

**N18 Ennis Bypass
and N85 Western Relief Road**

Site AR108, Ballymacahill, Co. Clare

**Final Archaeological Excavation Report
for Clare County Council**

Licence No: 04E0054

by Markus Casey

**Job J04/01
(NGR 136837 179632)
1st August 2006**

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Summary

Site name: N18 Ennis Bypass and N85 Western Relief Road, Site AR108, Ballymacahill, Co. Clare

Townland: Ballymacahill

Parish: Kilraghtis

Barony: Bunratty Upper

County: Clare

SMR/RMP Number: N/A

Planning Ref. No: N/A

Client: Clare County Council, New Road, Ennis, Co. Clare

Landowner: Clare County Council, New Road, Ennis, Co. Clare

Grid reference: 136837 179632 (OSI Discovery Series, 1:50,000, Sheet 58. OS 6" Clare Sheet 34)

Naturally occurring geology: Dark yellowish brown sandy boulder clay with outcropping limestone

TVAS Ireland Job No: J04/01

Licence No: 04E0054

Licence Holder: Markus Casey

Report author: Markus Casey

Site activity: Excavation

Site area: 321m²

Sample percentage: 100%

Date of fieldwork: 3rd-4th February 2004

Date of report: 1st August 2006

Summary of results: Layers of discoloured silt in three shallow pits were examined. One of the pits was radiocarbon dated to the 11th to 13th centuries AD.

Monuments identified: Medieval pits

Location and reference of archive: The primary records (written, drawn and photographic) are currently held at TVAS Ireland Ltd, Ahish, Ballinruan, Crusheen, Co. Clare.

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Report edited/checked by: Graham Hull ✓01.08.2006

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Report J04/0lu

Introduction

This report documents the final results of an archaeological excavation of three medieval pits (Site AR108) on the route of the N18 Ennis Bypass and N85 Western Relief Road at Ballymacahill, Co. Clare (NGR 136837 179632) (Fig. 1). The excavation forms part of the Ennis Bypass Archaeological Contract 6.

A preliminary archaeological report for this site was produced in June 2004 (Casey 2004).

The National Monuments Act 1930 (as amended) provides the legislative framework within which archaeological excavation can take place and the following government publications set out many of the procedures relating to planning/development and archaeology:

Framework and Principles for the Protection of the Archaeological Heritage (DAHGI 1999a)

Policy and Guidelines on Archaeological Excavation (DAHGI 1999b)

Code of Practice between the National Roads Authority and the Minister for Arts, Heritage, Gaeltacht and the Islands (NRA/MAHGI 2001)

Project background

As part of the National Roads Authority scheme for upgrading the N18 Limerick to Galway Road, Clare County Council, in consultation with NRA Project Archaeologist Sébastien Joubert, requested a series of archaeological investigations along the route of the proposed Ennis Bypass and a Western Relief Road. The proposed scheme has an overall length of 21km and involves the construction of a 13.8km eastern bypass of Ennis from Latoon, north of Newmarket-on-Fergus, to Cragard, north of Barefield. The Western Relief Road is 7.1km long and is to link Killow and Claureen (Fig. 1).

A number of sites of archaeological interest were known to lie on the route of the new roads and the mitigation strategy agreed by the Project Archaeologist and the national licensing authorities for these sites was preservation by record, i.e. full archaeological excavation. Further sites, without surface expression, were located as the result of intensive test trenching along the course of the road (03E1291 Hull 2003 and 03E1293 Roger 2004). As preservation *in situ* was not a reasonable option, the resolution strategy for these new sites was also preservation by record.

The archaeological excavation and post excavation work were funded by Clare County Council through the National Roads Authority and part-financed by the European Union under the National Development Plan 2000-2006.

Location, topography and geology

The site was located in the townland of Ballymacahill, parish of Kilrachtis, barony of Bunratty Upper and lay approximately 4km north-east of Ennis town centre (the O'Connell Monument), 2.5km south of Barefield village and was centred on NGR 136837 179632 (Figs 1 and 2).

The low-lying undulating field in which the site lies is overlooked by a steep-sided drumlin immediately to the north-east while densely overgrown hedgerows run around the perimeter of the area (Plate 1). The field is well drained and used for grazing. Natural limestone outcrop was visible intermittently upslope from the site.

The area under examination sloped gently down to the south and lay in the lowest section of the field along the southern field boundary. The south-western corner of the trench lay at 9.0m above Ordnance Datum (OD) and the north-western corner lay at 9.9m OD.

Archaeological background

As part of the environmental assessment process for the road scheme, Clare County Council commissioned desk-based and walkover surveys that formed part of an Environmental Statement (Babtie Pettit 2000) and an archaeological study for the Environmental Impact Statement (Doyle 1999). A total of 36 sites of known or potential cultural heritage significance were identified along the entire route of the proposed Ennis Bypass and Western Relief Road.

