

**N52 Mullingar Belvedere Road Improvement Scheme:  
Archaeological Resolution**

**FINAL REPORT  
E3318**

**Ministerial Directive A006  
Excavation No. A006/007, Gorteen 3 Townland,  
Co Westmeath**

**Site Director:** C. Duffy  
**Project Director:** Valerie J Keeley Ltd  
**Job No:** 1195-05-400  
**Client:** Westmeath County Council  
**Date:** April 2008

**Valerie J. Keeley Ltd**



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## **SUMMARY**

E3318 Gorteen 3 along the proposed N52 Mullingar Belvedere Road Improvement Scheme is composed of a burnt stone deposit. This report outlines the results of the on-site excavation. It includes interpretation of the features excavated and recorded on the site, as well as details of the materials recovered from the site. This report also includes the results of post-excavation analysis and archiving requirements.

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## Introduction

This document is presented in accordance with the terms of Section 5 of the National Monuments Act (2004 Amendment) as a final report on archaeological excavation of features identified during a previous archaeological assessment of the N52 Mullingar Belvedere Road Improvement, Co. Westmeath. The work is intended to preserve, by record, archaeological deposits which cannot be preserved *in situ* during the construction of this new road. The project is funded by the Irish Government and the European Union, through Westmeath County Council/National Roads Authority and under the National Development Plan 2000-2006. All works were carried out under Ministerial Direction A006. Valerie J Keeley Ltd. was commissioned by Westmeath County Council to undertake the works.

This site consisted of the remains of a possible burnt mound or fulacht fiadh measuring 6m x 3.5m. Excavations commenced on the 20<sup>th</sup> September and were completed on the 29<sup>th</sup> September 2005. There were no constraints on archaeological methods.

## Site Location

The site was located in Gorteen townland County Westmeath, at Chainage 2965-2970, (N.G.R. 243907/248877 Figure 1). The site may be found on the O.S. Discovery map series map, sheet 48, at reference N439 488.

## Project Background

Valerie J. Keeley Ltd. was appointed to undertake the rescue excavation of this archaeological site identified following archaeological test trenching carried out by Michael Tierney of The Archaeology Company under works numbers E3314 A006/001 – 004 (Tierney and Elder 2004). The assessment included a geophysical survey R0058 conducted by Margaret Gowan & Co. Ltd, and topographical survey S0058 conducted by F.C.G. surveys, Athy, Co. Kildare.

Gorteen 3 was described in the testing report as a deposit of frequent heat shattered limestone and sandstone with moderate charcoal inclusions in a dark brown to black sandy silty clay. It measured 5m north-south and 9m east-west, with an average of 0.1m in depth.

## Archaeological Excavation

### Local Topography

The site is located in an area of ridges of rock outcrop, with low-lying, often marshy ground between. It lies just below the 120m O.D. contour.

### Description of Excavation Strategy

These works took place in accordance with the terms of the Contract between Westmeath County Council and Valerie J Keeley Ltd. according to the terms of the *Code of Practice* agreed between the National Roads Authority and the Minister of Arts, Heritage, Gaeltacht and the Islands. The excavations complied with the Policy and Guidelines on Archaeological Excavation (Govt of Ireland 1999).

Initially, an area of excavation was opened measuring 21m in length north south and 19m in length east-west. A mechanical excavator removed the topsoil over the site.

The stone spread was planned and sectioned from north to south, through the centre of the spread. The section was recorded by photograph and drawing.

The stone spread was removed by layer and the peat and subsoil beneath was cleaned down and found to be sterile.

### Natural Deposits

The natural deposits on the site consisted of the topsoil, **C1**, which comprised of moderately compact red-brown silty clay, measuring 0.35m in depth. Beneath this was the subsoil, **C2**, which was hard grey/red-brown clayey silt. The subsoil sloped downwards by c.0.5m, from the burnt stone deposit to the eastern limit of the site. The archaeological deposit lay between these two natural layers.

