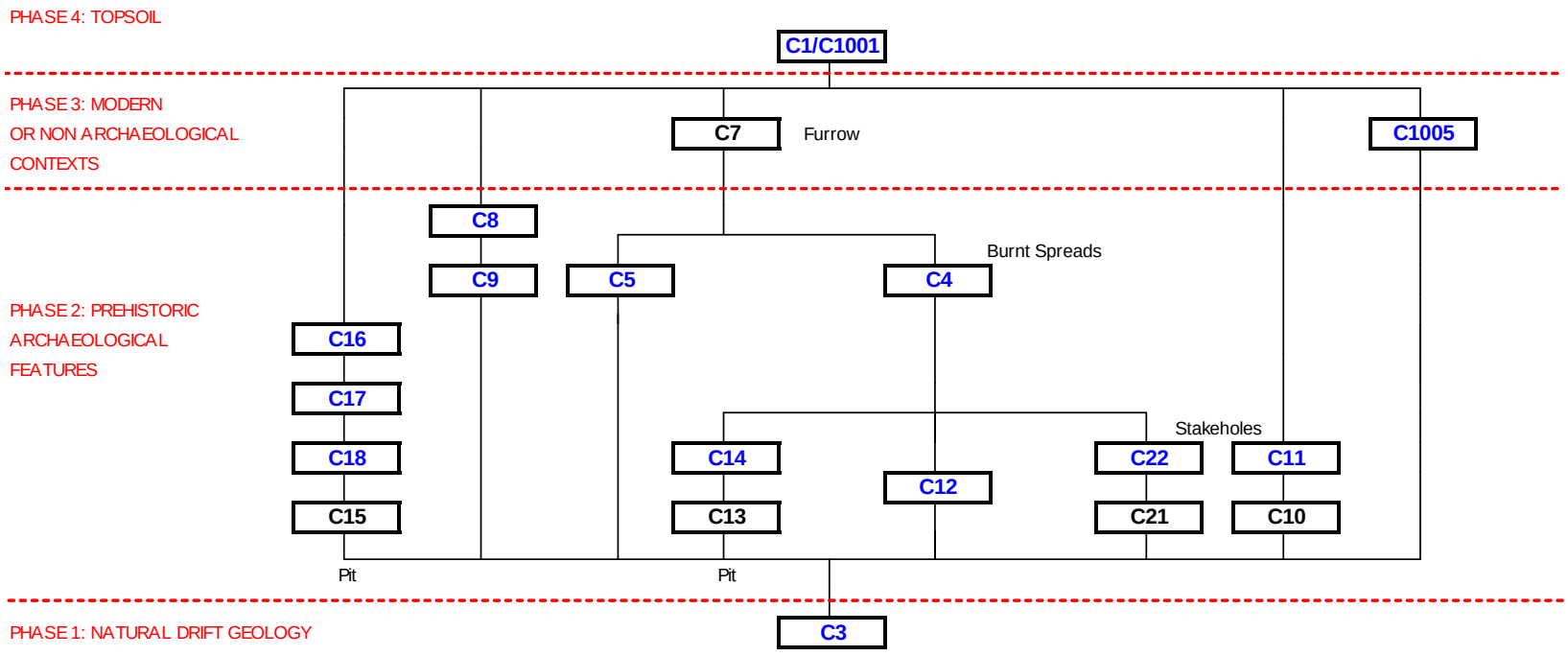
Legend

C##	Cut numbers
C##	Fill Numbers
#	Charcoal
###.##	Reduced Levels

IAC Irish Archaeological Consultancy

Title:	E2659 Creggan Lower 2 sections
Project:	N6 Kinnegad to Athlone Phase 2: Kilbeggan - Athlone Dual Carriageway
Client:	Westmeath County Council

Scale:	As shown
Date:	27/03/09
Produced by:	G Kearney
Job No:	J2291
Figure No:	5



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	Client:	Westmeath County Council	Produced by: G Kearney
			Job No: J2291
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