Earthwork and geophysical survey were undertaken on potential archaeological sites and invasive testing and excavation took place in 2002 and 2003 on some of the above ground sites affected by the proposed road (Aegis 2002, IAC 2003, Geoquest 2002, Earthsound 2003).

A systematic programme of testing along the new road route, involving the mechanical excavation of a central linear trench with offsets, took place in Summer/Autumn 2003. Twenty-two previously unknown sites, including cremation cemeteries, burnt stone spreads, enclosures and brick clamps were found (03E1291 Hull 2003 and 03E1293 Roger 2004). Monuments dating from the Bronze Age to the modern period were found.

Earlier phases of archaeological intervention on newly constructed stretches of the N18 (Dromoland to Carrigoran), to the immediate south of this road project, have demonstrated that the locality has a rich range of prehistoric and later monuments (99E0350 Hull and Tarbett-Buckley 2001).

Recent archaeological work on the BGE Gas Pipeline to the West in the neighbourhood of the new road route has tended to support the picture of continuous human activity in Co. Clare from the Neolithic and even becoming intensive from the Bronze Age. A number of burnt stone spreads and burnt mounds were excavated near the route of the new road in the summer of 2002 (MGL 2002).

Archaeological deposits were found during testing (03E1293 Roger 2004). Two features were recorded, both pits. An oval pit measuring 2.15m north to south by 1.2m containing a dark brown to black charcoal rich silty fill was examined. The feature was sectioned at the northern end and was found to have a depth of approximately 0.35m. A second pit was identified 0.2m to the south of the first one. This feature averaged 0.45m in diameter and was not dug during testing. No finds were recorded. These features cut the natural boulder clay and were stratigraphically post-dated by modern furrows.

A potential archaeological site, AR107 (04E0053; Casey 2006), was excavated 350m to the north as part of the Ennis Bypass project. This proved to be several patches of disturbed natural deposits and was of no archaeological significance.

Excavation aims and methodology

A licence to excavate was granted to Markus Casey by the National Monuments Section of the Department of the Environment, Heritage and Local Government, in consultation with the National

Museum of Ireland, on behalf of the Minister for the Environment, Heritage and Local Government. The licence number is 04E0054.

The aims of the excavation were to:

- 1) Preserve by record all archaeological deposits and features within the excavation area
- 2) Produce a high quality report of the findings

The fieldwork took place on the 3rd and 4th February 2004 and was directed by Markus Casey, supervised by Richard Oram and assisted by Frank Mulcahy.

The excavated area was rectangular in plan and measured 17m east to west by 18m (total area 321m²). Topsoil and overburden were removed by a 15 tonne, 360°, tracked machine, operated under direct and continuous archaeological supervision. The digger was fitted with a 6 foot toothless bucket.

All features were hand-cleaned then fully excavated.

A full written, drawn and photographic record was made following procedures outlined in the TVAS Ireland Field Recording Manual (First Edition 2003).

Excavation results (Figs 3 and 4; Plates 2 and 3)

Besides the backfilled test trenches, no surface features were visible in advance of excavation.

A complete context list is given as Appendix 1.

Munsell colour descriptions are used in fill descriptions below>

The dark brown fertile topsoil that was mechanically removed contained no finds and was 0.05 to 0.25m thick, being shallowest upslope to the north and deepest towards field boundary to the south. Three indistinct features were exposed within the uncovered area, the largest of which was that found during testing. The features were located close to each other, centred at a point 3m from the south-east corner of the stripped area (Fig. 3).

Pit 1

A very shallow oval pit no more than 0.05m deep and averaging 1.2m in diameter was defined by a narrow layer of silty dry very dark greyish brown (2.5Y 3/2) fill (deposit 2). This feature was cut into the natural dark yellowish brown sandy boulderclay and was covered by a 0.07m deposit of dark yellowish brown (10YR 3/4) topsoil. Deposit 2 was simply the natural sandy boulderclay discoloured by the heat of a fire and inclusions of charcoal. The boulderclay immediately beneath this feature contained many fragments of naturally shattered bedrock. The feature contained no finds.

Pit 3

An oval area was revealed that measured 2.55m north to south by 1.25m and contained natural limestone pebbles and a dark greyish brown fill (2.5Y 3/2). The pit, that was cut directly into the boulder clay and natural limestone pebbles, had moderately steep sides, a flat base and was 0.33m deep. The primary fill (deposit 4) was 0.19m thick and shallower towards the perimeter. It was covered with a 0.22m thick layer of discoloured topsoil and boulderclay mix (deposit 5). Both levels contain many natural rounded limestone pebbles but no finds. This was the most substantial feature uncovered at the site and was that discovered during testing. The feature produced no finds.

Pit 6

Lying immediately south of pit 3 was a small oval feature that measured 0.75m north to south by 1.35 and was up to 0.23m deep. The pit had irregular sides and base, was cut directly into the natural boulder clay and lay beneath the topsoil. Only the slight dark greyish brown discolouration (2.5Y3/2) of the fill (deposit 7) distinguished it from the surrounding natural layers as the fill was a dry compact sandy deposit. The feature produced no finds.

