

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

**Site AR128, Cahircalla More, Co. Clare**

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

**Licence No: 04E0029**

**by Kate Taylor**

**Job J04/02**

**(NGR 132511 175537)**

**31<sup>st</sup> December 2006**

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## Summary

**Site name:** N18 Ennis Bypass and N85 Western Relief Road, Site AR128, Cahircalla More, Co. Clare

**Townland:** Cahircalla More

**Parish:** Drumcliff

**Barony:** Islands

**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:** 132511 175537 (OSI Discovery Series, 1:50,000, Sheet 58. OS 6" Clare Sheet 33)

**Naturally occurring geology:** Orange sandy clay with occasional limestone cobbles overlying pinkish clay with limestone cobbles and boulders

**TVAS Ireland Job No:** J04/02

**Licence No:** 04E0029

**Licence Holder:** Kate Taylor

**Report author:** Kate Taylor

**Site activity:** Excavation

**Site area:** 8570m<sup>2</sup>

**Sample percentage:** 100%

**Date of fieldwork:** 12<sup>th</sup> January to 17<sup>th</sup> March 2004

**Date of report:** 31<sup>st</sup> December 2006

**Summary of results:** The majority of an early medieval sub-circular ditched enclosure was excavated; the remaining portion having been truncated by 19<sup>th</sup> century road construction. Within the enclosure, the foundations of a small building were revealed and analysis of the large quantity of iron slag in the structure indicates that it was a smithy. Also associated with the enclosure, were several elements of a large system of rectangular field boundaries. Radiocarbon dating indicates that the enclosure and field system was in use between the 6<sup>th</sup> and 9<sup>th</sup> centuries AD

**Monuments identified:** Early medieval enclosure and associated features

**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 ✓31.12.06

## **N18 Ennis Bypass and N85 Western Relief Road, Site AR128, Cahircalla More, Co. Clare Final Archaeological Excavation Report**

By Kate Taylor

**Report J04/02u**

### **Introduction**

This report documents the final results of an archaeological excavation of an early medieval enclosure and associated field system (Site AR128) on the route of the N18 Ennis Bypass and N85 Western Relief Road at Cahircalla More, Co. Clare (NGR 132511 175537) (Fig. 1). The excavation forms part of the Ennis Bypass Archaeological Contract 7.

A preliminary archaeological report for this site was produced in May 2004 (Taylor 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 Cahircalla More, parish of Drumcliff, barony of Islands, lay approximately 2km south-west of Ennis town centre (the O'Connell Monument) and was centred on NGR 132511 175537 (Figs 1 and 2).

The site was situated on a south-east-facing slope immediately to the west of the N68 Ennis – Kilrush road. To the east of the road, the land continued to slope down to the edge of a wide bog (Plate 1). The main focus of the site was in the field adjacent to the road but other trenches were excavated in the two fields uphill to the north-west. Prior to excavation the land was under pasture.

Topsoil (0.20-0.40m thick) was seen to overly plough soil and colluvium (0.20-0.55m thick). Both these deposits were thicker at the down-slope edges of the fields, presumably as a result of ploughing and hill-wash. These deposits lay on top of naturally deposited orange sandy clay with occasional limestone cobbles. This deposit itself overlay a pinkish clay with limestone cobbles boulders that was exposed in a few areas of the site. The natural geology was recorded at approximately 33m above Ordnance Datum (OD) at the north-western end of the site and at 11m OD at the south-east.

### **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 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 spreads and burnt mounds were excavated near the route of the new road in the summer of 2002 (MGL 2002).

A large ditched enclosure was identified to the west of the Ennis to Kilrush road during testing (03E1291 Hull 2003). This archaeological site was allocated the number AR128 and is the subject of this excavation report.

Two other sites were excavated nearby as part of the Ennis Bypass project.

AR126 (04E0024 Hull 2006) large Bronze Age *fulacht fiadh* 280m south-east.

AR127 (04E0028 Taylor 2006) seven Bronze Age burnt stone spreads and post-medieval ditch 40m east.

### **Excavation aims and methodology**

A licence to excavate was granted to Kate Taylor 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 04E0029.

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 between 12<sup>th</sup> January and 17<sup>th</sup> March 2004 and was directed by Kate Taylor, supervised by Siobhan McNamara and assisted by Connor Conroy, Tim Dean, Lewis Goodman, Aine Kelly, Roy Krakowicz, Matthew Logue, Patricia Long, Fiona McAuliffe, Frank Mulcahy, Mike Parks, Edel Ruttle, Alan Smart and Tom Varley.

The excavation encompassed several irregular shaped areas with a total area of 8570m<sup>2</sup>. Topsoil and overburden were removed by a 20 tonne, 360°, tracked machine, fitted with a 6 foot toothless bucket and operated under direct and continuous archaeological supervision.

Following the stripping of the topsoil it became clear that features extended northwards beyond the original excavation area. The site was therefore extended to trace these features to the north and west and a number of additional test trenches were excavated to establish the limits of the archaeological deposits.

Where appropriate, areas within the site, particularly the interior of the enclosure, were cleaned using hand tools to fully define the limits of the potential archaeological features. Slots were dug to investigate all possible features and deposits and those that proved to be of archaeological interest were fully excavated.

A full written, drawn and photographic record was made according to the TVAS Ireland Field Recording Manual (First Edition 2003). The site was planned using a combination of digital and hand drawing methods. Digital plans were made using a Global Positioning System (GPS) unit, tied into the N18 surveying base station to provide millimetre accuracy.

### **Excavation results** (Figs 3-5 and Plates 1-10)

The excavation revealed evidence of at least three phases of activity ranging in date from the prehistoric period to the 19<sup>th</sup> or 20<sup>th</sup> century. All features and contexts are listed in Appendix 1.

#### *Prehistoric artefacts and pit*

Prehistoric activity is suggested by the presence of struck chert in the plough soil and as residual material in the later ditch 125 (Ford below). Several pieces of quartz showing possible signs of having been worked may also be of this period. In addition, a small amount of prehistoric pottery, probably later Bronze Age in date, was recovered from the ploughsoil (04E0029:17, Machling below) and a small amount of cremated human bone was recovered from the later ditches 100 and 125 (Anthony below) (Fig. 4). It is likely, therefore, that at least one prehistoric cremation burial was disturbed by the early medieval activity.

Only a single feature, recorded during testing can be ascribed to this period with any degree of certainty. Pit 137 was oval in plan, measured 0.40m by 0.17m and was 0.23m deep with steeply sloping sides and a concave base (Fig. 6). The pit fill was a mixed mid grey and dark orange clayey sand with 1% charcoal inclusions. Small pieces of cremated human bone were retrieved from the fill during soil sieving.

### *Early medieval enclosure, structure and field system*

The main phase of activity on the site dates to the early medieval period, and more specifically, the second half of the first millennium AD.

#### Enclosure 100

The main feature of this phase was a large sub-circular enclosure, assigned the group number 100. The enclosure had internal dimensions of 38m south-west to north-east at the widest end, narrowing to 26m where it was truncated by the road and survived to a length of 37m internally south-east to north-west (Fig. 4; Plates 2, 3 and 8). Ditch 100 varied in character considerably; largely due to severe truncation by post-medieval ploughing that had affected the north-eastern portion of the enclosure particularly badly. This ploughing may also account for the absence of a bank associated with the enclosure ditch.

No entrance was present in the excavated area, however the extreme south-eastern end of the enclosure had been truncated by the construction of the Ennis – Kilrush road and this may have included the location of an entrance.

Sixteen slots across the ditch were recorded (1-4, 7, 9, 14, 16-19, 22, 23, 27, 31 and 41). The ditch was 0.75-1.53m wide and 0.20-0.80m deep, being largest in the southern corner where plough damage was less severe, perhaps due to a build-up of colluvium overlying the feature. The ditch generally had fairly steep sides and a concave base and there was some evidence of a recut in the deepest section at the south-west (Fig. 6, Plates 6 and 7). The ditch fills were fairly similar around the circuit of the enclosure, with mostly sterile primary silts overlain by mottled sandy clays, in turn overlain by pale grey sandy clays. At the deepest surviving part of the ditch, adjacent to the structure (see below), the fills were more charcoal and artefact rich, suggesting that the focus of activity within the enclosure lay nearby. Artefacts from the enclosure ditch fills included a piece of rotary quern (04E0029:24), fragments of iron slag (04E0029:25, 31, 35, 41 and 80-81), animal bone (04E0029:23, 28-30, 32-34 and 42) and an iron tool, possibly a chisel (04E0029:79). A number of cereal grains were also recovered from sieved samples of the ditch fills (Fryer below).

A radiocarbon determination of AD 530 to 650 was obtained from a cattle limb bone from ditch slot 16.

#### Structure 120

Within the enclosure, at the southern end, were the remains of the foundations of a small structure in the form of three short lengths of curvilinear gully (34, 35/36 and 37/43). The structure, group number 120, was oval in plan with internal dimensions of 6.3m by 4.4m (Fig. 5; Plates 4 and 5). The gully segments were typically 0.65m wide and 0.40m deep with vertical sides and a flat base (Fig. 7). The gully fills were dark brown – black with orange flecking and contained large quantities of charcoal and iron slag (04E0029:51-58, and 82-83) as well as a small amount of animal bone (04E0029:50).

Within the structure were two pits, 44 and 45. Pit 44 measured 1.41m by 0.50m and was 0.15m deep with a concave profile. Pit 45 was irregular in plan and profile but had maximum dimensions of 1.19m by 0.75m and was up to 0.30m deep. There was some evidence of *in situ* burning in the base of pit 45. The pit fills were similar to those of the gully segments and also produced considerable quantities of iron slag (04E0029:84-87) and a small quantity of burnt mammal bone fragments (04E0029:88, Anthony below). In addition to a large amount of charcoal, mostly yew and oak (Gannon below), the soil samples produced a number of cereal grains (Fryer below).

Analysis of the slag indicates that iron smithing was taking place in the structure (Keys below). A radiocarbon determination of AD 560 to 670 was obtained from cereal grains from one of the foundation slots.

### Pits

Of four pits within the enclosure one (137) is thought to be prehistoric and one (29) is unphased. The other two pits (21 and 25) are, on the basis of artefactual material, tentatively assigned to the early medieval period. Both pits were irregular and could possibly be stone sockets in which domestic refuse collected.

Pit 21 was rather amorphous in plan, measured 0.50m by 0.70m and was 0.43m deep with moderate sides and a concave base. The pit fills produced small pieces of iron (04E0029:38 and 40), burnt animal bone (04E0029:39) and cereal grains.

Pit 25 was oval, measured 0.23 by 0.40m and was 0.20m deep with an irregular profile. The pit fills produced fragments of slag (04E0029:44), burnt bone (04E0029:43) and a small number of cereal grains.

### Field system

Elements of a field system were revealed across a wide area to the north and west of Enclosure 100, extending at least 225m north-west of the enclosure. The field system was seen as five ditches, numbered 125, 200, 205, 210 and 215. It is likely that ditches 200 and 205 were originally parts of the same feature that was truncated by a post-medieval road (220 – see below). None of the ditches was particularly straight, however a broad alignment could be seen with ditches 125, 200 and 205 being aligned roughly north to south or NNE to SSW and ditches 210 and 215 being aligned north-west to south-east. Although the ditches were not quite perpendicular, these alignments would have created a system of broadly rectangular fields. Despite the excavation of a number of additional test trenches, no further ditches were seen to complete the pattern. Both ditches 210 and 215 terminated abruptly at their north-western ends and no features were found to continue the alignments. A deliberate 1.7m gap left between the south-eastern terminus of ditch 210 and the edge of ditch 205 probably represents a gateway between fields. The ditch fills were generally fairly sterile sandy clays in which some sequences of deposits could occasionally be seen. The sterility of the fills would be consistent with the ditches being part of a field system rather than being close to intensive activity such as habitation.

Ditch 125 was revealed for a length of 27m and extended beyond the limit of excavation to the east. The ditch was 0.5-1.0m wide and 0.26-0.60m deep with fairly steep sides and a slightly concave base (Figs 4 and 7, Plate 8). Ditch 125 intersected with the main enclosure ditch 100 and appeared to be contemporary with enclosure. The ditch was excavated in seven slots (47, 49, 101, 108, 117, 119 and 121). Several pieces of residual prehistoric struck chert were recovered from the ditch (04E0029:90-93, 100, and 107). Other finds were fragments of animal and cremated human bone (04E0029:89, 97-98, 101, 104 and 106), an oyster shell (04E0029:105), a piece of slag (04E0029:94), a whetstone (04E0029:96), a pin-sharpening stone (04E0029:95) and a ring-pin (04E0029:1). These latter artefacts are typical of the early medieval period (Comber below). A radiocarbon date of AD 980 to 1060 and 1080 to 1150 was obtained from charred cereal grains from the ditch fill.

Ditch 200 was 13m long, 0.60-0.90m wide and 0.14-0.39m deep with a varied profile, largely determined by the presence of large boulders in the underlying natural geological deposits. Four slots were excavated across the ditch (5, 12, 13 and 33). At the northern end the ditch petered out, however the ditch was broadly aligned (at a distance of 2.0m) with an elongated pit (15 – see below), and further north with ditch 205. It is possible that the three features together form a discontinuous boundary. Ditch 200 did not produce any artefactual material.

Ditch 205 was 42m long, 0.53-1.07m wide and 0.22-0.65m deep with steep sides and a slightly concave base. The ditch was recorded in six slots (102, 109, 112, 113, 116 and 122). No artefacts were recovered from the sterile fills.



Ditch 210 was 34m long, 0.60-1.10m wide and 0.20-0.50m deep with steep sides and a slightly concave base. The ditch was recorded in seven slots (106, 107, 111, 114, 118, 123 and 124). Finds from the ditch were pieces of slag (04E0029:102-103) and a min-anvil stone (04E0029:99). A radiocarbon date of AD 680 to 880 was obtained from cereal grains from the ditch fill.

Ditch 215, at the northern end of the site, was 54m long, 0.70-1.25m wide and 0.20-0.56m deep with steep sides and a slightly concave base. The ditch was excavated in ten slots (126, 128-136). The artefacts from the ditch were a mini-anvil (04E0029:108), a possible whetstone (04E0029:109), some fragmentary animal bone (04E0029:111-113) and several pieces of quartz that may possibly be worked (04E0029:110 and 114-116).

### *Post-medieval features*

#### Road and boundary features

The major post-medieval feature that was investigated was a road (220) that crossed the site from south-west to north-east. The road lay on the southern side of the field boundary that divided the site in half and appeared to be an integral part of the modern field system. The road had been cut into the ground, truncating earlier features and creating a terrace in the hillside. The road cut was 7m wide and had in its base a series of compact gravel and clay layers forming the road surface. Above the gravel surface the road cut had become infilled with a rich soil that contained a large amount of artefactual material (04E0029:59-78, pottery and glass). Two slots across the road were recorded (40 and 104).

To the north of road 220 the field boundary was formed by a large earthen bank that was over 3m wide and 2m high. Two layers were visible in the bank: the lower deposit, 352, was clearly a thin spread of redeposited material from the truncation of earlier ditches by the road cut, demonstrating that the bank was built simultaneously with the road. The upper layer, 260 was largely redeposited natural material but included a piece of bottle glass (04E0029:18) within its makeup.

To the south of the road a flanking ditch, 110, was observed. This ditch crossed the site for 67m (with a 5m gap towards the western side), was 0.52-1.30m wide and 0.13-0.45m deep with a concave profile. Four slots (6, 32, 38 and 39) were excavated across the ditch. Bottle glass similar to that found in the bank material was found in one of the excavated slots (04E0029:48-49). A similar ditch, 103 was revealed on the northern side of the bank and a parallel but later stone filled drain, 105, was removed during topsoil stripping in the same location.