### **The Burnt Stone Spread**

The archaeological deposit, **C3**, consisted of a matrix of loose black silt, with frequent stone inclusions. **C3** measured 2.5m in width by 6m in length and 0.2m – 0.35m in depth. Over 90% of the stone was limestone, which appeared to be heat-affected along with a small proportion of orange sandstone. The deposit contained very few charcoal fragments and yielded no artefacts. There was an isolated outlying area of the same material, roughly circular in shape, c.5m east of the main deposit **C3**.

### **Subsoil affected by the burnt Stone Spread**

**C4** was a deposit of loose grey-black clayey silt, with frequent un-burnt stone, and no charcoal. It measured 5.5m in length by 1.5m in width and was 0.15m in depth. Leaching discoloured **C4** from the burnt stone deposit **C3** (Pl. 3).



## Conclusion

The archaeological deposit on the site was a small burnt stone spread. It did not have any associated pits, and there were no finds retrieved. It did not run outside of the road-take and was apparently confined within it.

The archaeological deposit on the site at Gorteen 3 was a burnt stone spread, of the type generally referred to as burnt mound. Three other sites of this type were excavated in the vicinity as part of the resolution phase of the N52 Road-Improvement Scheme.

A sample of **C3** was studied by Mary Dillon to identify plant remains in the deposit. No plants were identified by the study. A copy of the report on this study is appended to this report (see Appendix E).

A charcoal sample taken from **C3** was identified by Mary Dillon as Pomoideae, which includes *Crataegus* (hawthorn), *Sorbus* (rowan & Whitebeam) and *Malus sylvestris* (crabapple). (see Appendix F)

The sample were then analysed for Carbon 14 dating of the use period of the trough, by the 14 Chrono Centre at Queen's University, Belfast. The charcoal gave a date of BP 3326  $\pm$  22, a 2 $\sigma$  cal date BC 1679 – 1530 (see Appendix G).

UBA ID #	E#	Site name	C#	S#	Date BP	+ or -	$\delta^{13}C$	2 $\sigma$ cal BC/AD age range	probability distribution
8882	E3318	Gorteen 3	3	1	3326	22	-28.2	1679 - 1674 BC 1670 - 1530 BC	0.019 0.981

This places the site in time later than Rochfort Demesne 1 and Phase 1 of Gorteen 1 and 2, but earlier than Phase 2 of Gorteen 1 and 2.

### Dating Comparison Table

UBA ID #	E#	Site name	C#	S#	Date BP	+ or -	2 $\sigma$ cal BC/AD age range	probability distribution
8879	E3316	Rochfort Demesne 1	41	5	2826	41	1122 - 895 BC 867 - 858 BC	0.993 0.007
8880	E3317	Gorteen 1 & 2	23	20	2892	22	1191 - 1178 BC 1159 - 1144 BC 1131 - 1003 BC	0.021 0.024 0.955
8881	E3317	Gorteen 1 & 2	27	25	3911	25	2472 - 2335 BC 2324 - 2304 BC	0.947 0.053
8882	E3318	Gorteen 3	3	1	3326	22	1679 - 1674 BC 1670 - 1530 BC	0.019 0.981

At Site E3316 Rochfort Demesne 1, c.2km to the south-west, a burnt stone spread was excavated. There was a shallow rectangular pit with associated post-holes beneath the spread. This type of pit is often found at *fulacht fiadh* type-sites. The site yielded a C14 date of BP 2826  $\pm$ 41 for the fill of the stakeholes of the trough, a 2 $\sigma$  cal date of BC 1122 – 858.

At Site E3317 Gorteen 1 and 2, c.1km south-west of Gorteen 3, two burnt spreads were excavated. Gorteen 1 was apparently part of the Gorteen 2 site. Gorteen 2 had a trough and five other pits beneath the burnt stone spread. The site yielded Carbon 14 dates of BP 2892 $\pm$ 22 (2 $\sigma$  cal BC 1191-1003), for the post-use backfill of the trough, and BP 3911 $\pm$ 25 (2 $\sigma$  cal BC 2472-23004) for a pit which was stratigraphically later.

At Site E3319 Tullaniskey 1 there was a fourth burnt stone spread with no associated features.

The site of E3318 Gorteen 3 is regarded as being archaeologically resolved.