Finds

No artefacts were recovered, either during excavation or during sieving of bulk soil samples.

Samples

Three bulk soil samples were taken, one from each of the features (Appendix 2). These samples were floated and wet sieved through a 300micron mesh and then through a 2mm mesh in order to recover charred plant material and small artefacts.

Charred plant macrofossils and other remains by Val Fryer

Introduction

Three samples for the extraction of the plant macrofossil assemblages were taken from fills within pits 1, 3 and 6.

Methods

The samples were floated and wet sieved by TVAS Ireland Ltd, and the flots were collected in a 300 micron mesh sieve. The dried flots were scanned under a binocular microscope at magnifications up to x 16, and the plant macrofossils and other remains noted are listed below on Table 1. All plant remains were charred. The density of material within each assemblage is expressed in the table as follows: x = 1 – 10 specimens and xxx = 100+ specimens.

Modern contaminants including roots, seeds and fungal sclerotia were present throughout.

Results

Plant macrofossils

Charcoal fragments were abundant in all three samples. Other plant remains were absent, although mineralised root channels were noted in sample 1.

Other materials

Burnt stone fragments were recorded from all assemblages, but at a very low density. In addition, small pieces of black tarry material, which are probable residues of the combustion of organic remains at very high temperatures, were present in sample 1.

Table 1: Charred plant macrofossils and other remains

Sample No	1	2	3
Cut No	1	3	6
Deposit No	2	4	7
Charcoal <2mm	xxx	xxx	xxx
Charcoal >2mm	xxx	xxx	xxx
Mineralised root channels	x		
Black tarry material	x		
Burnt stone	x	x	x
Sample volume (litres)	3	10	2
Volume of flot (litres)	0.3	1.5	0.3
% flot sorted	50%	<10%	50%

Conclusions

The assemblages would appear to be primarily composed of fuel residues, which have been dumped within the pits. The large size of the assemblages almost certainly indicates that deposition was deliberate rather than accidental.

Charcoal by Simon Gannon

Introduction

Three samples of charcoal fragments were retrieved from three contexts from the site, consisting of pits of unknown purpose. Identification of taxa of the retrieved charcoal may assist in the reconstruction of the local, contemporary woodland-environment and the use of the woodland resources by the people responsible for the archaeological features.

Methodology

In sorting fragments suitable for identification a guide size of at least 2mm in radial cross-section was used. In this sort the samples were found to contain an unusually large number of fragments, and sub-samples were taken, which are given in Analysis Results.

Initially the grain direction of the fragments was identified before fracturing across their transverse plains. Identifications were made under microscopic examination, in most cases. Further fractures were made to reveal radial and/or tangential plains in cases where identification was more difficult. Magnification of between x10 (hand lens) to x400 was used. Structural elements of the fragments were examined to allow for identification of roundwood, heartwood, and sapwood features.

Reference material comprised a reference collection of charred samples of taxa and reference publications, *Microscopic Wood Anatomy* (Schweingruber 1990) and *The Identification of the Northern European Woods* (Hather 2000).

Analysis Results

The results are summarized in Table 2. Classification follows that of *Flora Europae* (Tutin *et al* 1964-1980). Certain related taxa cannot be securely differentiated on the basis of their anatomical characteristics and are assigned to their respective family groups as with the genera *Salix* and *Populus*, and the genera *Craetaegus*, *Malus* and *Sorbus*. Provisional identifications have been given in cases where the condition of the charcoal was degraded.

The various identifications of wood taxa were consistent with taxa from the following groups:

Broadleaf taxa

Corylaceae. *Corylus* sp., hazel

Fagaceae. *Quercus* sp., oak

Oleaceae. *Fraxinus* sp., ash

Rosaceae.

Subfamily Pomoideae. *Craetagus* sp., hawthorn; *Malus* sp., apple; *Sorbus* spp., *Sorbus aucuparia*, rowan; *S. aria*, whitebeam; *S. hibernica*, Irish whitebeam, and other *Sorbus* species.

Discussion

Anatomical characteristics from charcoal fragments do not allow for identification of individual species in every case. Several species belong to groups of species, species of genera, of sub-families and of families that cannot be separated anatomically (Schweingruber 1990, Hather 2000). It is possible that a narrow range of species and, occasionally, one or two species can be indicated with a degree of confidence due to established factors, principally their native status and history of introduction by people (Huntley and Birks 1983, Peterken 1996 and Scannell and Synott 1987). The following section places the given charcoal based taxa identifications in the context of defined tree species allowing for implications related to their environmental characteristics and possible use by ancient peoples to be drawn. Consulted reference works pertaining to environmental factors included Goldstein et al 1984, Hather 2000, Huntley and Birks 1983, Mitchell 1978, Scannell and Synott 1987 and Tutin et al 1964-1980. Kelly 1998, O'Sullivan 1996, Rackham 1976-1990 and Raftery 1996, were consulted in relation to the uses different tree species may have served in antiquity.