At the south-eastern edge of the site, adjacent to the current N68 road, ditch 115 truncated the top of enclosure ditch 100. This ditch was only partially revealed in plan, as the wall that flanked the road was built on top of the ditch fill, however it could be seen to be over 1.2m wide and over 0.55m deep. Three partial slots across the ditch were recorded (28, 30 and 42). Ditch 115 produced sherds of glazed pottery and bottle glass (04E0029:46-47).

#### Agricultural evidence

Plough scars or furrows were evident across the entire site and ploughing appears to have done considerable damage to the archaeological deposits. The furrows, numbered 20 across the site, clearly truncated the enclosure ditch and the structure that lay within it. Relationships with the field ditches were more difficult to ascertain and it is interesting to note that the furrows are generally aligned north-south, parallel to the early medieval field system rather than the current field boundaries. Despite the excavation of several slots across these features the only artefactual material recovered was a single piece of glazed china (04E0029:36), suggesting a post-medieval date for the ploughing.

The topsoil and ploughsoil in each field contained moderate amounts of 19<sup>th</sup> and 20<sup>th</sup> century artefactual material such as glazed pottery (04E0029:2-5) and clay tobacco pipe (04E0029:6 and 8-12).

Pit 127 was cut through the ploughsoil layer into the top of field ditch 215 and was therefore not of any great antiquity.

#### *Unphased pits and patches of ?burning*

Four small pits, 21, 25, 29 and 137, were excavated within enclosure 100 and cannot be directly related to any of the ditched features. Pit 137 is thought to be prehistoric in date and pits 21 and 25 are thought to be contemporary with the enclosure – these features have been described above. Pit 29 cannot be assigned to either of these phases.

Pit 29 was semi-circular in plan, measured 0.36m by 0.65m and was 0.27m deep. No artefactual or ecofactual material was recovered from the feature.

Pit 26 was located immediately outside the enclosure on the south-western side. This feature measured 0.63m by 0.42m and was 0.12m deep with a bowl-shaped profile. The pit appeared to have been dug to contain a broken saddle quern (04E0029:45). A small number of unidentifiable cereal grains were recovered from the pit fill (Fryer below). It is likely that this pit is contemporary with the enclosure.

Pit 15 lay on the alignment of field ditches 200 and 205 and may actually represent the base of a deep portion of ditch, the upper part of which was truncated by the post-medieval road 220. Alternatively pit 15 may have been truncated itself by the field ditch. The main body of the pit measured 1.20m by 0.88m and was 0.65m deep with a 'U'-shaped profile. There were also shallow extensions on the south-western and north-eastern sides of the feature. The base of the pit showed evidence of *in situ* burning and the primary fill was almost pure charcoal. This pit contained a large assemblage of charred cereal grains, suggestive of domestic activity (Fryer below). It is likely that the pit is contemporary with the early medieval enclosure, however it could potentially be either earlier or later in date.

A notable characteristic of the site was the presence of patches of pale grey or white sandy clay, often with degraded stones or inclusions of charcoal flecks. When excavated these patches were seen to have irregular profiles, often under-cut and with apparent root channels. It is not known what caused these patches to be formed, but the presence of charcoal in a significant number might indicate surface burning or possibly scrub or tree burning. Although many of these deposits were investigated, just a representative sample was recorded in detail (8, 46 and 48).

It is also note-worthy that the area around structure 120 showed a large expanse of this white colouring, perhaps indicating some relationship with the metalworking activities conducted in that location.

## **Finds**

A total of 118 artefacts or material assemblages were recovered during the excavation and subsequent sieving of soil samples (Appendix 2). The material includes pottery, lithics, metal and stone items, metalworking slag, bone and post-medieval artefacts.

The finds have been cleaned, numbered, labelled, properly packed and will be deposited with the National Museum of Ireland in accordance with *Advice Notes for Excavators* (NMI 1997).

**Prehistoric pottery** by Dr Tessa Machling*Introduction*

The pottery assemblage consists of approximately ten small scraps with a total weight of just 1g (Table 1). The fragments are extremely abraded. The sherds were recovered from the ploughsoil context 51 and the findspot is shown on Figure 4.

**Table 1: Prehistoric pottery assemblage**

Find No	Cut	Deposit	Fabric	Number of Sherds	Weight (g)	Comments
04E0029:17	-	51	V1	c.10	1	Scraps
		TOTAL		10	1g	

All sherds, where identifiable, are body sherds with none showing any definitive form characteristics. Due to the small size and severe abrasion of the sherds it is difficult to assign definite form types and dates.

The assemblage was analysed and recorded following recommended guidelines for the analysis of prehistoric pottery (PCRG 1992). All sherds were assigned a fabric type after macroscopic examination and the use of a hand lens (x10 and x20 power), and the sherds were then counted and weighed to the nearest whole gramme. Surface treatment, evidence of manufacturing technology, decoration etc. were also noted.

*Results*Description of pottery fabric

Only one fabric type was identified, this appears to be the same fabric as one noted in the assemblage from site AR100, Manusmore (Machling 2006). Some of the details of the fabric have been derived from the larger assemblage of AR100.

In the descriptions below, the terms used to describe the size of inclusions are defined as follows: very fine (< 0.1mm), fine (0.1-0.25mm), medium (0.25-0.5mm), coarse (0.5-1mm), very coarse (1mm+). Terms used to describe the frequency of inclusions are defined thus, based on the density charts devised by Terry and Chilingar (1955): rare (1-3%), sparse (3-10%), moderate (10-20%), common (20-30%), very common (30-40%), abundant (40%+). A full description of the fabric series has been included below.

Fabric V1: A soft, irregularly fired fabric with moderate to common amounts of fine to very coarse irregular voids. Rare to sparse amounts of quartz sand, iron oxide, argillaceous material and mica can also be seen. Rare moderate to coarse grade flint/chert is also present. It would appear that the material that left the voids may have been added, with all other inclusion probably deriving from the source clay.

The sherds in this fabric have a wall thickness of between 6-9mm and are generally very abraded on the surface. The voids within this fabric would appear to have derived from removed/dissolved large angular particles and may be indicative of leached limestone (or even possibly bone: see (Cleary 2000, 127) temper. However, negative HCl reactions might suggest another, as yet unidentifiable, origin.

A few of the voids appear linear in nature and may result from organic plant matter being used, however the small number of sherds that show one or two plant matter voids (only two) would suggest that this was not a primary constituent of the matrix and may instead represent accidental inclusion or deposition upon the surface during finishing of the vessel (see Surface Treatments below).

### Discussion of fabric

The fabric found represents the Bronze Age, almost certainly the Later Bronze Age. Comparisons with sites in the vicinity is difficult as few sites have been examined within this area of Ireland and the paucity of pottery from this period and, in particular, from this assemblage makes any definite conclusions difficult. However, there are some similarities to other ceramics located in south-west Ireland.

In general, it would appear that the fabrics from Cahircalla More compare well with the assemblages from the region. Excavations across the region, for example at Clonfinlough, County Offaly (IAWU 1993, 42), Lough Gur (O’Riordain 1954, Cleary 2000), Knockadoon Hill (Cleary 2000, 128) and on the North Munster Project (Grogan 1995 and 1996), have also produced comparable coarsely gritted/void fabrics.

### Resources for the pottery

It is generally accepted that if suitable resources can be found within 7-10km of a site, the pottery is said to be of local production (Arnold 1985). Clays that derive from outside this area can be treated as non-local.

The presence of common inclusion types such as probable limestone and quartz sand, mica and argillaceous material could suggest both a local or non-local source. However, the absence of any diagnostic, non-local inclusions and the presence of suitable clay resources close to the site makes a local resource likely.

### Vessel forms

As has been stated above, the limited number and small size of the sherds makes any form assignment impossible.

### Surface treatments, decoration and residues

No decorated sherds were found in the assemblage. It is almost certain that the abrasion of the surfaces of each fragment is responsible for this apparent lack.

### *Discussion*

The assemblage is too small and the fragment too abraded for further detailed discussion.

### **Lithics by Dr Steve Ford**

A collection comprising 26 lithic items was examined. The material was recovered from both hand collection and sieved samples. No context produced more than five items. The material includes items made from quartz and chert but no flint or other rock type was represented. The material is detailed in Table 2. Finds 04E0029:90 and 04E0029:100 are illustrated as Fig. 8.

### *Items of chert*

Nine items of chert were recovered. These comprised six flakes, a scraper, an unused fragment and a fragment from a core. The chert was not uniform of texture or colour with material comprising black and grey colours and some variation in grain size. The lumps included one item weighing 39g but otherwise weighed less than 8g; the flakes weigh less than 8g. The single retouched item was a scraper. Ditch slot 47 produced three flakes and a scraper.

*Items of quartz*

Seventeen items of quartz were recovered. These comprised fourteen fragments typically weighing less than 5g each, one lump weighing 187g and two flakes. It is unclear how much of this material was flaked as it does not, by and large, exhibit conchoidal fractures. Yet the material can produce sharp edges (cf Knight 1991) and its presence here in areas where the natural material does not outcrop suggests it was brought to the site and used. The two items appear to be flakes proper.

*Discussion*

The collection of lithic artefacts described above is small but is nevertheless a persistent presence for a site predominantly of historic date. It seems unwise therefore to disregard this collection as that of causal loss or discard across the landscape and may indicate a prehistoric phase of activity on this site. The collection indicates use of a small range of material types. It is assumed that this material was available locally in glacial drift deposits though as yet the distribution of both primary sources and the complex pattern of drift geology is not fully understood (Briggs 1988).

**Table 2: Lithic Catalogue**

Find No.	Cut	Deposit	Sample	Description	Weight (g)	Dimension
04E0029:13	-	51		Chert flake, broken	3	20x23mm
04E0029:14	-	51		Possible core fragment	7	45x20mm
04E0029:15	-	51		Quartz fragment	7	
04E0029:16	-	51		Quartz fragment	2	
04E0029:19	-	261		Chert fragment, not used?	<1	
04E0029:20	-	261		Quartz fragment	11	
04E0029:21	-	261		Quartz fragment	11	
04E0029:22	-	261		Quartz fragment	2	
04E0029:37	20	98		Quartz flake	<1	22x12mm
04E0029:90	47	199		Chert scraper, broken	5	37x17x6mm
04E0029:91	47	199		Chert flake, broken	<1	16x20mm
04E0029:92	47	199		Chert flake	<1	20x6mm
04E0029:93	47	199		Chert flake	<1	21x13mm
04E0029:100	117	277		Chert flake, broken, several removals	3	
04E0029:107	119	278	35	Chert flake	<1	19x8mm
04E0029:110	129	362		5 fragments, quartz	11	
04E0029:114	134	367		4 quartz fragments	22	
04E0029:115	135	372		Quartz flake	<1	13x15mm
04E0029:116	135	372		Quartz lump possibly broken but not clear cut	187	

**Metal artefacts** by Michelle Comber

Three pieces of metal were recovered from AR128, Cahircalla More. Two are described here, the third below. Note: These items have been x-rayed and conserved by Cathy Daly and Erica Devine of ArchCon Labs.

04E0029:79 Cut 41 Deposit 190 Iron Tool (Fig. 9)

A rectangular iron implement, rectangular in section and tapering to a flat, chisel-like blade. This item was recovered from the enclosure ditch 100. A small circular perforation is visible approximately 9mm from the broader end of the piece, roughly half-way across the width of the face. This perforation does not now extend through the entire thickness of the piece, though there is a faint mark

on the opposite side to suggest that it once did, or nearly so. The x-ray of the artefact supports this suggestion.

In shape, this piece resembles a chisel. However, it is neither socketed nor tanged as is common for chisels of the first millennium AD and earlier. The perforation would, instead, suggest a handle attached by metal pin, long rivet or nail. A number of excavated Early Historic sites have produced iron chisels, sites such as Lagore crannóg, Co. Meath (Hencken 1950) and Clonmacnoise monastic settlement, Co. Offaly (King 1992). The closest in size to this example, however, come from the ringforts of Garryduff, Co. Cork (O'Kelly 1963, 46-51, no. 48) and Carraig Aille II, Co. Limerick (Ó Ríordáin 1949, 79, no. 350). Both are socketed and roughly 30mm longer than the Cahircalla More artefact, though of a similar width. The shape of the Carraig Aille chisel closely resembles 04E0029:79 in that the width of the 'blade' is less than that of the opposite end. Many of the other iron chisels from the period have expanded blades. The settlement at Carraig Aille is dated from the eighth to the eleventh century AD, suggesting a probable date range for this artefact, though it may also date from a later period.

Dimensions:

Maximum length 120mm

Maximum width 16mm

Maximum original thickness 11mm, 20mm with corrosion products

'Blade' 9mm wide, 1-2mm thick

04E0029:01 Cut 49 Deposit 251 Ring-pin (Fig. 9 and Plate 11)

Remains of a ring-pin, consisting of a copper-alloy ring attached to an iron pin, the pin now in fragments. Recovered from ditch 125, part of a field system associated with the enclosure. The iron pin-head is formed of a simple loop or bend of the top of the pin shaft, to which the still complete copper-alloy ring is now corroded. The rest of the pin shaft is in two separate pieces, though almost the entire original length appears to be represented. The iron shaft is quite corroded but has been conserved. It was originally sub-rectangular or sub-circular in section, and tapers to a point.

There is no decoration apparent on the artefact. The copper-alloy ring is complete and well preserved. It is circular or sub-circular in section with ends that butt up against one another to form a complete ring.

Ring-pins are a relatively common find on excavations of sites dating from the second half of the first millennium AD. Most, however, are entirely of copper-alloy, some plain and others decorated. The most simple form consists of a straight shank, the top of which is looped over to facilitate the attachment of a ring. This is the form most commonly seen in iron, though the Cahircalla More example is somewhat unusual in that it comprises both iron and copper-alloy. Lagore crannóg, Co. Meath produced seven iron pins with looped-over tops, probable ring-pin shafts without attached rings (Hencken 1950, 101). Similar iron pins were discovered at Garryduff, Co. Cork, alongside nine complete or almost complete iron ring-pins (O'Kelly 1963, 50-53), while Carraig Aille pins numbered ten, complete examples sixteen (Ó Ríordáin 1949, 74). Some of the latter also had rings with ends that butted together. The Cahircalla More example fits perfectly with the general size range of these pins, averaging 70mm to 130mm in length, with rings of 10mm to 30mm diameter. A date sometime in the eighth to eleventh centuries AD is probable.

Dimensions:

Ring – 21mm external diameter

3.5mm thickness

Pin-head – c.6mm wide originally

5mm diameter hole for ring

Pin - 120mm maximum length

Section tapers from 5mm x 4mm to 1mm<sup>2</sup>

### **Metal item** by Kate Taylor

Four small fragments of iron (04E0029:118) were recovered from the sieved material from pit 44 within the smithy (structure 120). These pieces have been conserved by Erica Devine of ArchCon Labs.

The largest piece is 3mm long, tapers from 11mm to 6mm wide and is less than 1mm thick. The other pieces are of a similar thickness but are broken into smaller fragments. Two of the fragments are slightly curved at the edges. The pieces resemble blade fragments but are too corroded for further study.

The iron was probably being worked by the smith but had been discarded because it broke or was unsuitable for use.

### **Stone artefacts** by Michelle Comber

#### *Whetstones, 'mini anvils' and pin sharpener*

A whetstone is a piece of 'abrasive rock used to sharpen metal objects' (O'Connor 1991, 45). Common finds on archaeological excavations, hundreds have been recovered from ringfort / cashel enclosures. A large range of shapes and sizes is known, with only one attempt having made to classify them (O'Connor 1991). A large percentage of whetstones (approximately 50% or more) are found in a fragmentary state, and the examples from the Cahircalla More enclosure are no exception. Most are worked to a roughly regular, block-like shape of rectangular cross-section, averaging 70-150mm in length, reflecting a hand-held tool (*ibid.* 51). O'Connor identified four different groups of whetstones and five different forms of wear, each representing different sharpening tasks (*ibid.* 51-7).