## **Acknowledgments**

The site was directed by Carmel Duffy and assisted by Supervisor Niall O'Neill, and two assistants Emma Skarstrand and John McEvoy.

## **References**

Tierney, M. and Elder, S. (2004) *Archaeological Assessment at N52 Mullingar – Belvedere Bypass for the Archaeology Company*, (Excavation works numbers: A006:001 – 004)

Ordnance Survey of Ireland. (1998) *Discovery Series Sheet 48, 1:50,000*.

### Appendix A: Context Register

Context	Type	D	W	L	Description	Interpretation
1	deposit	0.35m	N/a	N/a	moderately compact red-brown silty clay	topsoil
2	deposit	unknown	N/a	N/a	hard grey/red-brown clayey silt	subsoil
3	deposit	0.2 - 0.35m	6m	2.5m	loose black silt, frequent stone, charcoal	burnt stone spread
4	deposit	0.15m	1.5m	5.5m	loose grey-black clayey silt, freq unburnt	Leaching from C3

### Appendix B: Photograph Register

Roll	Neg	Context	Facing	Type	In	Date	Remarks
5	8	C3 C4	E	Colour	CD	03/10	Pre-ex of spread
5	9	C3 C4	S	Colour	CD	03/10	Pre-ex of spread with N-S section
5	10	C3 C4	NE	Colour	CD	04/10	Pre-ex of spread with N-S section
5	11	C3 C4	E	Colour	NN	04/10	Pre-ex of spread with N-S section
5	12	C3	E	Colour	NN	04/10	Western edge of N-S section (close up)
5	13		E	Colour	CD	04/10	Post-ex of site
5	14		SW	Colour	CD	04/10	Post-ex of site

### Appendix C: Drawing Register

Drawing no:	Plan / Section / Elevation	Scale	Drawn by	Date	Comments
1	Plan	1:50	NON	3/10	Pre-ex, general
2	Section	1:10	NON	4/10	East Section.

### Appendix D: Sample Register

Sample #	Context #	No. of Bags	Material	Init.	Reason for sampling
1	3	1	Soil	NN	Geological
2	3	1	Charcoal	NN	Poss. date

**APPENDIX E: PLANT REMAINS REPORT.**  
**Mary Dillon**



# **Plant remains from Gorteen 3, Co Westmeath E3318**

*By Mary Dillon*

## **Introduction**

One sample were submitted for plant remains analysis from the excavation of a burnt spread at Gorteen 3, Co Westmeath.

## **Methodology**

Bulk soil samples were collected and processed by the client. The flots were sorted and scanned for plant material using a low-powered binocular microscope (magnification x 10 to x 40).

## **Results**

The sample produced no plant remains.

## **Discussion and Conclusion**

The lack of plants remains from this site is not altogether surprising. Burnt mounds and troughs, although commonly excavated, have yielded practically no cereal remains.

**APPENDIX F: CHARCOAL IDENTIFICATION REPORT.**  
**Mary Dillon**





# **Analysis of charcoal in advance of AMS dating from N52 Mullingar Belvedere, Co-Westmeath**

*By Mary Dillon*

## **Introduction**

Samples from 16 contexts from the N52 Mullingar Belvedere, Co-Westmeath were submitted for charcoal analysis. Samples were analysed with view to identification of material for AMS dating. Charcoal from trees with a short life-span is suitable for radiocarbon dating while charcoal from trees with a long life-span is not.

## **Methodology**

All charcoal fragments of 2 mm or greater were identified. Each fragment was prepared for microscopic examination by fracturing it by hand and thereby exposing a clean surface along transverse, radial and tangential planes. All three planes were examined at a range of magnifications (x 5 to x 120) under a Nikon stereo microscope. For reference literature the website “wood anatomy” was consulted. The number and weight of fragments were recorded for each wood type.

## **Results**

In all, two samples (E3315; C203, S300 and C77, S506) did not produce suitable charcoal for dating. These samples consisted only of oak wood (*Quercus spp.*). All other samples are suitable. The results are illustrated in Table 1.