Taxa descriptions

Ash

There is a single native species, *Fraxinus excelsior*, ash, fuinseog (family - Oleaceae).

Environmental indications. Requiring deep, fertile, moist but well drained, soils. Grows well in mixed stands when not shaded. Widespread throughout Ireland.

Uses in antiquity. A strong but elastic wood suitable for many purposes including structural timber (not where in prolonged contact with water or soil). Coppices readily. Burns well even when green, partly due to low water content.

Hazel

There is a single native species, *Corylus avellana*, hazel, coll (family - Corylaceae).

Environmental indications. Botanically a shrub, but does not flower and fruit without sunlight, so is really a canopy tree preferring woodland edges and clearings though it bears moderate shade and is also found as understorey, typically in oak woodlands. Fairly tolerant of poor soils but does not grow on acid soils and preferring chalky, fertile, deep soil. Growing throughout Ireland.

Uses in antiquity. A tough and flexible wood, useful for small implements and small structural elements. Also grows easily in coppice-like form producing rods suitable for wattle and basketry type structures. Makes useful firewood.

Hawthorn/ Sorbus

The represented species is probably one or more of the following native members of the sub-family Pomoideae that includes several *Sorbus* species. (Family - Rosaceae).

Crab Apple, *Malus sylvestris*, cran fia-úll; hawthorn, *Crataegus monogyna*, sceach geal.

Environmental indications. Both species. Very rugged and adaptable to almost any climate and most soil types, requiring moist soil and can grow in semi-shade or no shade. Natural distribution throughout Ireland.

Uses in antiquity. Both species produce a very hard close grained wood, suitable for small implements such as mallets and splitting wedges. Both species make excellent fuel; *C. monogyna* can also make livestock barriers and is noted for being the hottest firewood.

Sorbus. One or more of the native group of at least six species that includes, the most widespread rowan, *Sorbus aucuparia*, caorthann, as well as whitebeam, *Sorbus aria*, fionncholl coiteann; and Irish whitebeam, *Sorbus hibernica*, fionncholl ghaelach.

Environmental indications. General. Very tolerant of soil quality generally, though requiring moist soil. Tolerating light shade, though fruiting better in a sunny position. Effective pioneer, Rowan natural to all of Ireland. Other *Sorbus* species native to Ireland have a much more restricted range within Ireland and elsewhere, with Irish whitebeam found only in Ireland.

Uses in antiquity. Heavy, close grained hard wood suitable for carving and useful for making bows, tool handles, mallet heads and, if sizable, beams etcetera. Coppices well.

Oak

There are two native species, pedunculate oak, *Quercus robur*, dair ghallda and sessile oak, *Quercus petraea*, dair ghælach. (Family - Fagaceae).

Environmental indications. Broadly soil tolerant. *Q. robur* preferring alkaline or neutral soils rich in minerals, particularly damp clay soils and usually found in mixed woodland. *Q. petraea* preferring acid and lighter well drained soils, often in pure stands. Both species are naturally distributed throughout Ireland.

Uses in antiquity. Both species produce a hard wood resistant to abrasion and water degradation, particularly useful for structural timber and implements, poles and fencing. Woodland trees can be coppiced to produce stakes, straight poles etcetera. The density of oak wood makes for an optimum log lasting fire fuel (Rossen and Olson 1985).

The total range of taxa from AR108, Ballymacahill, comprises hazel (*Corylus*), and possibly alder (*Alnus*); ash (*Fraxinus*); hawthorn/apple/*Sorbus* group (Pomoideae); and oak (*Quercus*). These taxa belong to the groups of species represented in the native Irish flora.

Generally, there are various, largely unquantifiable, factors that effect the representation of species in charcoal samples including bias in contemporary collection, inclusive of social and economic factors, and various factors of taphonomy and conservation (Schweingruber 1990). As is seen in Table 2 the oak (*Quercus*) is the by far the most numerous of the identified charcoal fragments in each context sample, a taxon generally common as fire debris and the most represented from the total of Ennis Bypass sites. Hazel (*Corylus*), ash (*Fraxinus*), and hawthorn/apple/*Sorbus* group (Pomoideae) are also commonly found charcoal debris from the Ennis Bypass sites.

Conclusion

The identified taxa are not considered to be proportionately representative of the availability of wood resources in the environment but may be reflective of particular choice of fire making fuel from those resources. The commonly found fire fuel taxa oak (*Quercus*) is particularly represented and all the identified taxa are consistent with the picture of wood use from most of the other Ennis Bypass sites.