There are two artefacts identified as possible whetstones from Cahircalla More. 04E0029:109 is not the most convincing example. It is broken and rectangular in section. It could, perhaps, be described as 'wedge-shaped in plan' (*ibid.* 51), thus fitting into one of O'Connor's categories. It has a possible wear-facet on one edge, between the scratched face and side. The opposite side of the stone is possibly worn smooth, though shows no hollows or facets. 04E0029:96 consists of a fragment of a larger piece, irregular in section. It does, however bear a central wear-hollow on one of its broad faces (that opposing the face with the deeper scratches). A central wear hollow is created by drawing an implement, such as a chisel, back and forth over a relatively small area of the stone (*ibid.* 57). The intact end is rounded off, while the edges of the broken end are also rounded, perhaps reflecting the continued use of the fragment after breaking.

Two other stone artefacts, 04E0029:99 and 04E0029:108 (Fig. 10), seem less like whetstones and more like mini-anvils or work surfaces. The two pieces are rectangular in section and rather large and heavy to have operated as hand-held whetstones. Their faces are flat and level, marked by frequent shallow scratches. They exhibit no wear hollows or facets, but both would have provided ideal flat working surfaces, perhaps for metalwork or some other craft.

There is a fifth stone associated with these four, a fragment of a pin-sharpener (04E0029:95 Fig. 11). The stone is rectangular in section (though broken), with both broad faces very smooth and with edge wear hollows on the two faces adjoining the same side. The hollows were probably created by sharpening a fine, narrow blade (such as a knife) across the face of the stone, towards the edge. A distinct groove runs down one of these broad faces, used to sharpen an awl, pin or knife point. Approximately 18% of whetstones from the Early Historic period bear such grooves (*ibid.*).

All five artefacts, then, may be associated with metalworking, though at a very basic level. Some, at least, were used to sharpen points and blades, others possibly forming work-surfaces for any number

of craft or domestic cutting activities. It is not possible to closely date these objects, other than to say that they are not uncommon in the first millennium AD.

### *Quernstones*

Quernstones were used to grind matter, primarily corn (barley, oats, rye, wheat etc.). The saddle quern was used in prehistory, and consisted of a relatively large base stone of slightly concave section. This concavity was formed by using a smaller hand-held rubbing stone to carry out the grinding. The Iron Age saw the introduction of the rotary quern which continued in use throughout the following Christian and Medieval eras. These querns consisted of two disc-shaped stones, one rotated atop the other to grind matter between.

Fragments from two querns have been uncovered by this excavation, one rotary quern, and one possible saddle quern. Fragment 04E0029:24 is from the upper stone of a rotary quern (Fig. 12). This represents a typical Early Historic upper rotary stone, with central perforation and stone that thins towards the edges. In this example the stone thickens considerably from the surviving edge, rising into a central cone surrounding the central perforation (Comber 2000). This was a small quern, and much lighter than the 55mm minimum-thickness of the example excavated at site AR25, Carrowdotia (03E1442:39), measuring just 17mm thick at one point. Similarly, the central perforation of the Carrowdotia quern measured 55mm, that of the Cahircalla More a mere 23mm. All of this suggests different purposes for these two querns; they were probably used for grinding different materials.

There is a second quern from AR128, this time as a saddle quern (04E0029:45 Fig. 13). This consisted of three adjoining fragments of stone, representing over 50% of the original stone, the upper surface of which was used for grinding. Clearly not part of a rotary quern, this piece does not seem to be part of a typical prehistoric saddle quern either. Its working surface is relatively small and very shallow when compared to corn-grinding querns. It seems more likely that this stone was used for grinding some other material, possibly in a craft-working or domestic context. There is no obvious reason to ascribe it to prehistory. Similar, though slightly larger grinding stones are known from the 9<sup>th</sup> century cashel at Rinnaraw, Co. Donegal (Comber, forthcoming).

### *Catalogue*

#### 04E0029:24 Cut 3 Deposit 64 Rotary quern fragment (Fig. 12)

Central fragment of upper stone of a rotary quern. Irregular, broken fragment though central perforation is intact. Relatively thin stone for a quern. Upper surface of stone rises at approximately 45 degree angle towards central perforation. The sides of the perforation are almost vertical, though they splay outwards near the lower surface. Linear red striations visible running through stone, which is medium-grained. Both surfaces are rough and uneven, particularly the grinding surface, which is also partially blackened – perhaps due to contact with burnt or carbonized matter. Fragment of a thin quern with a relatively small central perforation – both suggest a small, light quern.

185mm long x 120mm wide x 55mm thick (at centre), 17-35mm thick (at edge)  
Diameter of hole 23mm (upper), 37mm (lower)

#### 04E0029:45 Cut 26 Deposit 153 Fragments of a saddle quern (Fig. 13)

Three conjoining fragments of a grinding stone, representing over 50% of the original stone and approximately 90% of the working surface. The original stone was sub-square in shape, sub-rectangular in section. The working 'upper' surface bears a sub-circular area smoothed by working. The worked area here consists of a very shallow, circular depression, taking up less than 50% of the stone's surface. A stone upon which some material was ground, not necessarily grain - the working area is very small compared to corn-grinding querns. 04E0029:96 or 04E0029:109 could have been used as rubbing stones with this artefact, or stones of a similar size. Relatively coarse red sandstone



with quartz inclusions. The underside appears to have been relatively flat. No obvious signs of shaping on the stone, though perhaps the upper surface was roughly levelled prior to use.

300mm x 280mm x 105mm thick

Worked area 160mm x 165mm x 14mm deep at centre

04E0029:95 Cut 108 Deposit 264 Fragment of a pin-sharpener (Fig. 11)

Sub-rectangular stone with rounded sides, rectangular section. Fine-grained sandstone. Fragment broken from one end in antiquity. Both flat surfaces and part of the sides are highly smoothed. Occasional small scratches and bruising visible. Two shallow grooves intersect one another on 'reverse' surface, with one obviously later than, and cutting through, the other. The upper surface bears a large groove, running almost the entire length of the stone, terminating 15mm from one end, and running into the broken end. U-sectioned groove, tapering to a point. For sharpening metal points. Shallow wear hollows visible towards edge of both broad faces.

107mm long x 78mm wide x 35mm thick

Groove 90mm long x 3mm wide x 2mm deep

04E0029:96 Cut 108 Deposit 264 Possible whetstone

Sub-oval pebble, smoothed all over, irregular cross-section. Covered in small scratches, with some deeper examples on 'upper' surface. Reverse surface is slightly concave towards possible broken end. If it is broken, then the break was in antiquity as the end is smooth and some scratches extend onto it.

42mm wide x 65mm long x 2mm-19mm thick

Deeper grooves 35mm long x 1mm wide x 1mm deep (max.)

04E0029:99 Cut 111 Deposit 273 Possible mini-anvil (Fig. 10)

Sub-rectangular block of fine-grained sandstone, sub-rectangular in section. Not an obvious whetstone. Rounded corners. Two flat surfaces bear numerous scratches of different lengths and depth. One surface bears a groove or mark larger than the others. Perhaps used as an anvil of sorts, a work surface for cutting and perhaps hammering.

130mm long x 110mm wide x 50mm thick

04E0029:108 Cut 128 Deposit 355 Possible mini-anvil (Fig. 10)

Triangular block of fine-grained sandstone. Rounded edges. The two flat surfaces are covered with frequent scratches of varying length. They average 1mm in width and less than 1mm in depth. This stone may have been used as a working surface, for cutting. Not a traditional whetstone.

200mm long x 135mm wide x 50mm thick

04E0029:109 Cut 128 Deposit 355 Possible whetstone

Sub-rectangular fragment of fine-grained sandstone, possibly deliberately shaped, rectangular in section. One of the long sides and the flat surface are quite smooth, possibly due to stone's use as a whetstone. Faint scratches are visible on the flat surface, with one larger groove extending from the edge towards the centre of the stone. The reverse face is rougher and more uneven. The edges of the stone are rounded, the sides straight. Notch on one edge, on angle of broad face and narrow side.

75mm long x 43mm wide x 18mm thick, tapers to 12mm thick

Groove 20mm max. surviving length x 2mm wide x 1mm deep

## **Metalworking remains by Lynne Keys**

During excavations just over 16.6kg of iron slag and related material was recovered from a small oval building represented by a curvilinear gully and enclosed by a ditch; from the fills of that ditch; and from a ditch slot forming part of a nearby field system. A catalogue of the slag is given as Table 3. The slag types and their clustering in features related to or near the building (Group 120) reveals it had been used as a smithy. Some slag may have been produced by smelting – the production of iron in a furnace from an ore and a flux – but the pieces were either too fragmentary to make a definite decision. It is possible the smith carried out limited smelting to produce iron for working. A small magnetic fragment of burnt stone in the ditch may be ore. This piece was examined by Dr Martin Feely and shown to be the iron oxide hematite (below) and this would provide some support for smelting having taken place.

### *Structure, Group 120*

The iron slag evidence, both bulk and micro-slags, points to this structure being a focus of smithing activity. Quantities of hammerscale and other microslags - tiny runs and dribbles - were found in the interior of the building in two pits, while quantities of similar material were recovered from the ring gully which probably held the building's wall. Many of the larger slag types had been broken up or were types which could not be securely assigned to either smelting or smithing activity; the diagnostic types such as hammerscale allowed the process to be identified as smithing.

Hammerscale is a term used to describe two diagnostic microslags produced by smithing. The ordinary hot working of a piece of iron either to make an object or repair it produces flake hammerscale, which resembles silver fish scales. The other type, small spheres, are produced either when an iron bloom is worked on a hearth to remove excess slag after smelting (the production of iron in a furnace from ore and a fuel) or by high temperature welding as a smith joins two pieces of iron to make an object. Since both types are not visible to the naked eye when in the soil they usually remain in the immediate area of smithing activity (around the anvil and between it and the hearth) when larger (bulk) slags are cleared out.

No bulk slags such as smithing hearth bottoms were found in Structure 120; these had been dumped outside in the part of the enclosure ditch nearest to the smithy (see below).

The two pits or cuts (44 and 45) inside the building contained iron slag and related debris: substantial amounts of broken slag, microslags (including hammerscale of both types) and fragments of vitrified hearth lining. The archaeological excavators found some evidence of *in situ* burning in the base of pit 45.

The curvilinear gully marking the external wall of the building also produced a substantial amount of slag (6.2kg) including microslags and hammerscale. Iron shavings found here echo those found nearby in the enclosure ditch fill.

### *Enclosure Ditch, Group 100*

The enclosure ditch produced 3.2kg of slag, including four smithing hearth bottoms (one very large) and tiny amount of hammerscale. It was here that a possible chisel was found. Smithing hearth bottoms are the most characteristic bulk slags produced by smithing. They are produced by a high temperature reaction between the iron being worked and the flux used by the smith. The slag produced drips down into the hearth to form the smithing hearth bottom. When it cooled or when it grew to such a size that it might obstruct the tuyere through which the bellows air enters the hearth it was removed. If left on the floor of the building, smithing hearth bottoms would make movement around the dimly lit smithy hazardous so they were usually thrown against the inside wall or outside into the nearest cut feature – in this case the enclosure ditch.

Two small pits within the enclosure produced small amounts of material related to the ironworking (19g). Pit 21 contained some iron fragments, iron shavings (as found in the smithy) and some tiny fragments of fired clay; pit 25 contained a tiny amount of undiagnostic slag.

#### *Field Ditch, Group 210*

In one of the ditches of the nearby field system, a small quantity (744g) of undiagnostic slag was recovered.

#### *Plough soil*

Two smithing hearth bottoms were found in plough soil (deposit 51). These pieces probably originated in the smithy.

**Table 3: Catalogue of slag**

Find No.	Cut	Deposit	Sample	Identification	Weight (g)	Length (mm)	Breadth (mm)	Depth (mm)	Comment
04E0029:7		51		Smithing hearth bottom	616	130	100	40	
04E0029:7		51		Smithing hearth bottom	592	130	85	45	
04E0029:7		51		Undiagnostic	28				
04E0029:25	3	64		Smithing hearth bottom	498	130	80	40	possibly broken
04E0029:31	16	92	4	Hammerscale	0				flake & spheres
04E0029:31	16	92	4	Iron	2				
04E0029:31	16	92	4	Ore	2				magnetic stone
04E0029:35	19	95&96	10	Hammerscale	0				flake, one large sphere
04E0029:35	19	95&96	10	Undiagnostic	4				
04E0029:38	21	94	12	Iron	2				
04E0029:40	21	97	13	Iron shavings & fired clay	5				
04E0029:41	22	99		Smithing hearth bottom	812	120	105	70	
04E0029:44	25	158	8	Undiagnostic	12				
04E0029:51	34	180	19	Hammerscale	0				large flake, some spheres
04E0029:51	34	180	19	Micro slags	24				hammerscale & iron shavings
04E0029:51	34	180	19	Undiagnostic	18				
04E0029:52	35	181	20	Micro slags	2				
04E0029:53	35&36	181&182		Iron rich slag	66				
04E0029:54	36	182	21	Micro slags	2				
04E0029:54	36	182	21	Vitrified hearth lining	44				
04E0029:55	37	183	22	Fired clay	10				
04E0029:55	37	183	22	Hammerscale	0				flake & spheres
04E0029:55	37	183	22	Micro slags	162				
04E0029:55	37	183	22	Undiagnostic	88				
04E0029:56	37/43	183/192		Fired clay	108				

Find No.	Cut	Deposit	Sample	Identification	Weight (g)	Length (mm)	Breadth (mm)	Depth (mm)	Comment
04E0029:56	37/43	183/192		Hammerscale	0				some; broken flake
04E0029:56	37/43	183/192		Run slag	434				
04E0029:56	37/43	183/192		Undiagnostic	3332				possibly smelting
04E0029:56	37/43	183/192		Undiagnostic	110				
04E0029:56	37/43	183/192		Vitrified hearth lining	356				
04E0029:57	37	184		Fired clay	10				
04E0029:57	37	184		Hammerscale	1				flake & some spheres
04E0029:57	37	184		Slag runs	50				
04E0029:57	37	184		Undiagnostic	350				
04E0029:58	37	184	26	Micro slags	40				tiny runs and hammerscale
04E0029:80	41	190		Furnace/smithing hearth bottom	1738	150	170	80	
04E0029:80	41	190		Smithing hearth bottom	124	80	60	40	broken
04E0029:81	41	190	23	Fired clay	2				
04E0029:82	43	192		Hammerscale	0				tiny amount broken flake
04E0029:82	43	192		Undiagnostic	528				
04E0029:82	43	192		Vitrified hearth lining	30				
04E0029:83	43	192	24	Hammerscale	0				large flakes, few spheres
04E0029:83	43	192	24	Micro slags	156				
04E0029:83	43	192	24	Undiagnostic	176				
04E0029:83	43	192	24	Vitrified hearth lining	129				
04E0029:84	44	195		Charcoal	1				
04E0029:84	44	195		Hammerscale	0				flake trapped in the slag
04E0029:84	44	195		Hammerscale	6				flake & occasional spheres
04E0029:84	44	195		Iron rich slag	48				
04E0029:84	44	195		Run slag	102				
04E0029:84	44	195		Undiagnostic	1538				
04E0029:84	44	195		Vitrified hearth lining	166				
04E0029:85	44	195	25	Hammerscale	30				flake & large spheres
04E0029:85	44	195	25	Micro slags	824				
04E0029:85	44	195	25	Undiagnostic	164				
04E0029:85	44	195	25	Vitrified hearth lining	4				
04E0029:86	45	196		Charcoal	1				
04E0029:86	45	196		Hammerscale	0				very little; broken
04E0029:86	45	196		Iron rich slag	276				very magnetic
04E0029:86	45	196		Slag run	192				
04E0029:86	45	196		Undiagnostic	1557				possibly smelting

Find No.	Cut	Deposit	Sample	Identification	Weight (g)	Length (mm)	Breadth (mm)	Depth (mm)	Comment
04E0029:86	45	196		Vitrified hearth lining	172				
04E0029:87	45	196	27	Hammerscale	0				flake & spheres
04E0029:87	45	196	27	Micro slags	160				
04E0029:94	49	251		Undiagnostic	1				
04E0029:102	118	350		Undiagnostic	740				
04E0029:103	118	350	36	Undiagnostic	4				
				<b>Total</b>	<b>16649</b>				

### Microscopic examination of stone sample by Dr Martin Feely

#### 04E0029:31 Deposit 92, cut 16, sample 4, Ditch group no 100

This sample consists of disaggregated pieces (< 10mm) of a concreted mass of quartz grains and lithic fragments that range in size from <1mm to 50mm. The morphology of grains and lithic fragments ranges from rounded to angular. The lithic fragments are mainly mudstone. A dark grey cement or crust binds these grains and fragments together. A rust-like (iron oxide) staining covers the components of the sample. The crust is of millimetric scale, is brittle and when broken reveals a layered structure. The layers are <1mm thick and display a metallic lustre. Physical property tests on this material indicate the presence of iron oxide (hematite).