## **References**

“Wood Anatomy” at <http://www.woodanatomy.ch>

Table 1

E#	Licence#	Site name	Site#	Director	Object#	Context#	Comment	Charcoal id	Weight	Suitable for dating?
E3315	A006 003	Rochfort Demense	3	John Channing	248	179	For dating (not priority)	Pomoideae*	0.01g	suitable
E3315	A006 003	Rochfort Demense	3	John Channing	280	198	For dating (preferred bone Ams)	Hazel	0.04g	suitable
E3315	A006 003	Rochfort Demense	3	John Channing	300	203	Single date v . Vip from this context	Oak	////////	not suitable
E3315	A006 003	Rochfort Demense	3	John Channing	315	250	For dating (preferred bone Ams)	Birch	0.16g	suitable
E3315	A006 003	Rochfort Demense	3	John Channing	389	271	For dating (not priority)	Pomoideae	0.09g	suitable
E3315	A006 003	Rochfort Demense	3	John Channing	392	290	For dating (not priority)	Hazel twig	0.07g	suitable
E3315	A006 003	Rochfort Demense	3	John Channing	410	316	For dating (preferred bone Ams)	8 oat cereal	0.04g	suitable
E3315	A006 003	Rochfort Demense	3	John Channing	462	321	For dating (preferred bone Ams)	Cereals; 1 oat, 1 indeterminate	0.1g	suitable
E3315	A006 003	Rochfort Demense	3	John Channing	506	77	For dating (preferred bone Ams)	Oak	////////	not suitable
E3315	A006 003	Rochfort Demense	3	John Channing	511	337	For dating (preferred bone Ams)	Hazel	0.04g	suitable
E3315	A006 003	Rochfort Demense	3	John Channing	548	408	For dating (preferred bone Ams)	Hazel	0.01g	suitable
E3315	A006 003	Rochfort Demense	3	John Channing	364	77	Unprocessed (preferred bone Ams)	Pomoideae	0.06g	suitable
E3316	A006 005	Rochfort Demense	1	Carmel Duffy	5	41	For dating	<i>Prunus</i> **	0.09g	suitable
E3317	A006 006	Gorteen	1 & 2	Carmel Duffy	20	23	For dating	Willow/poplar	0.01g	suitable
E3317	A006 006	Gorteen	1 & 2	Carmel Duffy	25	27	Unprocessed (for dating)	Hazel/alder	0.16g	suitable
E3318	A006 007	Gorteen	3	Carmel Duffy	1	3	Unprocessed (for dating)	Pomoideae	0.16g	suitable

\* Pomoideae includes *Crataegus* (hawthorn), *Sorbus* (rowan & Whitebeam) and *Malus sylvestris* (crabapple)

\*\* *Prunus* includes *P. avium* (Wild cherry), *P. padus* (bird cherry) and *P. spinosa* (blackthorn).

## **APPENDIX G: RADIOCARBON DATING CERTIFICATES**

**Queen's University Belfast**



UBNo	Sample ID	<sup>14</sup> C Age	±	AMS δ <sup>13</sup> C	%Modern	±
UBA-8873	c179 S248	1093	30	-27.5	87.2790	0.3330
UBA-8876	c287 c389	1189	29	-29.7	86.2330	0.3160
UBA-8879	c41 s5	2826	41	-25.3	70.3350	0.3630
UBA-8880	c23 s20	2892	22	-25.3	69.7660	0.1960
UBA-8881	c27 s25	3911	25	-28.1	61.4480	0.1920
UBA-8882	c3 s1	3326	22	-28.2	66.0910	0.1830

VJK Ltd.  
Brehon House  
Kilkenny Road  
Castlecomer, Co. Kilkenny  
Ireland  
VAT No. 8242379B



<sup>14</sup>CHRONO Centre  
Queens University Belfast  
42 Fitzwilliam Street  
Belfast BT9 6AX  
Northern Ireland