Table 2: Number of identified fragments per sample

Sample	Cut	Deposit	Context type	<i>Alnus</i>	<i>Betula</i>	<i>Corylus</i>	<i>Corylus/ Alnus</i>	<i>Fraxinus</i>	<i>Pomoideae</i>	<i>Prunus</i>	<i>Quercus</i>	<i>Salicaceae</i>	<i>Taxus</i>	<i>Ulmus</i>
1	1	2	Pit	-	-	-	-	-	5	-	98	-	-	-
2	3	4	Pit	-	-	4 (1r)	3 (1r)	4	-	-	95	-	-	-
3	6	7	Pit	-	-	-	-	-	1	-	78			

(r: roundwood)

Radiocarbon date

A radiocarbon determination from the fill of pit 3 was made by Beta Analytic Inc, Miami, Florida (Table 3).

Table 3: Radiocarbon determinations

Sample material	Cut	Deposit	Sample	Lab code	Radiometric age	Calendrical calibrations
Charcoal Corylus	3	4	2	Beta-211578	910±40 BP	2 sigma (95%) Cal AD 1020 to 1220 1 sigma (68%) Cal AD 1040 to 1180

The charcoal sample was from the relatively short-lived hazel and the radiocarbon date may, then, reliably indicate activity taking place at the quoted determination. Pit 3 was probably dug and backfilled between the early 11th and early 13th centuries AD.

Discussion

The excavation of Site AR108, Ballymacahill, Co. Clare has shown that three small fires occurred in pits in a low-lying area close to the bottom of a natural slope. No artefacts were found to date the features but at least one of the pits was dug in the medieval period. The function of the pits is not known.

Archaeological potential off the road CPO

The potential archaeological deposits found during earlier testing (03E1293 Roger 2004) have been resolved in their entirety within the road CPO. No evidence for other archaeological deposits was apparent in the field off the road CPO.

Publication plan

A summary of the findings of the excavation has been submitted to *Excavations 2004*.

Copies of this final excavation report will be deposited with the Clare County Museum and the Local Studies Library, Ennis, Co. Clare

A summary article, describing the findings of this road project has been published in the local journal *The Other Clare* (Hull and Taylor 2005).

An illustrated information brochure describing the findings of this road project has been published by Clare County Council.

The stated aim of the National Roads Authority with regard to archaeological publication is clear, (O'Sullivan 2003) and it is anticipated that the results of this excavation will be disseminated as a small component of a monograph dedicated to the archaeology of the Ennis Bypass. Publication is expected to take place in 2006/7 at the latest.

Markus Casey
For TVAS Ireland Ltd
1st August 2006

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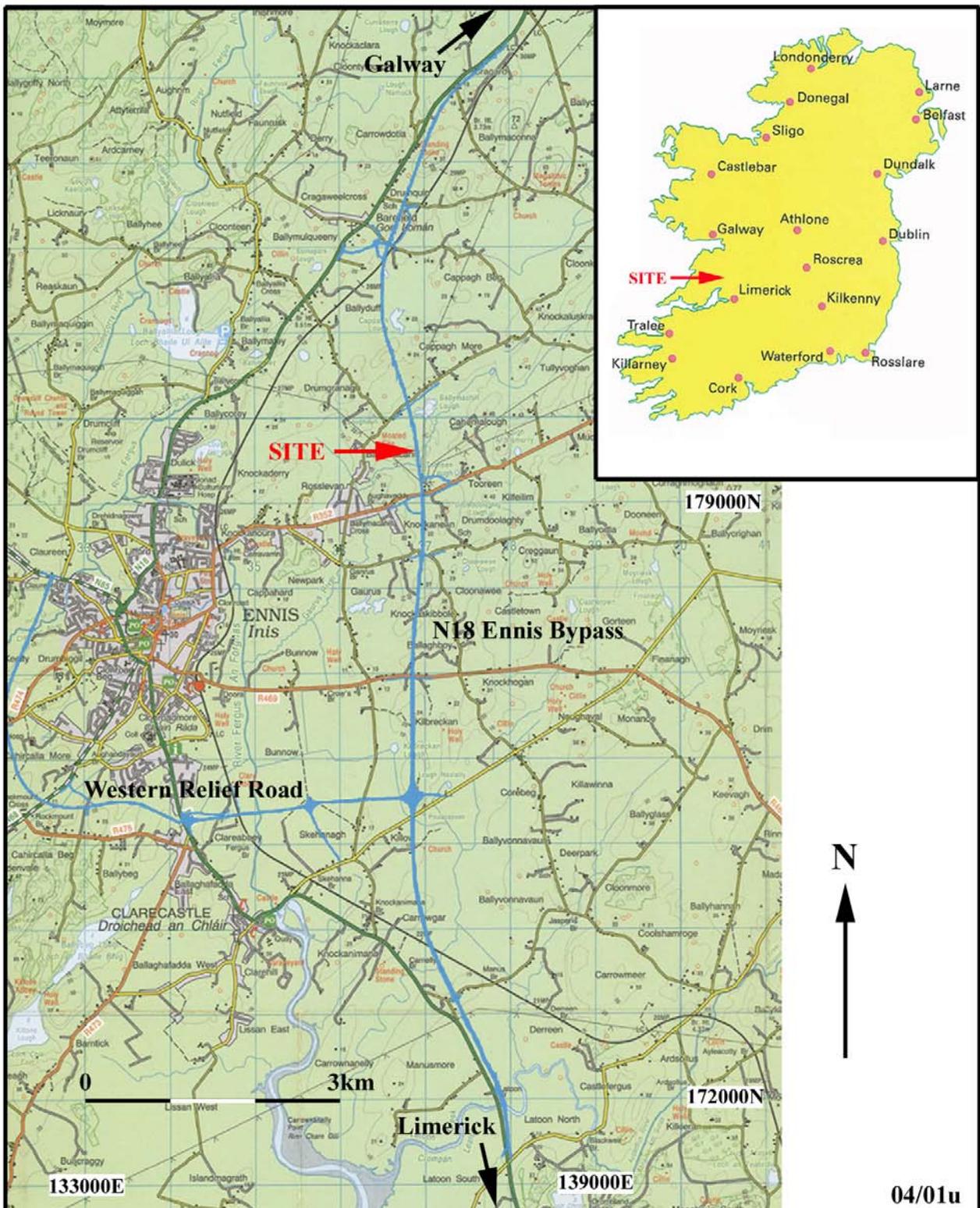
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Appendix 1: Catalogue of features and deposits