The tests are

- 1) Streak test reveals a reddish brown colour indicative of hematite
- 2) Magnetic test reveals that the material attracts a magnet indicative of magnetite
- 3) Lustre shows a metallic lustre indicative of hematite
- 4) Hardness test shows a hardness > 4 - Hematite is ~ 5 but can be softer as in this case.

The chemical formula for Hematite is  $\text{Fe}_2\text{O}_3$ .

#### *Comments on material*

This concretionary material is composed of grains of quartz and lithic fragments. The cement is a layered crust of iron oxide. It is like a soil hardpan very common in boggy terrain where iron rich water percolates through the bog or soil and precipitates, at a certain depth, iron oxide. So if this material is from an ancient smelting site the same rules apply: water and iron and precipitation would all be elements that would combine to give this material.

### Bone analysis by Sian Anthony

#### *Methodology*

Bone from twenty contexts was examined from Site AR128 and is catalogued as Table 4. A variety of deposit types was excavated including enclosure and field ditches and redeposited pyre debris or potentially cenotaph-type memorial deposits (McKinley 2000). Some of the bone was recovered during excavation; other material came from soil samples wet-sieved to a 2mm fraction. All small pieces of bone were scanned rapidly as in many cases deposits only produced fragments under 1 or 2mm in size. The bones were not separated into size, so percentage fragmentation could not be calculated however the majority of fragments were less than 2mm leaving a lack of recognisable pieces throughout the assemblage.

Human osteological analysis followed recommendations from McKinley (1994, 2000) and Brickley and McKinley (2004). Mammalian bones were identified using standard texts (Hillson 1992 and Getty 1975), all were rapidly scanned and bones damaged on excavation were rejoined and counted as one bone. Small amounts of cremated material were only identified as mammalian only, this does not preclude the possibility that some may be human but could not be readily identified as such. Where they are recognised as animal this is noted.

The majority of the cremated bones were relatively well preserved, although some deposits retained a slightly worn and chalky appearance, trabecular bone was poorly represented with general limb bones and skull pieces often noted. However this is more likely from the easily identifiable nature of these pieces rather than any recognisable pattern in deposition. It has been demonstrated that trabecular bone and easily recognised articular surfaces are lost in adverse soil conditions (Neilson-Marsh et al 2000).

The small amount of cremated material may be a result of truncation, sites where it is estimated that the original ground levels were truncated contained extremely shallow pits and postholes; much of the original deposit may simply not be recovered. However in some cases the weight of bone is unlikely to represent a true cremation burial deposit, often they are likely to represent redeposited pyre debris.

### *Results*

The assemblage produced a mixture of faunal and human bones weighing 600g, the majority comprising highly oxidised and fragmented cremated bone. Preservation varies from excellent to poor with very weathered cortical bone and fragmentation upon removal and handling.

Faunal remains include cattle and smaller ungulate material, a shed deer antler, broken after the brow tine was recovered from ditch slots 17 and 18, from the size it comes from a roe deer.

Identified human bone was recovered from three deposits, ditch slots 16 (deposit 92) and 119 (deposit 278) and pit 137 (deposit 381). Smaller fragments of human bone could potentially have been present in other deposits.

**Table 4: Catalogue of bone**

Find Number	Cut	Deposit	Group Number	Sample Number	Species	Pres.	Burnt?	Colour	Total	Weight (g)	Maximum fragment size (mm)	Comments
04E0029:23	1	53	100		Cow	E	1	White	1	4		Lower molar
04E0029:26	11	82			Csz	G			24	4		Fragments
04E0029:27	11	82		1	Mammal	E	12	White	12	4	16	Fragments
04E0029:28	16	89	100		Csz	P			15	2	30	Fragments
04E0029:29	16	91	100		Cow	P			30	245		Limb bones and teeth. 1x limb bone sent for C14 GH 01.12.05
04E0029:30	16	92	100	4	Human	G	8	White	8	5	26	Fragments
04E0029:32	17&18	87&160	100		Mixed animal	P			57	110		Deer antler, cow teeth and mandible , all weathered
04E0029:33	19	95	100		Mammal	G	12	White	12	<1	18	Fragments
04E0029:34	19	95	100	11	Csz	P			1	35		Pelvis pieces
04E0029:39	21	97		13	Mammal	G	2	White	2	<1	10	Fragments
04E0029:42	22	99	100		Cow	P			2	29		2 teeth
04E0029:43	25	158		8	Mammal	G	5	White	5	<1	13	Fragments
04E0029:50	34	180	120		Cow	P			2	24		Teeth in pieces
04E0029:88	45	196		27	Mammal	G	5	White	5	<1	<2	Fragments
04E0029:89	47	199	125		Mixed animal	E	9	Differ	9	8		Limb bones
04E0029:97	108	264	125		Cow	P			1	17		Molar in pieces
04E0029:98	108	264	125	33	Mammal	E	5	White	6	19	13	Fragments
04E0029:101	117	277	125		Mammal	P	1	White	1	<1	11	Fragments
04E0029:104	119	278	125		Oyster	G			1	16		Base shell
04E0029:106	119	278	125		Mixed	E	26	White	28	4		Human, cow teeth, ssz and mammal pieces
04E0029:111	133	366	215		Cow	P			1	56		Scapula in pieces
04E0029:112	133	371	215		Ssz	E	1	White	1	<1	12	limb bones
04E0029:113	134	367	215		Cow	P			1	12		lower molar
04E0029:117	137	381		40	Human	G	22	White	22	3	15	Vertebrae and fragments

**Shell** by Kate Taylor

A single oyster shell (04E0029:105) was recovered from ditch 125 (slot 119). Little can be inferred from this isolated find.

**Post-medieval pottery** by Graham Hull

Twenty-four pieces of pottery, dating to between the 18<sup>th</sup> and 20<sup>th</sup> centuries, were examined (Table 6). The assemblage derived from agricultural furrows, the upper fills of ditches and from the topsoil and is essentially domestic in nature.

**Table 6: Catalogue of post-medieval pottery**

Find no.	Cut	Deposit	Identification	Description	Date
04E0029:2	-	50	Willow-pattern plate	Blue painted w. Royal Cottage	20th
04E0029:3	-	50	Porcelain Cup	Handle / body	20th
04E0029:4	-	50	Celtic Atlantis Earthenware. Mug	Base	20th
04E0029:5	-	50	Brownware. Platter?	Rim; very worn	18th
04E0029:36	20	98	White salt-glazed stoneware.	Sherd too small to assess properly.	18/19th
04E0029:46	30	167	Creamware. ?Bowl	Body	18th/19th
04E0029:61	40	187	Willow-pattern platter	Joins 72 & 74	19th / 20th
04E0029:62	40	187	Willow-pattern plate	Rim. Joins 68	19th / 20th
04E0029:63	40	187	Willow-pattern platter	Joins 73 & 77 & 69	19th / 20th
04E0029:64	40	187	Salt-glazed Stoneware. Mug	Body. Plain white, rilled	19th / 20th
04E0029:65	40	187	Willow-pattern platter	Joins 66 & 67	19th / 20th
04E0029:66	40	187	Willow-pattern platter	Joins 65 & 76	19th / 20th
04E0029:67	40	187	Willow-pattern platter	Joins 65	19th / 20th
04E0029:68	40	187	Willow-pattern plate	Rim. Joins 62	19th / 20th
04E0029:69	40	187	Willow-pattern platter	Joins 73 & 63	19th / 20th
04E0029:70	40	187	Willow-pattern platter	Joins 74	19th / 20th
04E0029:71	40	187	Willow-pattern platter	Joins 75	19th / 20th
04E0029:72	40	187	Willow-pattern platter	Joins 71 & 75	19th / 20th
04E0029:73	40	187	Willow-pattern platter	Joins 77 & 76	19th / 20th
04E0029:74	40	187	Willow-pattern platter	Joins 61	19th / 20th
04E0029:75	40	187	Willow-pattern platter	Joins 77, 76 etc.	19th / 20th
04E0029:76	40	187	Willow-pattern platter	Joins 66	19th / 20th
04E0029:77	40	187	Willow-pattern platter	Joins 75, 76 etc	19th / 20th
04E0029:78	40	187	Porcelain Bowl	Base / body. Plain white	19th / 20th

**Clay tobacco pipe** by Kate Taylor

Six pieces of clay tobacco pipe were examined (Table 7). The assemblage derived from the topsoil and ploughsoil.

**Table 7: Catalogue of clay tobacco pipe**

Find no.	Cut	Deposit	Identification	Dimensions	Comment
04E0029:6	-	50	Bowl	40mm tall, 27mm external and 19mm internal diameter of bowl. 11m x 13mm stem broken off, 2.5mm diameter bore	Complete bowl. Stamped



Find no.	Cut	Deposit	Identification	Dimensions	Comment
04E0029:8	-	51	Bowl fragment	30mm long bowl (broken). 7mm diameter stem broken off, 2mm diameter bore. 2-4mm wall thickness, 4mm long spur	Spur attached
04E0029:9	-	51	Bowl fragment	6mm thick	Probable upright bowl
04E0029:10	-	51	Stem fragment	13mm long fragment, 9mm diameter stem, 2m diameter hole	
04E0029:11	-	51	Stem fragment	32mm long fragment, 7m diameter, 2mm diameter bore	Mouthpiece
04E0029:12	-	51	Stem fragment	137mm long fragment, oval cross-section 19mm x 11mm at thickest and 9mm x 7mm at thinnest, 2mm diameter bore	Plaques on stem. Start of bowl.

The six pieces in this assemblage represent at least two different types of clay tobacco pipe (Ayto 1979).

The incomplete bowl (04E0029:8) is a thin-walled late 18<sup>th</sup> or early 19<sup>th</sup> century example with a pedestal spur. As the top of the bowl is missing it cannot be determined whether it was level with the stem or sloping down, an important factor in dating pipes.

The complete bowl (04E0029:6) and bowl fragment (04E0029: 9) are thick-walled later 19<sup>th</sup> century pieces. The complete bowl is stamped in a circle on the rear of the bowl with the makers mark and, although part of the stamp is chipped off the letters 'H..R...EY LIMERICK' can be made out. The Hartney family were pipe manufactures in Limerick in the late 19<sup>th</sup> century, for example John Hartney was working at 12 Broad Street in 1879 and Michael Hartney was next door at number 13 in the same year (Basset 1879, 179 and 75). This bowl is doubtless from one of their pipes

The long piece of pipe stem (04E0029:12) bends down slightly. The nib is missing. Two raised rectangles are present on opposing sides towards the bowl end, however, although these appear to be for the maker's mark neither has any lettering stamped on.

The mouthpiece (04E0029:11) is from a fairly delicate stem and is roughly pinched together at the tip.

### Glass by Kate Taylor

Six pieces of glass were examined (Table 8). The assemblage derived from the field boundary bank, two ditches and the post-medieval road cut. The majority of the pieces are bottle glass, all bar one being dark green in colour.

**Table 8: Catalogue of glass**

Find no.	Cut	Deposit	Description	Comment
04E0029:18	-	260	Dark green bottle base	
04E0029:47	30	167	Dark green bottle rim fragment	
04E0029:48	32	179	Dark green bottle base fragment	Co-joins with 49
04E0029:49	32	179	Dark green bottle base fragment	Co-joins with 48
04E0029:59	40	187	Colourless bottle rim fragment	
04E0029:60	40	187	Colourless window glass fragment	

### Bottle glass

Two bottle bases are represented in the assemblage and these show considerable differences. Co-joining pieces (04E0029:48 and 49 – a modern break separates the two) form most of a bottle base

with a rounded kick-up. No pontil marks are evident. The glass is olive green in colour and the surface is patinated. Sufficient of the sides of the bottle are attached to suggest that the bottle was cylindrical in shape.

Bottle base 04E0029:18 is a more bluey green in colour and has a steep kick-up with a small knob at its centre. No pontil marks are evident. The surface of the glass is not patinated and the material appears to be more modern than the other base. The surviving sides indicate a cylindrical bottle shape.

Two rim fragments were also recovered. One (04E0029:47) is olive green in colour, the surface is not patinated. The fragment includes part of the string rim, the lip has been broken off. The string rim is not particularly prominent.

The other rim sherd is of nearly colourless glass, although there is a slight green tint. The top of the lip is broken away, however the base of the ring lip, where it joins the neck of the bottle, is present.

#### Window glass

A single small fragment of colourless window glass was recovered. The piece has no original edges and is 2mm thick.

#### *Discussion*

All the pieces of glass are clearly late post-medieval in date. The bottle base formed by two co-joining pieces (04E0029:48 and 49) may be late 18<sup>th</sup> century in date (Banks 1997), however the remainder of the assemblage dates to the 19<sup>th</sup> century.

#### **Samples**

Forty bulk soil samples were taken from a range of deposits across the site (Appendix 3). Thirty-five of these samples have been floated and wet sieved through a 300micron mesh and then through a 2mm mesh in order to recover charred plant material and small artefacts. The residue was scanned with a magnet for the recovery of metalworking debris (micro slag).

#### **Charred plant macrofossils and other remains** by Val Fryer

##### *Introduction*

Samples for the extraction of the plant macrofossil assemblages were taken from across the excavated area, and thirty were submitted for assessment (Tables 9-12). Of these, four were selected for quantification and the results are incorporated into the tables.

##### *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 Tables 6 to 9. Nomenclature within the tables follows Stace (1997). Counts of cereal grains include only whole grains or embryo ends, and material was identified by comparison with modern reference specimens. All plant remains were charred. The density of material within each assemblage is expressed in the tables as follows: x = 1 – 10 specimens, xx = 10 – 100 specimens and xxx = 100+ specimens.

## Results

### Plant macrofossils

Cereals, seeds of common weed plants and tree/shrub macrofossils were noted at low to moderate densities in all but seven assemblages. Preservation was moderate to good, although a proportion of the cereal grains was puffed and distorted, possibly due to high temperatures during combustion.

Oat (*Avena* sp.), barley (*Hordeum* sp.), rye (*Secale cereale*) and wheat (*Triticum* sp.) grains were recorded. Preservation was generally good, although a proportion of the grains were puffed and distorted, possibly as a result of combustion at high temperatures. Oats and barley were predominant within sample 9 from pit 15, although the presence of wild oat (*A. fatua*) floret bases, with their diagnostic ‘sucker-mouth’ basal abscission scars, may indicate that some grains were present as weeds. A small number of asymmetrical lateral grains of six-row barley (*H. vulgare*) were also noted within this assemblage. Barley is predominant within samples 12 and 13 (both from pit 21), and barley and oats are present in equal proportions within sample 20 from ring gully slot 35. However, it should be stressed that the overall density of grains within these latter three samples is somewhat low (i.e. between 5.4 grains per litre in sample 20 and 17 grains per litre in sample 13).