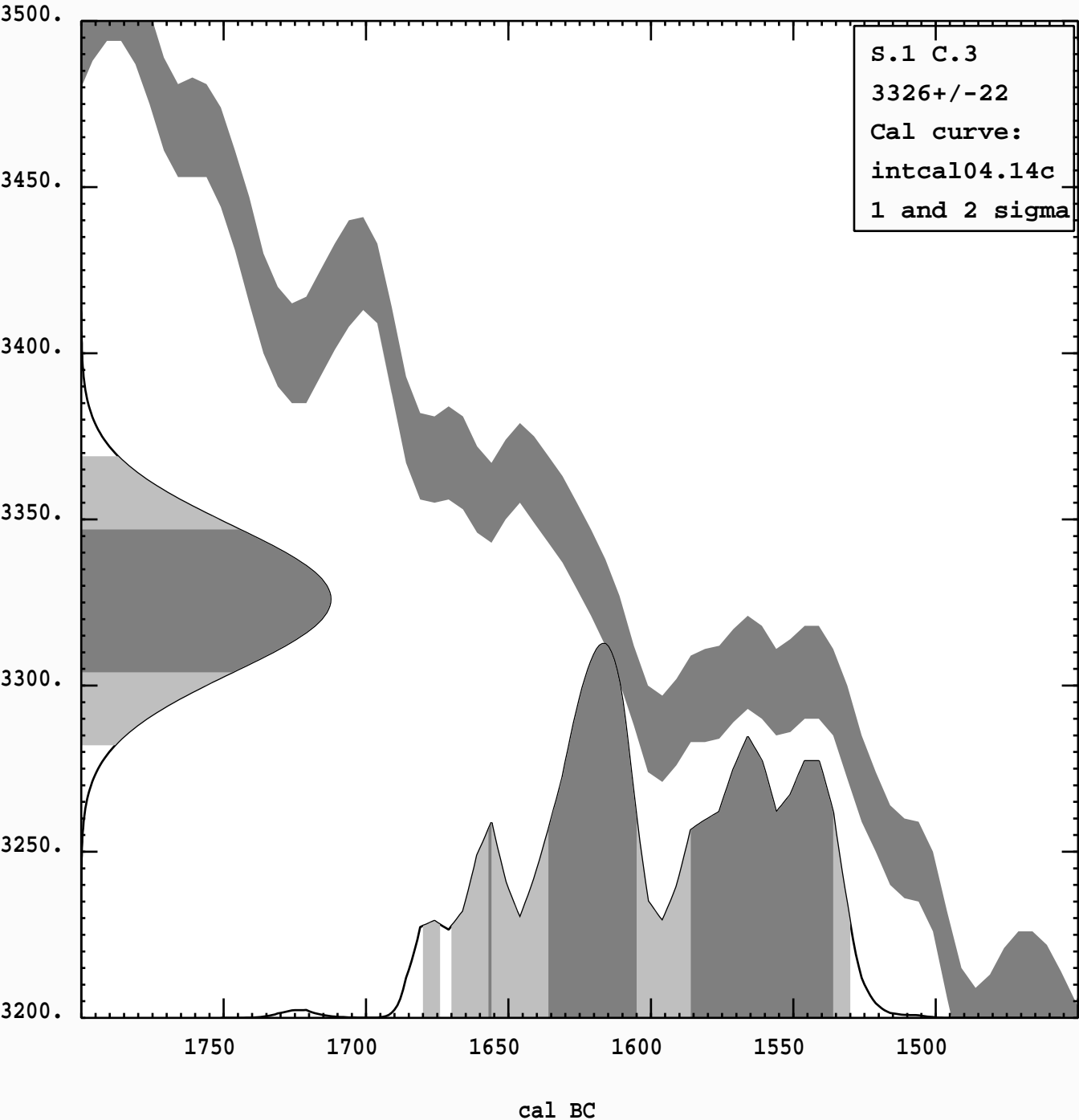
## Radiocarbon Date Certificate

Laboratory Identification: UBA-8882  
Date of Measurement: 2008-03-10  
Site: E3318 A006007  
Sample ID: c3 s1  
Material Dated: charcoal  
Pretreatment: AAA  
Submitted by: Post ex VJK Ltd

<sup>14</sup>C Date: 3326±22

AMS  $\delta^{13}\text{C}$ : -28.2

Radiocarbon Age vs. Calibrated Age





# 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 - cl4res.csv

c3 s1  
UBA-8882

Radiocarbon Age BP 3326 +/- 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 BC 1657- 1655	0.009
	1636- 1605	0.442
	1585- 1535	0.549
95.4 (2 sigma)	cal BC 1679- 1674	0.019
	1670- 1530	0.981

## 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.

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.