Context Number	Description	Sample Number	Finds
1	Cut of pit	-	-
2	Fill of pit 1	1	-
3	Cut of pit	-	-
4	Primary fill of pit 3	2	-
5	Secondary fill of pit 3	-	-
6	Cut of pit	-	-
7	Fill of pit 6	3	-

Appendix 2: Catalogue of samples

Sample Number	Cut	Deposit	Volume sieved (L)	Volume floated (L)	Finds?	Stone sample?	Charred plant remains?
1	1	2	3	3	None	No	Yes
2	3	4	10	10	None	No	Yes
3	6	7	2	2	None	No	Yes



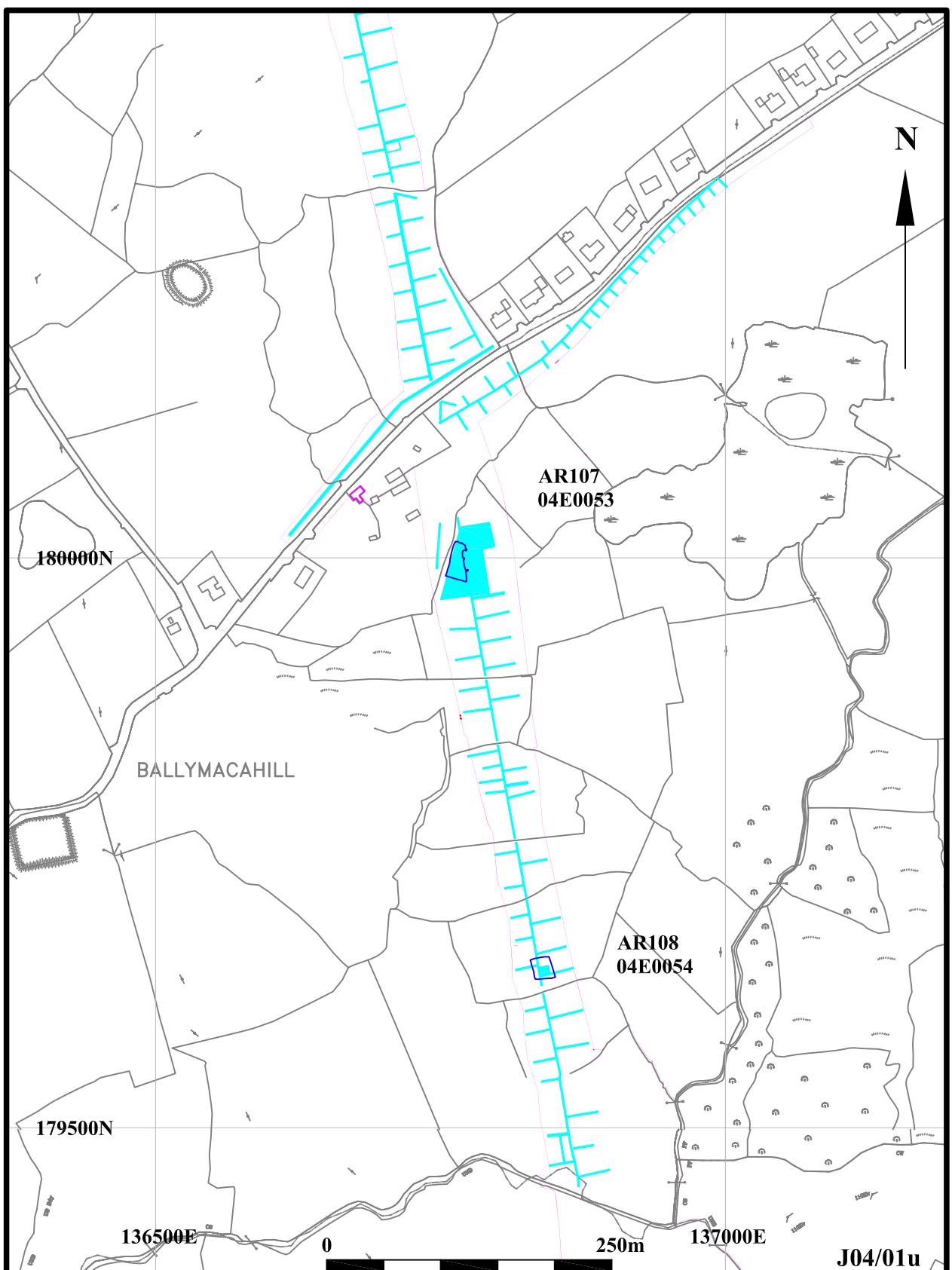
**N18 Ennis Bypass, Site AR108,
Ballymacahill, Co. Clare
04E0054**