Weed seeds were rare, occurring in only five assemblages, generally alongside cereal grains. All were from common segetal taxa including goosegrass (*Galium aparine*), vetch/vetchling (*Vicia/Lathyrus* sp.) and black bindweed (*Fallopia convolvulus*). It is perhaps of note that most were of a similar size to the grains and would not have been easily removed during processing. However, at the low density at which they were present, it is assumed that they were tolerated as contaminants of the main cereal crop. Hazel (*Corylus avellana*) nutshell fragments were recorded from ten samples, although the low density of material recovered possibly indicates that they were either present as residues of hedge scrub used as fuel, or the remains of occasional light ‘snacks’. While other tree/shrub macrofossils were exceedingly rare, sloe/damson (*Prunus* sp.) type fruit stone fragments were present in sample 30, and sample 39 contained possible seeds of hawthorn (*Crataegus monogyna*) and spindle (*Euonymus europaeus*).

Charcoal fragments were present at varying densities in all samples along with pieces of charred root/stem.

### *Other materials*

The fragments of black ‘cokey’ and tarry material are probable residues of the combustion of organic remains (including cereal grains) at very high temperatures. Other remains were rare but did include fragments of bone (some burnt), coal, fired clay, burnt stone and ferrous globules and concretions.

**Table 9: Plant macrofossils and other remains from Enclosure ditch 100**

Sample No.	3	4	7	10	23	30	31
Cut No.	14	16	18	19	41	17/18	3
Deposit No.	83	92	88	95/96	190	87/160	64
<b>Cereals</b>							
<i>Avena</i> sp.(grains)		x		x			
<i>Hordeum</i> sp. (grains)		x					
Cereal indet. (grains)		x					
<b>Herbs</b>							
<i>Galium aparine</i> L.		x	x			x	
<i>Vicia/Lathyrus</i> sp.			x				
<b>Tree/shrub macrofossils</b>							
<i>Corylus avellana</i> L.	x		x				

<i>Prunus</i> sp. (fruit stone frag.)						x	
<b>Other plant macrofossils</b>							
Charcoal <2mm	xx	xxx	xx	x	xxx	xx	xx
Charcoal >2mm	x	xx	xx	xx	xxx	xx	xx
Charred root/stem			x	x			
<b>Other materials</b>							
Black porous 'cokey' material	x	x	x				
Black tarry material		x		x			
Bone		xb					
Burnt stone		x			x		
Small coal frags.		x	x				
<b>Sample volume (litres)</b>	<b>10</b>	<b>25</b>	<b>10</b>	<b>5</b>	<b>0.5</b>	<b>0.25</b>	<b>2</b>
<b>Volume of flot (litres)</b>	<b>&lt;0.1</b>	<b>0.1</b>	<b>&lt;0.1</b>	<b>&lt;0.1</b>	<b>&lt;0.1</b>	<b>&lt;0.1</b>	<b>&lt;0.1</b>
<b>% flot sorted</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Table 10: Plant macrofossils and other remains from pits

Sample No.		8	9	12	13	14	25	27	40
Cut No.		25	15	21	21	26	44	45	137
Deposit No.		158	93	94	97	153	195	196	381
<b>Cereals</b>	<b>Common name</b>								
<i>Avena</i> sp. (grains)	Oat		808	2	20				
<i>A. fatua</i> L. (floret bases)	Wild oat		4						
<i>Hordeum</i> sp. (grains)	Barley	x	376	48	300				
<i>H. vulgare</i> L. (asymmetrical lateral grain)	Six-row barley		16cf						
<i>Secale cereale</i> L. (grains)	Rye		32	1cf					
<i>Triticum</i> sp. (grains)	Wheat		48	1cf					
Cereal indet. (grains)			68	1	20	x			
<b>Herbs</b>									
<i>Bromus</i> sp.	Brome		1cffg						
<i>Fallopia convolvulus</i> (L.) A.Love	Black bindweed		24		2cf				
<i>Galium aparine</i> L.	Goosegrass				2				
<i>Spergula arvensis</i> L.			4cf						
<i>Persicaria maculosa/lapathifolia</i>	Persicaria		4cfcoty						
<i>Vicia/Lathyrus</i> sp.	Vetch/vetchling								
<b>Tree/shrub macrofossils</b>									
<i>Corylus avellana</i> L.		x	4fg	47fg	64fg	x	x	x	
<b>Other plant macrofossils</b>									
Charcoal <2mm		xx	xxx	xx	xxx	xx	xxx	xxx	xx
Charcoal >2mm		xx	xxx	xx	xxx	xxx	xxx	xxx	xx
Charred root/stem					x				
Indet.seeds			4		4				
<b>Other materials</b>			xxx	xx	xxx				

Black porous 'cokey' material		x		x	xx		x		
Black tarry material				x	xx	x	xx	x	
Bone				x					
Burnt stone					x				
Charred arthropods					x				
Ferrous concretions							x	x	
Metallic globules								x	
Vitrified material				x	x			x	
<b>Sample volume (litres)</b>		<b>3</b>	<b>15</b>	<b>6</b>	<b>20</b>	<b>4</b>	<b>10</b>	<b>8</b>	<b>4</b>
<b>Volume of flot (litres)</b>		<b>&lt;0.1</b>	<b>0.3</b>	<b>&lt;0.1</b>	<b>0.2</b>	<b>&lt;0.1</b>	<b>0.3</b>	<b>0.2</b>	<b>&lt;0.1</b>
<b>% flot sorted</b>		<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>50%</b>	<b>50%</b>	<b>100%</b>

Table 11: Plant macrofossils and other remains from Structure 120

<b>Sample No.</b>		<b>19</b>	<b>20</b>	<b>21</b>	<b>22</b>	<b>24</b>	<b>26</b>
<b>Cut No.</b>		<b>34</b>	<b>35</b>	<b>36</b>	<b>37</b>	<b>43</b>	<b>37</b>
<b>Deposit No.</b>		<b>180</b>	<b>181</b>	<b>182</b>	<b>183</b>	<b>192</b>	<b>184</b>
<b>Cereals</b>	<b>Common name</b>						
<i>Avena</i> sp. (grains)	Oat	x	55		xcf	x	
<i>Hordeum</i> sp. (grains)	Barley	x	53		x		x
<i>Secale cereale</i> L. (grains)	Rye						
<i>Triticum</i> sp. (grains)	Wheat		1cf			x	
Cereal indet. (grains)		x	18	x	x		
<b>Tree/shrub macrofossils</b>							
<i>Corylus avellana</i> L.			2fg				x
<b>Other plant macrofossils</b>							
Charcoal <2mm		xx	xxx	xxx	xx	xxx	xx
Charcoal >2mm		xxx	xxx	xxx	xxx	xxx	xx
Charred root/stem			x			x	
<b>Other materials</b>							
Black porous 'cokey' material			x		x	x	
Black tarry material		x			x		
Bone					xb		
Burnt/fired clay		x			x		
Burnt stone		x					
Ferrous globules/concretions				x		x	
<b>Sample volume (litres)</b>		<b>10</b>	<b>22</b>	<b>15</b>	<b>8</b>	<b>0.5</b>	<b>15</b>
<b>Volume of flot (litres)</b>		<b>0.2</b>	<b>0.2</b>	<b>0.3</b>	<b>0.1</b>	<b>0.4</b>	<b>&lt;0.1</b>
<b>% flot sorted</b>		<b>50%</b>	<b>100%</b>	<b>50%</b>	<b>100%</b>	<b>25%</b>	<b>100%</b>

Table 12: Plant macrofossils and other remains from other features

<b>Sample No.</b>	<b>28</b>	<b>32</b>	<b>29</b>	<b>33</b>	<b>34</b>	<b>35</b>	<b>37</b>	<b>38</b>	<b>39</b>
<b>Cut No.</b>	<b>46</b>	<b>48</b>	<b>47</b>	<b>108</b>	<b>117</b>	<b>119</b>	<b>109</b>	<b>132</b>	<b>111</b>
<b>Deposit No.</b>	<b>198</b>	<b>250</b>	<b>199</b>	<b>264</b>	<b>277</b>	<b>278</b>	<b>284</b>	<b>368</b>	<b>380</b>
<b>Feature type</b>	<b>Tree dist.</b>	<b>Tree dist.</b>	<b>Ditch 125</b>	<b>Ditch 125</b>	<b>Ditch 125</b>	<b>Ditch 125</b>	<b>Ditch 205</b>	<b>Ditch 215</b>	<b>Ditch 210</b>
<b>Cereals</b>									
<i>Hordeum</i> sp. (grains)		x	x						
Cereal indet. (grains)			xcf	x		x			

<b>Tree/shrub macrofossils</b>									
<i>Crataegus monogyna</i> Jacq.									xcf
<i>Euonymus europaeus</i> L.									xcf
<b>Other plant macrofossils</b>									
Charcoal <2mm	xx	x	xx	xx	xx	xx		x	xxx
Charcoal >2mm	xx	xx	xxx	xxx	x	xx	x	xx	xxx
Charred root/stem			x		x				x
Indet.seeds									x
<b>Other materials</b>									
Black porous 'cokey' material			x						
Black tarry material	x		x						
Bone			xb			xb			
Burnt stone									x
Small coal frags.			x						
<b>Sample volume (litres)</b>	<b>0.25</b>	<b>0.25</b>	<b>8</b>	<b>2</b>	<b>0.5</b>	<b>1</b>	<b>25</b>	<b>8</b>	<b>3</b>
<b>Volume of flot (litres)</b>	<b>&lt;0.1</b>	<b>&lt;0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>&lt;0.1</b>	<b>&lt;0.1</b>	<b>&lt;0.1</b>	<b>&lt;0.1</b>	<b>0.2</b>
<b>% flot sorted</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>50%</b>

b = burnt

### *Discussion*

For the purposes of this discussion, material will be dealt with by context type.

#### Enclosure ditch (Table 9)

A total of seven samples were taken from fills within the enclosure ditch. The recovered assemblages are all very small (<0.1 litre in volume), and although grains, weed seeds, tree/shrub macrofossils and charcoal fragments are recorded, it would appear most likely that some or all of the material is derived from scattered refuse and/or wind-blown detritus.

#### Pits (Table 10)

Of the eight pit fills assessed, only three contain a sufficient density of material to enable tentative interpretation of the features. Cereals are especially common within pits 15 (sample 9) and 21 (samples 12 and 13) and, as weeds seeds are comparatively rare, it appears most likely that these are derived from small deposits of prime grain and/or domestic refuse. If it is assumed that the recovered assemblages are derived from materials used within the ditched enclosure, it would appear that cereals were of prime importance to the occupants of the site. As has been noted at another near contemporary site within the Ennis Bypass Scheme (Site AR102 at Manusmore – Fryer 2006), barley was of particular local importance, although the assemblage from sample 9 (pit 15) may be indicative of a mixed barley/oat crop or 'dredge'. Both cereals are well suited to cultivation on the local soils, as is rye, although the low density of the latter may indicate that it was either not widely favoured, or was present as a contaminant of the main crop. Wheat, which prefers heavier, rich soils, may not have been grown within the immediate area, and possibly represents an occasional import. The almost total lack of cereal chaff within the assemblages probably indicates that cereals were not being processed on or near the site, with the occupants operating a consumer regime and relying on imported batches of prime grain. Although the precise etymology of the assemblages is not known, they are perhaps most likely to be the result of either accidental spillage during culinary preparation or the burning and deposition of small quantities of domestic refuse. The remaining pit assemblages contain insufficient material for any conclusive interpretation.

### Structure 120 (Table 11)

A total of six samples were taken from the fills of the gully which delineated the building within the enclosure. Cereal grains were present in all assemblages, and were particularly common in sample 20. Charcoal fragments are also abundant, and it would appear most likely that all the material present is derived from scattered domestic hearth waste (see pits above).

### Other features (Table 12)

The remaining nine samples are from ditch fills or areas of tree disturbance. With the exception of charcoal, remains are exceedingly scarce, and the assemblages are almost certainly derived from low densities of scattered refuse.

### *Conclusions*

In summary, many of the assemblages appear to be largely composed of scattered refuse which has either been accidentally or deliberately incorporated within the feature fills. Much of this refuse is derived from materials utilised on site as either fuel or food, with cereals being a prime food source and wood/charcoal being the principal fuel. The macrofossils within the assemblages are probably derived from materials used within the ditched enclosure. Cereals, most notably oats and barley, were of particular importance, and may have been locally grown, although there is no evidence of any on site processing activities.

## **Charcoal by Simon Gannon**

### *Introduction*

Thirty samples of charcoal fragments were retrieved from thirty two contexts from the site, consisting of an enclosure and field system. 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 some samples were found to contain an unusually large number of fragments and sub-samples were taken, as detailed 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 13. 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

Betulaceae. *Alnus* sp., alder.

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.

*Prunus* sp., *Prunus avium*, wild cherry; *P. spinosa*, blackthorn; *P. padus*, bird cherry.

Salicaceae. *Salix* sp., willow; *Populus* sp. poplar.

#### Coniferous taxa

Cupressaceae. *Taxus* sp. yew.

#### *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

##### Alder

The sole native species is *Alnus glutinosa*, Common Alder, Irish fearnóg (family – Betulaceae).

Environment indications. Tolerant of nearly all soil types including relatively infertile soils, such as ironpan and peaty soils. Particularly tolerant of water logged conditions and is often a streamside tree. Has the ability to 'pioneer' into previously disturbed land. Native distribution throughout Ireland.

Uses in antiquity. A hardwood suitable for a variety of artefacts and smaller structural timber. Tends to harden when in contact with water and therefore suitable for making piles etcetera. It burns quickly when used for firewood but has been found suitable for charcoal production.

##### 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.

### 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.

### 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 ghaelach. (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 long lasting fire fuel (Rossen and Olson 1985).

### Willow /poplar

The Salicaceae family provides various possible individual species, native to Ireland, including ten or more from the genera of willows and one from the genera of poplars.

### Willow

There are ten or more willow species native to Ireland, though some having restricted range. Examples of the more widespread species being eared willow (*Salix aurita*), crann sníofa; goat willow (*Salix caprea*), sailchearnach; and grey willow (*Salix cinerea*), saileach liath.

Environmental indications. Extremely hardy and tolerant of a wide range of soils and habitats, often growing in, though not restricted to, wet places. Not tolerant of drought. *S. cinerea* and *S. purpurea* are not particularly shade tolerant, *S. caprea* is reputedly more tolerant of shade. These are ‘pioneer’ species and can move into areas where the soil has been disturbed such as cleared woodland.

Uses in antiquity. Very tough and flexible wood useful for woven structures. Brittle branchwood not suitable as timber breaks violently when burnt. The stems are very flexible. Coppiceable, it can produce stout poles.

### Poplar

Aspen, *Populus tremula*, crann creathach.

Environmental indications. Tolerant of poor soils growing on scrub, frequent on damp sites on hillsides, in rocky valley bottoms. A woodland tree where not under canopy. Moderately tolerant of drought as mature tree, not at all as a seedling. A short-lived pioneer tree. Native to Ireland.

Uses in antiquity. Wood is very soft with limited usefulness, of low flammability but making good charcoal.

### Yew

The native species is yew, *Taxus baccata*, iúr (family - Taxaceae).

Environmental indications. Growing on limestone and chalk in woods and scrub, often occurring in dense shade of oak woods. Also can form pure stands in sheltered sites. Natural distribution throughout Ireland.