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## **PLATES AND FIGURES**



## PLATES



**Pl. 1** – Burnt spread C3, facing south-west.



**Pl. 2** - Burnt spread C3, facing south-west, section in middle distance.



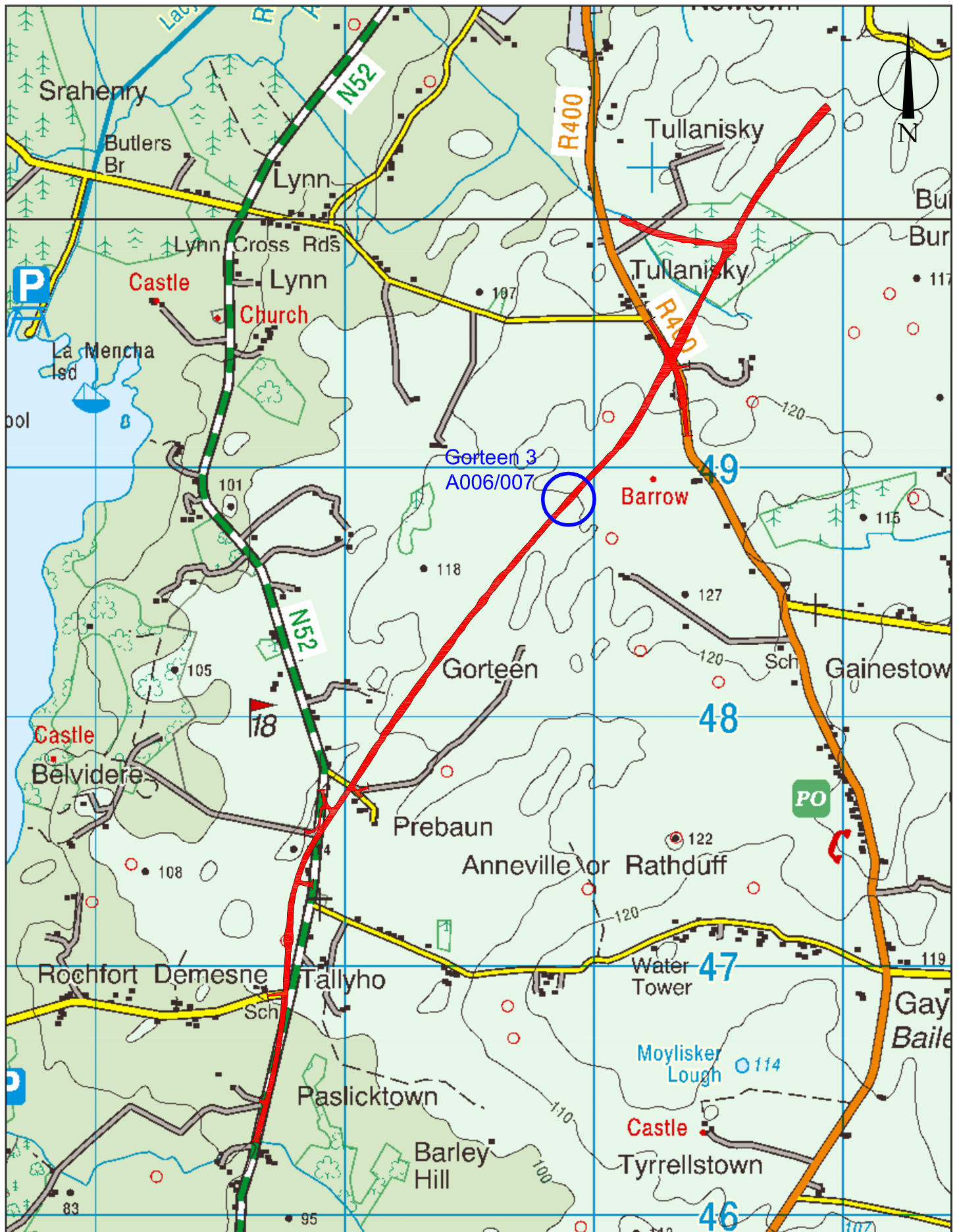


**Pl. 3** – East section C3, C4.



**Pl.4** – Subsoil after removal of burnt spread material.





Title  
Site location on Discovery Series mapping.