Figure 1: Site location

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1st Edition 1996. Sheet 58

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T V A S
I R E L A N D
L T D

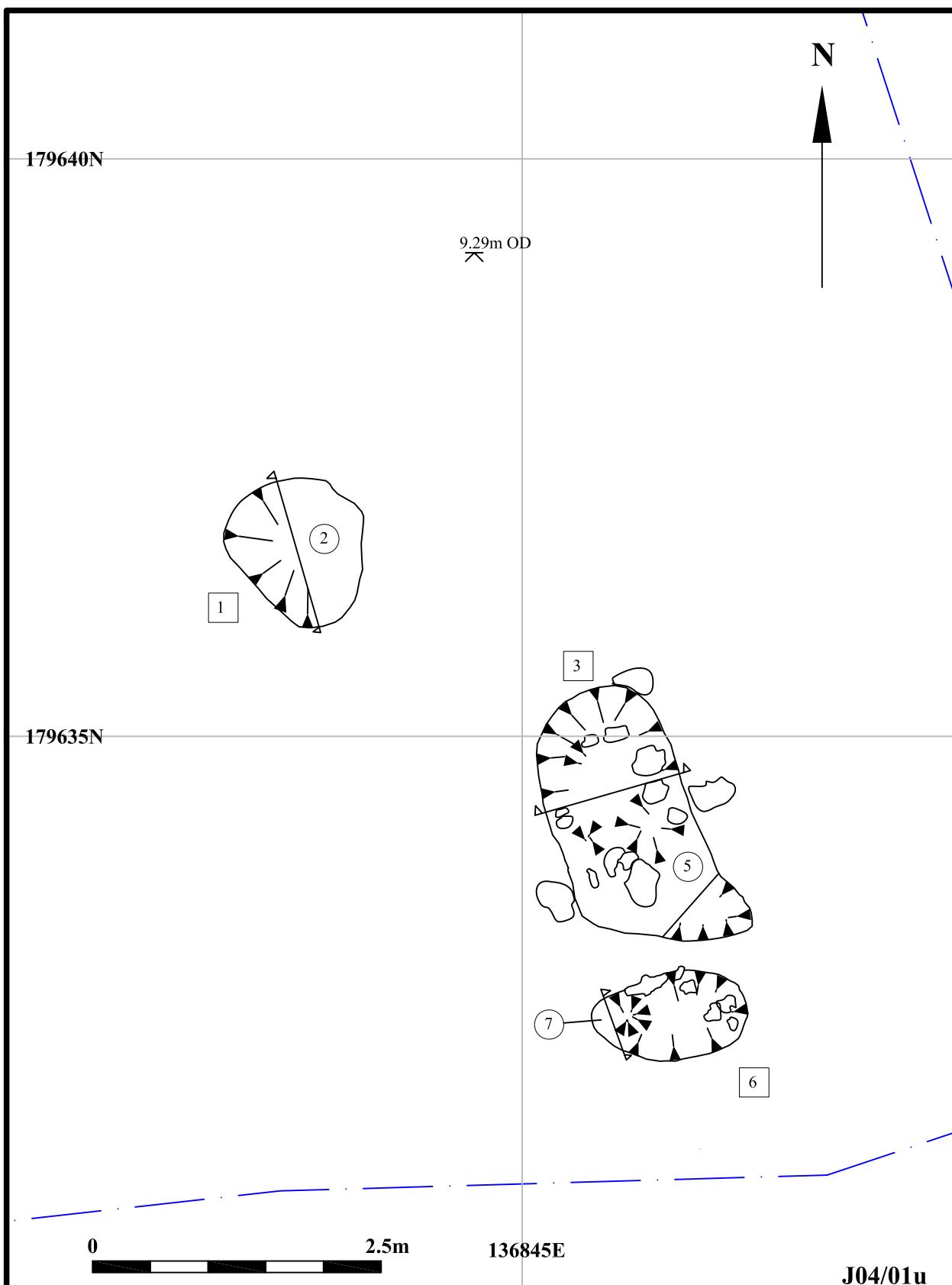


N18 Ennis Bypass, Site AR108, Ballymacahill, Co. Clare

04E0054

Figure 2: Location of site in local landscape, showing test trenches (03E1293)