Uses in antiquity. A heavy, hard, durable, and elastic wood, resistant to water. Useful for structures, bows, tool handles etc. Makes good firewood.

The total range of taxa from AR128, Cahircalla More, comprises hazel (*Corylus*), ash (*Fraxinus*), hawthorn/apple/*Sorbus*-group (Pomoideae), cherry/blackthorn (*Prunus*), oak (*Quercus*), willow/poplar (Salicaceae), yew (*Taxus*) and possibly alder (*Alnus*). The represented taxa belong to the groups of species represented in the native Irish flora and, conversely, non-native tree species such as lime (*Tilia*) and beech (*Fagus*) are not represented.

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). On account of these considerations the identified taxa are not considered to be proportionately representative of the availability of wood resources in the environment in a definitive sense and are possibly reflective of particular choice of fire making fuel from those resources.

Well represented at this site are yew (*Taxus*), hazel (*Corylus*), ash (*Fraxinus*) and oak (*Quercus*). Hazel (*Corylus*), ash (*Fraxinus*) and oak (*Quercus*) are typically common from the Ennis Bypass sites and are particularly useful fire fuels as well as being commonly used structural/artefactual wood that may have had subsequent use as fire fuel. Yew (*Taxus*) provides an unusually prevalent fire fuel source at this site as well as being found in relatively high numbers at the other Cahircalla More and Cahircalla Beg sites, AR126 and AR127 indicating a possible local abundance.

### Conclusion

A varied woodland environment local to the site of AR128 is indicated by the range of taxa present in the samples. The identified taxa are broadly consistent with the picture of wood use from the other Ennis Bypass sites with the exception of yew (*Taxus*) being found in relatively high numbers at this site, as at the Cahircalla More sites AR126 and AR127, perhaps indicating local abundance. Yew

(*Taxus*), ash (*Fraxinus*), hazel (*Corylus*) and oak (*Quercus*) are indicated as preferred fire fuels from a local environment providing a ready access to those taxa.

**Table 13: Number of identified charcoal 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>
3	14	83	Enclosure ditch	-	-	1	-	1	2	-	-	-	1	-
4	16	92	Enclosure ditch	-	-	44	-	53	3	2	-	-	-	-
7	18	88	Enclosure ditch	-	-	23 (8sh)	-	-	2	4	-	3	1	-
8	25	158	Pit	-	-	1	-	17	3	-	-	3	-	-
9	15	93	Pit	-	-	11 (3r)	-	30 (4r)	21	8 (1r)	20	-	-	-
10	19	95 + 96	Enclosure ditch	-	-	20	-	1	3	2	-	-	4	-
12	21	94	Pit	-	-	3	-	11	2	1	-	3	-	-
13	21	97	Pit	-	-	45 (4sh)	-	13	9	-	-	2	-	-
14	26	153	Pit	-	-	-	-	2	-	-	-	-	62	-
19	34	180	Ring gully	-	-	-	-	-	2	-	18	3	20	-
20	35	181	Ring gully	-	-	10	-	1	-	5	31	-	25	-
21	36	182	Ring gully	-	-	-	-	-	-	-	36	-	67	-
22	37	183	Ring gully	-	-	-	5	21 (1r)	6	2	12	-	13	-
23	41	190	Enclosure ditch	-	-	-	-	-	-	-	1	-	29	-
24	43	192	Ring gully	-	-	-	-	-	-	-	13	-	39	-
25	44	195	Pit	-	-	-	-	-	5	-	14	-	55	-
26	37	184	Ring gully	-	-	1 (sh)	1	-	5	-	3	-	3	-
27	45	196	Pit	-	-	-	-	-	-	-	32	-	28	-
28	46	198	Tree root action	-	-	-	-	-	-	-	10	-	-	-
29	47	199	Ditch slot	-	-	23	-	9	1	-	-	-	-	-
30	17+18	87 + 160	Enclosure ditch	-	-	5	-	11	-	-	-	17	-	-
31	3	64	Enclosure ditch	-	-	5	-	8	-	-	-	2	-	-
32	48	250	Tree root action	-	-	-	-	-	-	-	51	-	-	-
33	108	264	Ditch slot	-	-	33	-	51 (1r)	3	-	-	-	-	-
34	117	277	Ditch slot	-	-	-	3	-	2	2	-	5	-	-
35	119	278	Ditch slot	-	-	19	-	31	3	2	-	-	-	-
37	109	284	Ditch slot	-	-	1	-	1	1	-	-	-	-	-
38	132	368	Ditch slot	-	-	1	12	4	-	-	-	-	-	-
39	111	380	Ditch slot	-	-	7	-	-	-	-	-	-	-	-
40	137	381	Pit	-	-	1	1	12	5	1	-	-	-	-

(sh: nut shell, r: roundwood)

## Radiocarbon dates

Four radiocarbon determinations from charred plant remains and bone from the enclosure ditch 100, ditch 125, structure 120 and ditch 210 were made by Beta Analytic Inc, Miami, Florida (Table 14).

**Table 14: Radiocarbon determinations**

Sample material	Cut	Deposit	Sample	Lab code	Radiometric age	Calendrical calibrations
Charred cereal seeds	47	199	29	Beta-207730	1000±40 BP	2 sigma (95%) Cal AD 980 to 1060 and Cal AD 1080 to 1150 1 sigma (68%) Cal AD 1000 to 1030
Cattle limb bone	16	91	-	Beta-211571	1470±40 BP	2 sigma (95%) Cal AD 530 to 650 1 sigma (68%) Cal AD 560 to 640
Charred cereal seeds	43	192	24	Beta-211572	1430±40 BP	2 sigma (95%) Cal AD 560 to 670 1 sigma (68%) Cal AD 610 to 650
Charred cereal seeds	111	380	39	Beta-211573	1250±40 BP	2 sigma (95%) Cal AD 680 to 880 1 sigma (68%) Cal AD 700 to 790

The charcoal was from very short-lived cereal grains and from a cattle limb bone and therefore the radiocarbon determinations are indicative of the dates of backfilling of the features. The radiocarbon determinations show that the enclosure ditch 100 and the structure 120 were backfilled between the mid 6<sup>th</sup> and mid 7<sup>th</sup> centuries AD. Field ditch 210 was backfilled between the later 7<sup>th</sup> and late 9<sup>th</sup> centuries and field ditch 125 between the late 10<sup>th</sup> and mid 12<sup>th</sup> centuries AD.

## Discussion

The excavation of Site AR128, Cahircalla More, Co. Clare, has produced evidence of probable prehistoric cremation burial, an early medieval enclosure with an associated field system and a post-medieval road.

### *Prehistoric*

There is only a single feature that can be ascribed to the prehistoric period with any degree of certainty. Pit 137 contained just 3 grammes of cremated human bone. This low bone weight, despite truncation, indicates a cenotaph (or memorial) burial where small amount of bone and pyre material were gathered from the pyre and then placed in a pit. A nearby pit (29) did not contain bone, but the proximity as well as the low bone content of pit 137, might suggest that this was also a prehistoric cremation burial pit.

Small amounts of cremated human bone, as well as a number of lithics, were found in ditch 125. This ditch is part of an early medieval field system. It is very likely, then, that the bone and stone tools derived from destroyed prehistoric features and are redeposited.

Tiny pieces of pottery, probably dating to the late Bronze Age, were found in the ploughsoil (Fig. 4) and although cremation burial was common from the Early Bronze Age until the first half of the first millennium AD, this material offers the only indication of the date of the funerary activity.

### *Early medieval*

Rural settlement in the west of Ireland during the Early Christian and indeed the medieval period is relatively poorly understood (see for example Stout 1997 and O'Connor 1998). Ringforts are a fairly common feature of the landscape, however other settlement types are rarely discovered and the relationships between ringfort and non-ringfort settlements, both chronological and functional, are not clear. The early medieval enclosure at Cahircalla More shares many characteristics in form and date, however, with an enclosure excavated at Newtown, Co. Limerick. Coyne (2005) has identified a seemingly new site type for the early medieval period and has proposed the term 'plectrum-shaped enclosure'. There are other recently excavated early medieval enclosures that have variously been described as 'C' or 'heart' shaped (for example Balriggeran, Co. Louth – Delaney and Roycroft 2003, Delaney and Walsh 2004). This morphologically focussed terminology is helpful in part; however it may be more useful to consider function and location rather than just form.

This said, both Cahircalla More and the Newtown (A) enclosures are similarly shaped (even 'plectrum shaped') – the Newtown example is approximately 50m across and the Cahircalla More example is 40m across from east to west and may be 50m across from north to south. The inner enclosure at Balriggeran (Delaney and Roycroft 2003, Roycroft 2005) has similar dimensions. Cahircalla More and Newtown (A) are defined by a 'V' profile ditch, although Newtown (A) is both wider and deeper than Cahircalla More. No entrance was identified at Cahircalla More, but given the truncation of the monument by the Ennis to Kilrush Road, any entrance must have been at the south-east. The entrances at Newtown (A) and Balriggeran are also at the south-east.

Evidence for similar structures within the enclosures at Cahircalla More and Newtown (A) has been recorded. The Newtown (A) site has a figure of eight shaped gully and a circular gully. The circular gully at both sites is discontinuous and has diameters of 5-6m. The circular gully at Cahircalla More has been shown to have been a smithy. The plough truncation at Cahircalla More would have destroyed shallow features indicative of structures other than the smithy that was preserved by deep colluvium.

The finds and radiocarbon dates from Newtown (A) are argued to indicate relatively high status activity (Coyne 2005) – but not necessarily settlement - focussed on the 8<sup>th</sup> to 11<sup>th</sup> centuries AD and perhaps levelled by the 13<sup>th</sup> century. The Cahircalla More enclosure was likely to have been in use in the 6<sup>th</sup> to 7<sup>th</sup> centuries AD and a nearby ditch was probably still in use in the 10<sup>th</sup> to 12<sup>th</sup> centuries AD. The Balriggeran enclosures do not have published radiocarbon dates but the artefact assemblage indicates the early medieval period (Roycroft 2005).

The circular structure 120 at Cahircalla More, located at the south-west of the enclosure, has been demonstrated to have been a smithy dated to between the late 6<sup>th</sup> to late 7<sup>th</sup> centuries AD. The incidence of excavated smithing sites in the early medieval period is low (Edwards 1996, 88), although the unpublished site at Clogher, Co. Tyrone, has returned comparable radiocarbon dates AD 410-600 and had a stone anvil (*ibid.*). The small stone anvils found at Cahircalla More suggest that fine iron working was taking place there. At Balriggeran, a large amount of iron ore slag suggested major scale iron production with some limited evidence for iron working (Roycroft 2005).

Coyne (2005) has suggested that the finds from the Newtown (A) enclosure may imply wealthy occupiers. The artefacts and ecofacts from Cahircalla More suggest no great degree of wealth (ring-pin, pin-sharpener, whetstones and chisel) with activities taking place such as manufacturing ('mini-anvils', smithy and slag) and cereal processing (associated field system, querns stone and cereals). There was however, nothing found at either site that might not be found at a ringfort. If ringforts are accepted as the typical form of settlement in the second half of the first millennium AD and thought to represent semi-defended farmsteads (Stout 1997, 32), it is unlikely that 'wealthy' sites would have had such little defence. The low amount of domestic debris found at Newtown (A), Balriggeran and Cahircalla More, such as large assemblages of animal bone, may argue against permanent settlement although poor bone preservation may also be a factor. A possible stock enclosure at Balriggeran and the

field systems at both Balriggan and Cahircalla More, do however, suggest that these enclosures were embedded in a pastoral environment.

A plausible explanation for the Cahircalla More enclosure (and perhaps other early medieval ditched enclosures) is that they served as relatively open and undefended trade and/or manufacturing centres. The Cahircalla More site was located near the bottom of a shallow valley and this valley may well have provided a routeway in the early medieval period from the strategically important head of the Fergus Estuary to the west of the Clare peninsular. It has also been shown that Balriggan was located, unlike many ringforts of the same period - but similar to Cahircalla More, on low ground and on a major communication and trade route (the Gap of the North Road) (Roycroft 2005). Ringforts, some of which were probably contemporary with the Cahircalla More enclosure, are present in the environs, and it is these sites that tend to be sited on more easily defensible higher ground (Fig. 14).

The Cahircalla More enclosure is then, another example of a ditched early medieval enclosure that adds to a growing corpus of non-ringfort sites from this period. There are some indications that some of these sites were deliberately located on communication routes and may have served as commercial, social and production foci.

It is worth noting that whilst the radiocarbon determinations provide a fairly tight date for the use of the enclosure and smithy in the mid 6<sup>th</sup> to mid 7<sup>th</sup> centuries AD, the dates obtained from the associated field ditches are later, late 7<sup>th</sup> to late 9<sup>th</sup> and late 10<sup>th</sup> to mid 12<sup>th</sup> centuries. The fact that one of the field ditches joins into the enclosure demonstrates that the field ditches were contemporary with the enclosure, however it would appear that the field system continued in use long after the enclosure had been abandoned and the ditch become infilled.

#### *Post-medieval*

The metalled road flanked by a bank and ditch, and examined as part of this archaeological excavation, is recorded on the Ordnance Survey 1<sup>st</sup> Edition (1840) (Fig. 14). In the first half of the 19<sup>th</sup> century this was the main Ennis to Kilrush road that was replaced later in that century by the current N68 to the south-east. Both roads follow the natural route south-west from Ennis along the dry northern edge of the river valley.

#### **Archaeological potential off the road CPO**

The excavation within the road CPO has demonstrated that significant archaeological deposits survived at Site AR128. The enclosure itself was excavated in its entirety, with the exception of the small portion below the current N68 that has probably been destroyed by 19<sup>th</sup> century road construction. The associated field system, however, clearly continues beyond the CPO to the north and east and may also extend in other directions.

#### **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 component of a monograph dedicated to the archaeology of the Ennis Bypass. Publication is expected to take place in 2006/7 at the latest.