Notes



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Job/Exc No.  
A006/007  
E3318

Compiled by  
D.Tuohy

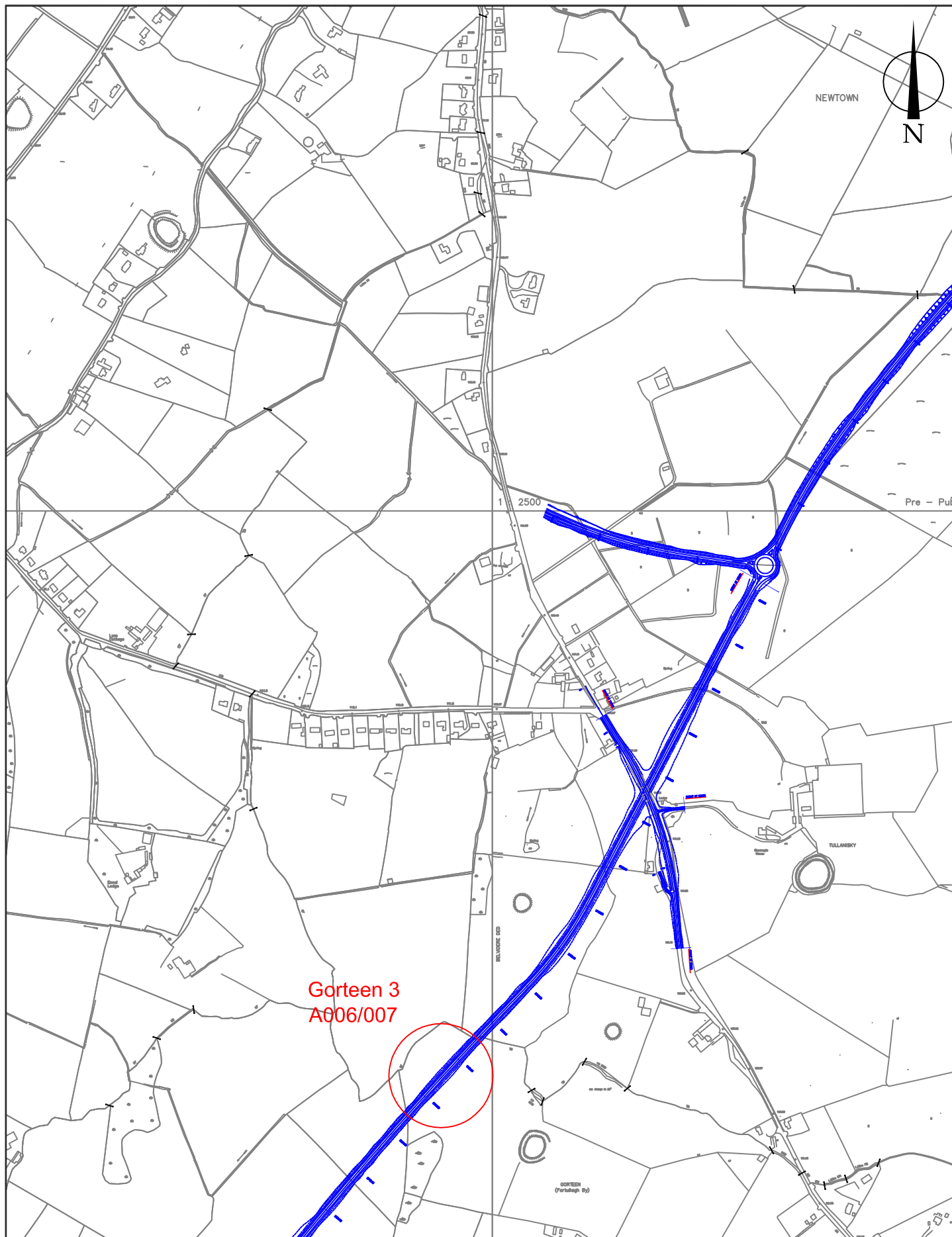
CAD reference  
05-1195


Date  
20:02:06

Scale  
1:20000

Drawing No.  
Location Map

Project  
N52 Mullingar Belvedere



<b>Title</b> Site location showing road realignment.			<b>Notes</b>			 <b>Valerie J. Keeley Ltd.</b> Archaeological Consultancy Brehon House Castlecomer Co. Kilkenny. Tel: (+353) 056 4440236 Fax: (+353) 056 4440237 email: vjk@vjk.ie
<b>Job/Exc No.</b> A006/007 E3318	<b>Compiled by</b> S.Doyle	<b>CAD reference</b> 05-1195	<b>Date</b> 20:02:06	<b>Scale</b> 1:10000	<b>Drawing No.</b> Fig 1	
<b>Client</b> Westmeath County Council						<b>Project</b> N52 Mullingar Belvedere





100E +  
110N +

1172098  
X

1162598  
X

1119653  
X

1172098  
X

1172158  
X

C4

1172198  
X

BURNT  
STONE  
SPREAD

1172968  
X

C3

1172223  