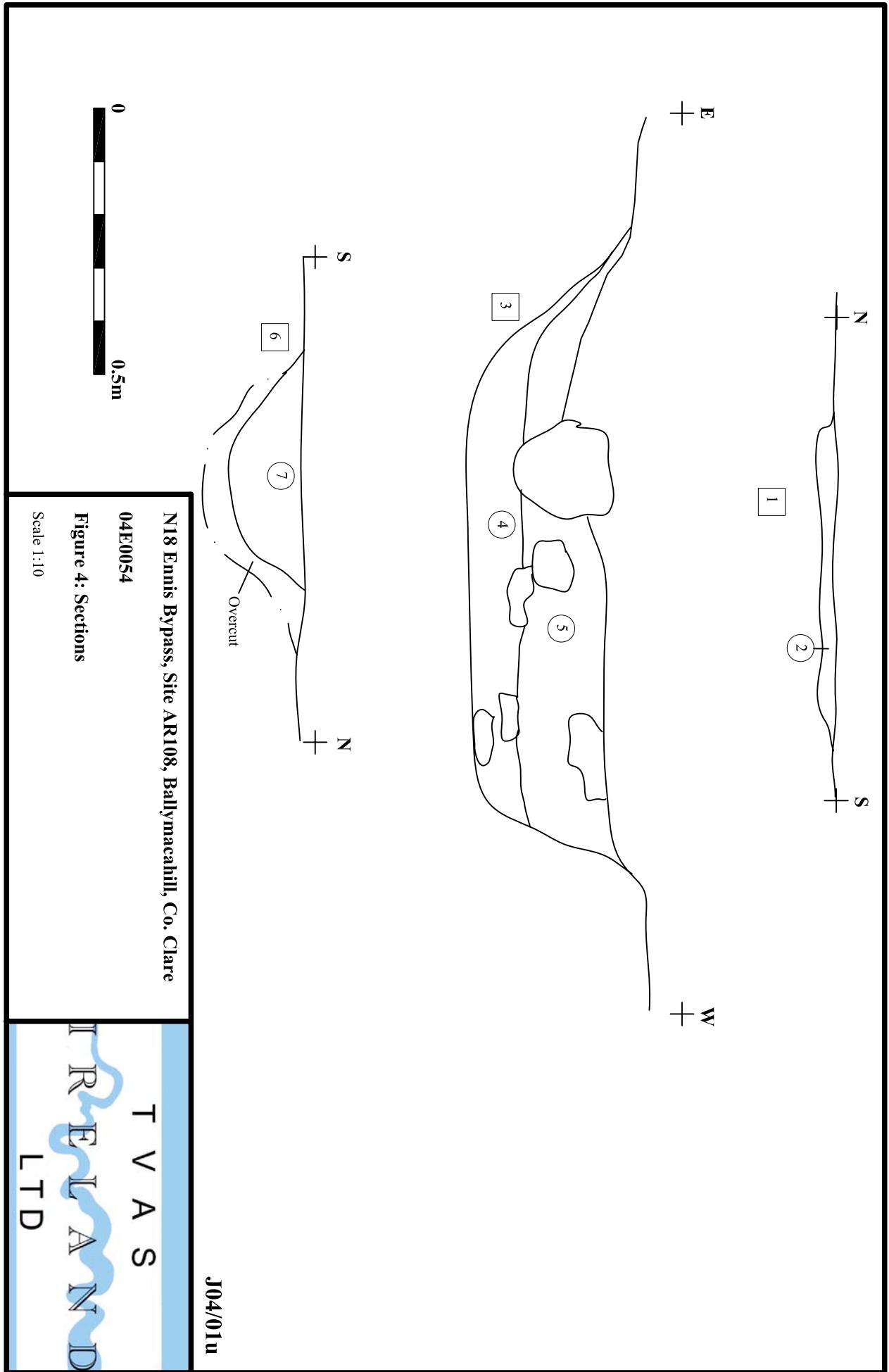
N18 Ennis Bypass, Site AR108, Ballymacahill, Co. Clare

04E0054

Figure 3: Plan of south-eastern corner of site showing all features partially excavated

Scale 1:50





N18 Ennis Bypass, Site AR108, Ballymacahill, Co. Clare

04E0054

Figure 4: Sections

Scale 1:10

J04/01u

R E L A N D
L T D

04E0054



Plate 1. Aerial view of site location (backfilled). Looking east



Plate 2. Feature 1 from the east. Scale 1m



Plate 3. Features 6 and 3 from the east. Scales 2m and 1m

04E0054