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31<sup>st</sup> December 2006



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**Appendix 1: Catalogue of features and deposits**

<b>Cut</b>	<b>Deposit(s)</b>	<b>Group number</b>	<b>Description</b>	<b>Sample No.</b>	<b>Findings</b>
-	-	100	Group number: Enclosure ditch		
-	-	110	Group number: Ditch by old road		
-	-	115	Group number: Ditch by new road		
-	-	120	Group number: Ring gully		
-	-	125	Group number: Field ditch		
-	-	200	Group number: Field ditch		
-	-	205	Group number: Field ditch		
-	-	210	Group number: Field ditch		
-	-	215	Group number: Field ditch		
-	-	220	Group number: Road cut		
1	52,53,54,55	100	Enclosure ditch slot	-	23=bone
2	56, 57, 58, 59, 60, 61, 62, 63	100	Enclosure ditch slot	-	-
3	64, 65	100	Enclosure ditch slot	31	24-25=quern & slag
4	66, 67, 150	100	Enclosure ditch slot	-	-
5	68	200	Ditch slot	-	-
6	69	110	Ditch slot	-	-
7	71, 72, 73, 74, 76, 77	100	Enclosure ditch slot	-	-
8	78		Root action	-	-
9	79, 80	100	Enclosure ditch slot	-	-
10	81		?Posthole	2	-
11	82		?Posthole	1	26-27=bone
12	159	200	Ditch slot	16	-
13	85	200	Ditch slot	-	-
14	83, 84	100	Enclosure ditch slot	3	-
15	86, 93		Pit	5 & 9	-
16	89, 90, 91, 92	100	Enclosure ditch slot	5	28-31=bone & slag
17	87, 151, 152	100	Enclosure ditch slot	6 & 30	32=bone
18	88, 160, 161, 162	100	Enclosure ditch slot	7 & 30	32=bone
19	95, 96	100	Enclosure ditch slot	10 & 11	33-35=bone & slag
20	70, 75, 98		Furrows (all)	-	36-37=pottery & lithic
21	94, 97, 166		Pit	12 & 13	38-40=bone & slag
22	99	100	Enclosure ditch slot	-	41-42=bone & slag
23	155, 156, 157	100	Enclosure ditch slot	-	-
24	154		?Furrow	-	-
25	158		Pit	8	43-44=bone & slag
26	153		Pit	14	45=quern
27	164, 165	100	Enclosure ditch slot		-
28	163	115	Ditch slot		-
29	171, 172		Pit	15 & 18	-
30	167, 168, 169	115	Ditch slot	-	46-47=pottery & glass
31	173, 174, 175, 176, 177, 178	100	Enclosure ditch slot	-	-
32	179	110	Ditch slot	-	48-49=glass
33	170	200	Ditch slot	17	-
34	180	120	Ring gully slot	19	50-51=bone & slag
35	181	120	Ring gully slot	20	52-53=slag
36	182	120	Ring gully slot	21	54=slag
37	183, 184	120	Ring gully slot	22 & 26	55-58=slag

Cut	Deposit(s)	Group number	Description	Sample No.	Finds
38	185	110	Ditch slot	-	-
39	186	110	Ditch slot	-	-
40	187, 188, 189	220	Road cut slot	-	59-78=pottery & glass
41	190	100	Enclosure ditch slot	23	79-81=slag & iron chisel
42	191, 193, 194	115	Ditch slot	-	-
43	192	120	Ring gully slot	24	82-83=slag
44	195		Pit	25	84-85=slag
45	196		Pit	27	86-88=bone & slag
46	197, 198		Tree root action	28	-
47	199	125	Ditch slot	29	89-93=bone & lithics
48	250		Tree root action	32	-
49	251	125	Ditch slot	-	1 & 94=ring pin & slag
101	252	125	Ditch slot	-	-
102	253, 254, 255	205	Ditch slot	-	-
103	256		Ditch slot	-	-
104	257, 258, 259	220	Road cut slot	-	-
105	262		Drain	-	-
106	265, 266	210	Ditch slot	-	-
107	267, 268, 269, 270	210	Ditch slot	-	-
108	264	125	Ditch slot	33	95-98=whetstone & bone
109	282, 283, 284, 285	205	Ditch slot	37	-
111	272, 273, 274, 275, 276, 380	210	Ditch slot	39	99=whetstone
112	288, 289, 290	205	Ditch slot	-	-
113	279, 280, 281	205	Ditch slot	-	-
114	291, 292, 293, 294, 295	210	Ditch slot	-	-
116	286, 287	205	Ditch slot	-	-
117	277	125	Ditch slot	34	100-101=bone & lithic
118	296, 297, 298, 299, 350, 351	210	Ditch slot	36	102-103=slag
119	278	125	Ditch slot	35	104-107=bone, shell & lithic
121	271	125	Ditch slot	-	-
122	361	205	Ditch slot	-	-
123	353, 354	210	Ditch slot	-	-
124	356, 357, 358	210	Ditch slot	-	-
126	359	215	Ditch slot	-	-
127	360		Pit	-	-
128	355	215	Ditch slot	-	108-109=whetstone
129	362	215	Ditch slot	-	110=lithic
130	363	215	Ditch slot	-	-
131	364	215	Ditch slot	-	-
132	365, 368, 369	215	Ditch slot	38	-
133	366, 370, 371	215	Ditch slot	-	111-112=bone
134	367, 375, 376	215	Ditch slot	-	113-114=bone & lithic
135	372, 373, 374	215	Ditch slot	-	115-116=lithic
136	377, 378, 379	215	Ditch slot	-	-
137	381		Pit	40	117=bone
-	50		Topsoil southern field	-	2-6=pottery & clay tobacco pipe
-	51		Ploughsoil southern field	-	7-17=slag, clay tobacco pipe, lithics & pottery

<b>Cut</b>	<b>Deposit(s)</b>	<b>Group number</b>	<b>Description</b>	<b>Sample No.</b>	<b>Finds</b>
-	260		Bank material	-	18=glass
-	261		Colluvium/ploughsoil	-	19-22=lithics
-	263		Topsoil northern field	-	-
-	352		Bank material	-	-

**Appendix 2: Catalogue of finds**

Find No	Cut	Deposit	Group No	Sample No	Category	Description	No pieces	Weight (g)
1	49	251	125		Metal	Ring pin	3	8
2	-	50			Pottery	19th/20th century sherd	1	5
3	-	50			Pottery	19th/20th century sherd	1	3
4	-	50			Pottery	19th/20th century sherd	1	9
5	-	50			Pottery	Post-medieval sherd	1	3
6	-	50			Clay tobacco pipe	Bowl	1	27
7	-	51			Slag	Large pieces	3	1220
8	-	51			Clay tobacco pipe	Bowl fragment	1	3
9	-	51			Clay tobacco pipe	Bowl fragment	1	5
10	-	51			Clay tobacco pipe	Stem fragment	1	3
11	-	51			Clay tobacco pipe	Stem fragment	1	2
12	-	51			Clay tobacco pipe	Stem fragment	1	21
13	-	51			Lithic	Worked chert	1	3
14	-	51			Lithic	Worked chert	1	8
15	-	51			Lithic	?Worked quartz	1	7
16	-	51			Lithic	?Worked quartz	1	2
17	-	51			Pottery	Crumbs ? Prehistoric	ca. 10	1
18	-	260			Glass	Bottle base	1	257
19	-	261			Lithic	Worked chert	1	1
20	-	261			Lithic	?Worked quartz	1	10
21	-	261			Lithic	?Worked quartz	1	10
22	-	261			Lithic	?Worked quartz	1	2
23	1	53	100		Bone	Fragments	1	4
24	3	64	100		Stone	Rotary quern fragment	1	928
25	3	64	100		Slag	Smithing hearth bottom	1	497
26	11	82			Bone	Fragments	24	4
27	11	82		1	Bone	Fragments	12	4
28	16	89	100		Bone	Fragments	15	2
29	16	91	100		Bone	Fragments	30	245
30	16	92	100	4	Bone	Cremated bone fragments (human)	8	5
31	16	92	100	4	Slag	Fragments	Few	10



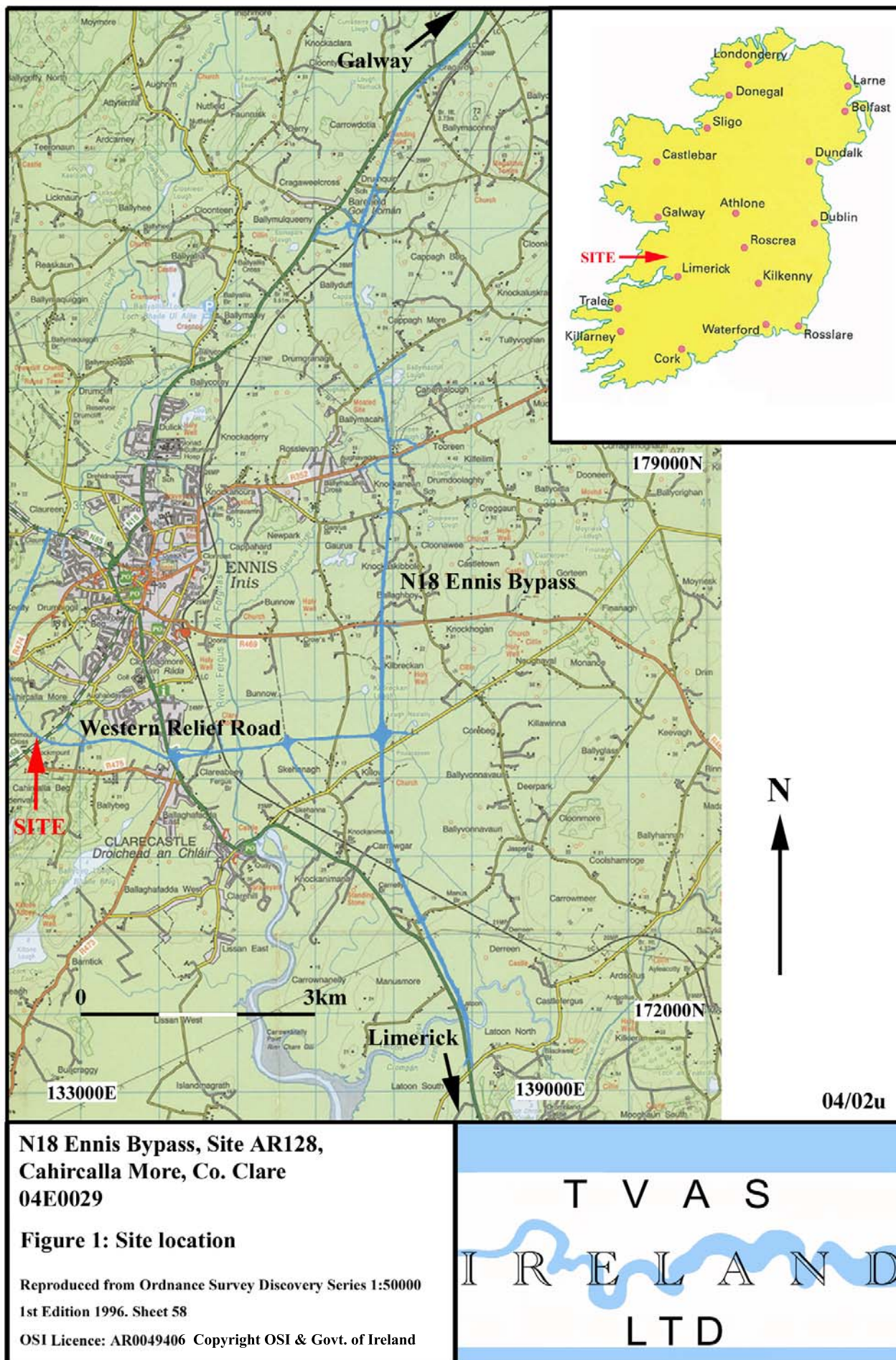
Find No	Cut	Deposit	Group No	Sample No	Category	Description	No pieces	Weight (g)
32	17&18	87&160	100		Bone	Fragments	57	110
33	19	95	100		Bone	Fragments	12	<1
34	19	95	100	11	Bone	Fragments	1	35
35	19	95&96	100	10	Slag	Fragments	25	10
36	20	98			Pottery	19th/20th century sherd	1	1
37	20	98			Lithic	?Worked quartz	1	1
38	21	94		12	Slag	Fragments	1	3
39	21	97		13	Bone	Burnt fragments	2	<1
40	21	97		13	Slag	Fragments	ca 45	5
41	22	99	100		Slag	Large piece	1	801
42	22	99	100		Bone	Fragments	2	29
43	25	158		8	Bone	Burnt fragments	5	<1
44	25	158		8	Slag	Fragments	ca 60	14
45	26	153			Stone	Saddle quern fragments, pieces co-joining	3	>7726g
46	30	167	115		Pottery	19th/20th century sherd	1	3
47	30	167	115		Glass	Bottle neck fragment	1	6
48	32	179	110		Glass	Bottle base fragment	1	59
49	32	179	110		Glass	Bottle base fragment	1	102
50	34	180	120		Bone	Cow tooth fragments	2	24
51	34	180	120	19	Slag	Fragments	ca 60	44
52	35	181	120	20	Slag	Fragments	ca 25	23
53	35&36	181&182	120		Slag	Piece	1	67
54	36	182	120	21	Slag	Fragments	15	46
55	37	183	120	22	Slag	Fragments	ca 90	288
56	37&43	183&192	120		Slag	Fragments (2 lg bags)	ca 130	4747
57	37	184	120		Slag	Fragments	6	414
58	37	184	120	26	Slag	Fragments	ca 50	41
59	40	187	220		Glass	Bottle neck fragment	1	6
60	40	187	220		Glass	Window glass fragment	1	1
61	40	187	220		Pottery	19th/20th century sherd	1	5
62	40	187	220		Pottery	19th/20th century sherd	1	6
63	40	187	220		Pottery	19th/20th century sherd	1	9
64	40	187	220		Pottery	19th/20th century sherd	1	6

Find No	Cut	Deposit	Group No	Sample No	Category	Description	No pieces	Weight (g)
65	40	187	220		Pottery	19th/20th century sherd	1	4
66	40	187	220		Pottery	19th/20th century sherd	1	7
67	40	187	220		Pottery	19th/20th century sherd	1	2
68	40	187	220		Pottery	19th/20th century sherd	1	4
69	40	187	220		Pottery	19th/20th century sherd	1	6
70	40	187	220		Pottery	19th/20th century sherd	1	1
71	40	187	220		Pottery	19th/20th century sherd	1	7
72	40	187	220		Pottery	19th/20th century sherd	1	11
73	40	187	220		Pottery	19th/20th century sherd	1	10
74	40	187	220		Pottery	19th/20th century sherd	1	3
75	40	187	220		Pottery	19th/20th century sherd	1	6
76	40	187	220		Pottery	19th/20th century sherd	1	19
77	40	187	220		Pottery	19th/20th century sherd	1	6
78	40	187	220		Pottery	19th/20th century sherd	1	22
79	41	190	100		Metal	?Chisel (fragments/flakes co-joining)	1	ca100
80	41	190	100		Slag	Fragments	2	1843
81	41	190	100	23	Slag	Fragments	14	4
82	43	192	120		Slag	Fragments	11	584
83	43	192	120	24	Slag	Fragments	ca 100	459
84	44	195			Slag	Fragments	ca 150	1845
85	44	195		25	Slag	Fragments	ca 150	1008
86	45	196			Slag	Fragments	ca 140	2520
87	45	196		27	Slag	Fragments	ca 100	164
88	45	196		27	Bone	Burnt bone fragments	5	<1
89	47	199	125		Bone	Burnt fragments	9	8
90	47	199	125		Lithic	Worked chert	1	4
91	47	199	125		Lithic	Worked chert	1	<1
92	47	199	125		Lithic	Worked chert	1	<1
93	47	199	125		Lithic	Worked chert	1	<1
94	49	251	125		Slag	Fragments	5	3
95	108	264	125		Stone	Pin sharpener	1	617
96	108	264	125		Stone	Whetstone	1	61
97	108	264	125		Bone	Cow tooth fragment	1	17