X

1172088  
X

1172003  
X

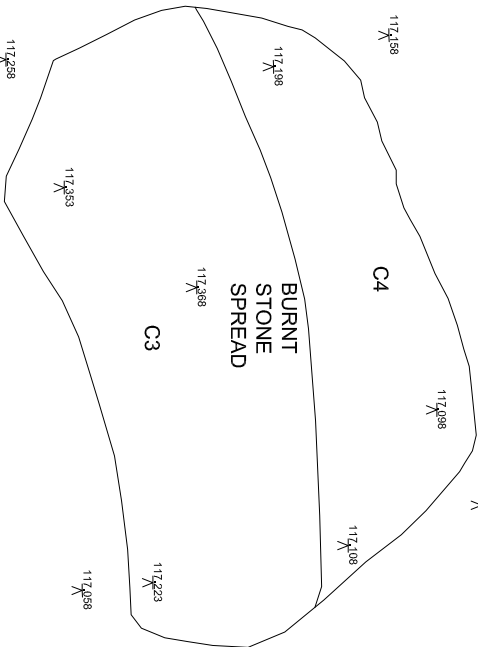
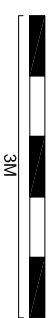
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1172258  
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1172113  
X

1172303  
X

100E +  
100N +



**Title**  
Pre-excavation Plan of Site

**Notes**

**Job/Exc No.**

A006007  
E3318

**Compiled by**

M. Tegenhan

**CAD reference**

05-1155

**Client**

Westmeath County Council

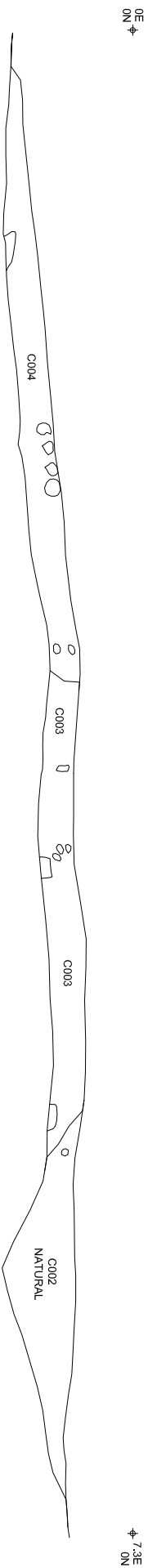
**Project**

N52 - Mullingar to Belvedere Road Scheme



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WEST FACING



Title	Notes	Job/Exc No.	Compiled by	CAD reference	Client
West Facing Section		A006/007 E3318	M. Tegenar	05-1195	Westmeath County Council
		Date 06/01/06	Scale 1:30	Drawing No. Fig. 3	Project N52 - Mullingar to Balvedere Road Scheme



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