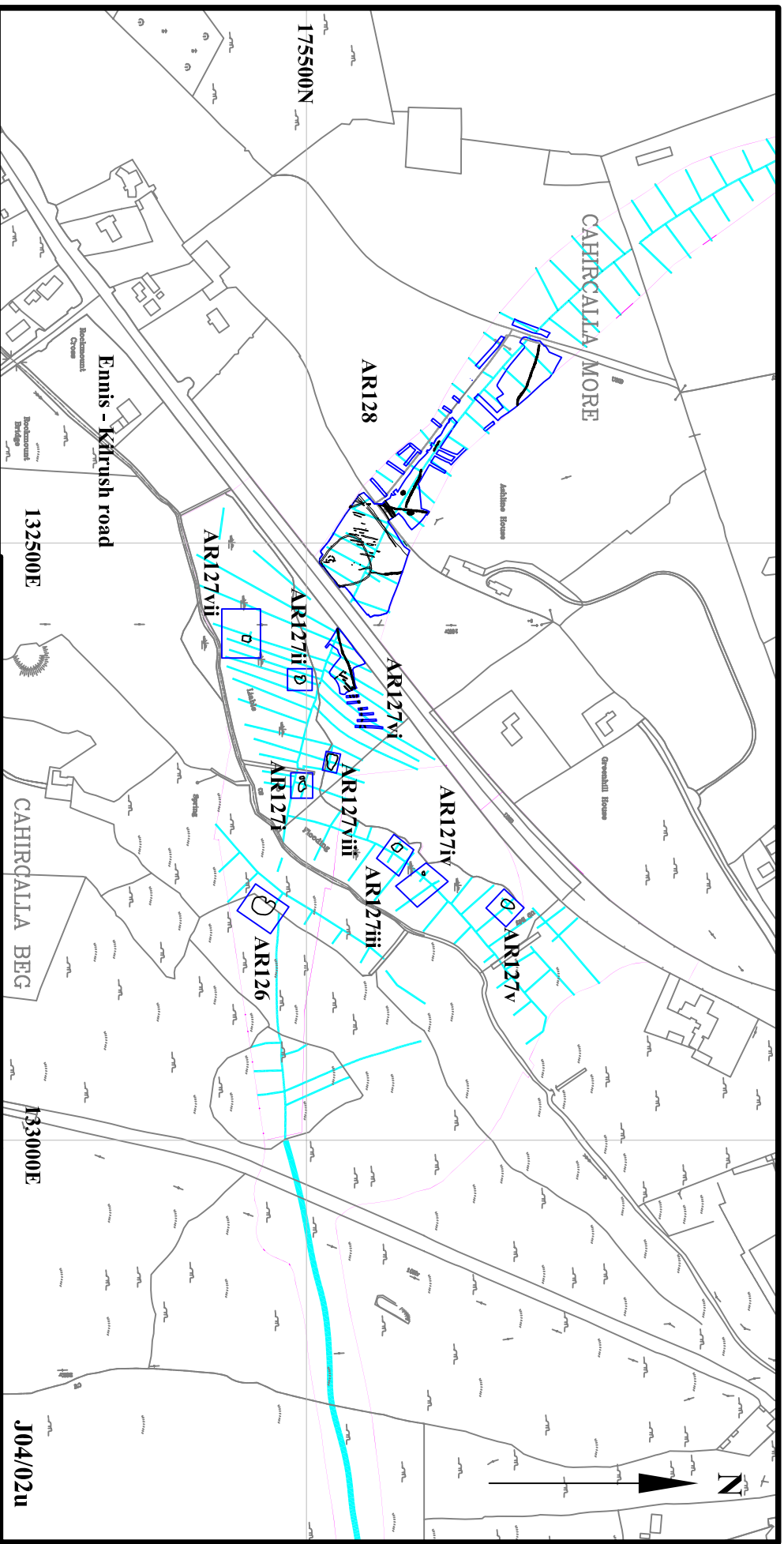
Find No	Cut	Deposit	Group No	Sample No	Category	Description	No pieces	Weight (g)
98	108	264	125	33	Bone	Fragments	6	19
99	111	273	210		Stone	Mini-anvil	1	1544
100	117	277	125		Lithic	Worked chert	1	3
101	117	277	125		Bone	Burnt fragments	2	<1
102	118	350	210		Slag	Large pieces	1	732
103	118	350	210	36	Slag	Small piece	1	8
104	119	278	125		Bone	Cow tooth fragments	8	13
105	119	278	125		Shell	Oyster shell	1	20
106	119	278	125		Bone	Bone, burnt bone fragments	28	4
107	119	278	125	35	Lithic	Worked chert	1	<1
108	128	355	215		Stone	Mini-anvil	1	2428
109	128	355	215		Stone	Whetstone	1	117
110	129	362	215		Lithic	?Worked quartz	5	11
111	133	366	215		Bone	Fragments	6	56
112	133	371	215		Bone	Burnt fragments	1	<1
113	134	367	215		Bone	Cow tooth fragment	1	12
114	134	367	215		Lithic	?Worked quartz	4	21
115	135	372	215		Lithic	?Worked quartz	1	<1
116	135	372	215		Lithic	?Worked quartz	1	188
117	137	381		40	Bone	Cremated bone fragments (human)	22	3
118	44	195		25	Metal	Iron object- blade? Fragments	4	2

**Appendix 3: Catalogue of samples**

Sample No	Cut	Deposit	Volume sieved (L)	Volume floated (L)	Findings?	Stone sample?	Flot?
1	11	82	5	5	Bone	N	N
2	10	81	0.25	0.25	N	N	N
3	14	83	10	10	N	N	Y
4	16	92	25	25	Slag	N	Y
5	15	86					
6	17	87					
7	18	88	10	10	N	N	Y
8	25	158	3	3	Bone; slag	N	Y
9	15	93	15	15	N	N	Y
10	19	95 + 96	5	5	Slag	N	Y
11	19	95	3	3	Bone	N	N
12	21	94	6	6	Metal	N	Y
13	21	97	20	20	Bone	N	Y
14	26	153	4	4	N	N	Y
15	29	172					
16	12	159	10	10	N	N	N
17	33	170					
18	29	171					
19	34	180	10	10	Slag	N	Y
20	35	181	22	22	Slag	N	Y
21	36	182	15	15	Slag	N	Y
22	37	183	8	8	Slag	N	Y
23	41	190	0.5	0.5	Slag	N	Y
24	43	192	0.5	0.5	Slag	N	Y
25	44	195	10	10	Slag, Iron object- blade fragments?	N	Y
26	37	184	15	15	Slag	N	Y
27	45	196	8	8	Slag	N	Y
28	46	198	0.25	0.25	N	N	Y
29	47	199	8	8	Bone	N	Y
30	17 + 18	87 + 160	0.25	0.25	N	N	Y
31	3	64	2	2	N	N	Y
32	48	250	0.25	0.25	N	N	Y
33	108	264	2	2	Bone	N	Y
34	117	277	0.5	0.5	N	N	Y
35	119	278	1	1	Bone; chert	N	Y
36	118	350	7	7	Slag	N	N
37	109	284	25	25	N	N	Y
38	132	368	8	8	N	N	Y
39	111	380	3	3	N	N	Y
40	137	381	4	4	Bone	N	Y



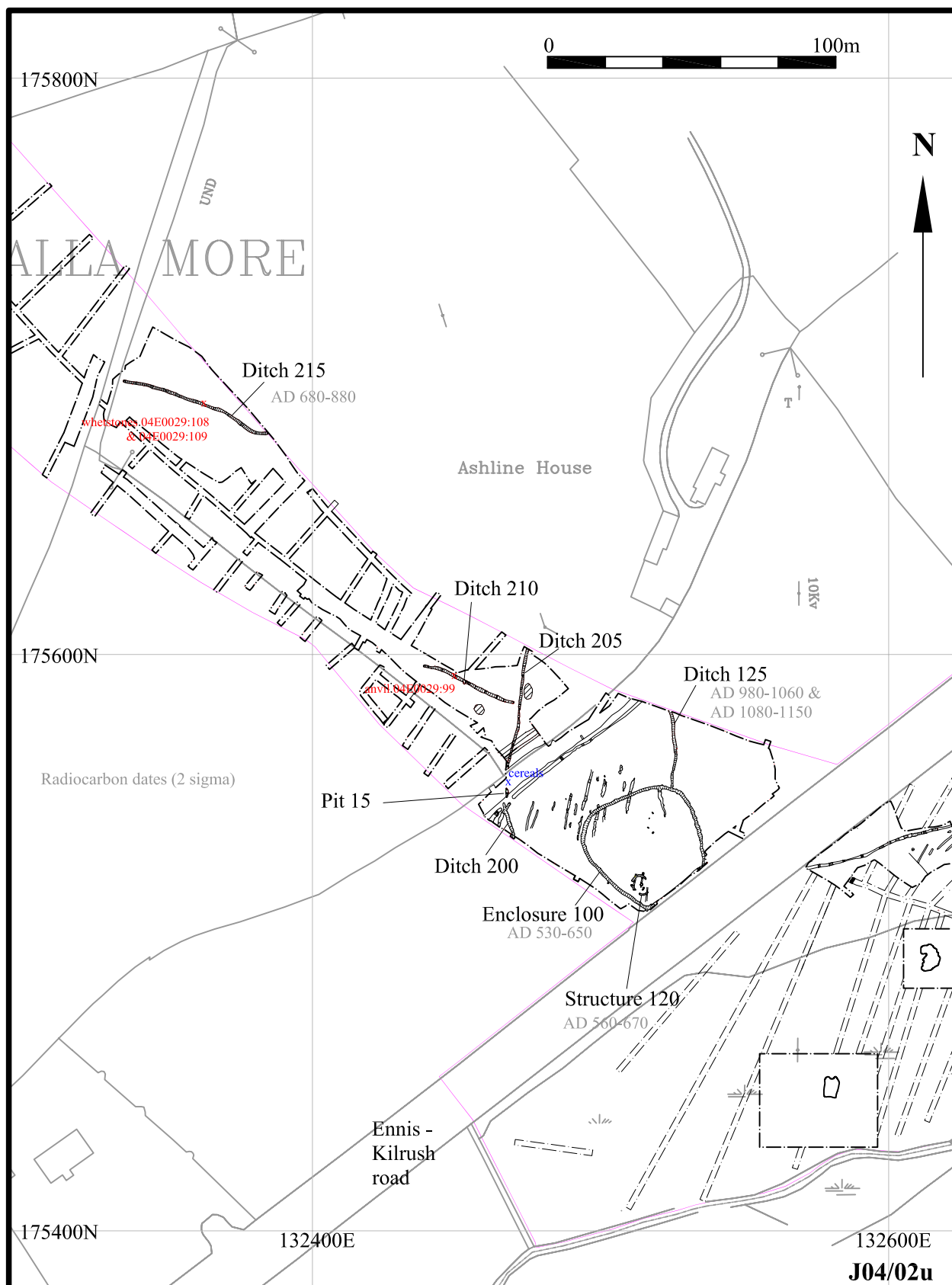




0 250m

N18 Ennis Bypass, Site AR128, Cahircalla More, Co. Clare  
04E0029  
Figure 2: Site location in local landscape. Showing test  
trenches (03E1291)

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N18 Ennis Bypass, Site AR128, Cahircalla More, Co. Clare

04E0029

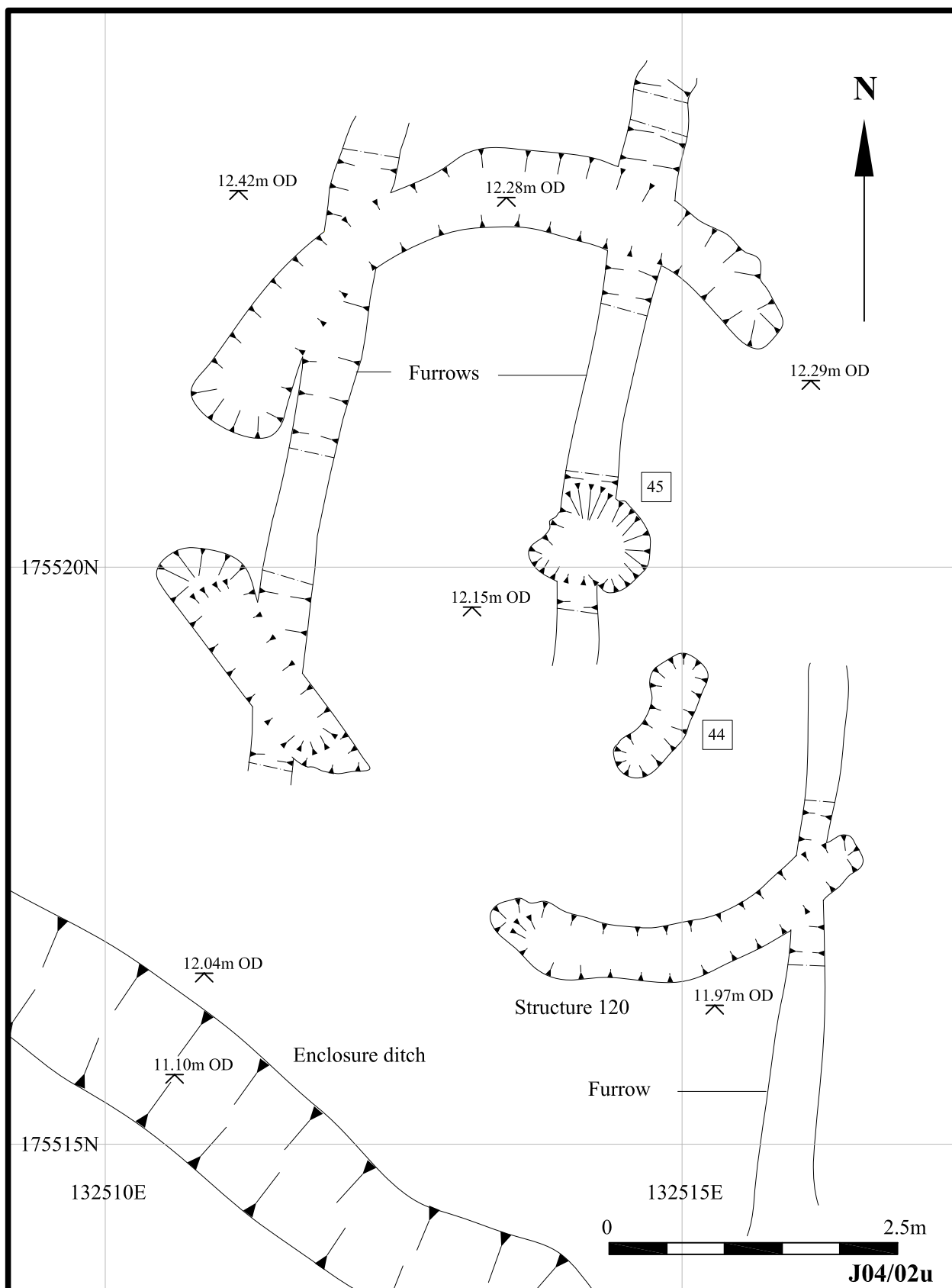
Figure 3: Plan of site, also showing edge of Site AR127

Scale 1:2000 OSI Licence: AR0049406 Copyright OSI & Govt. of Ireland

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





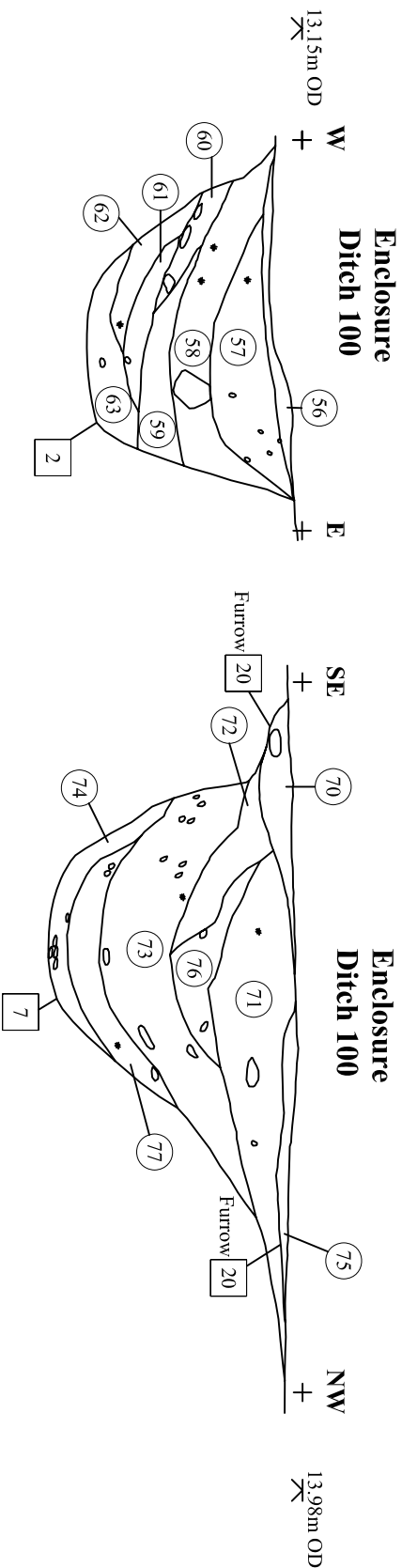
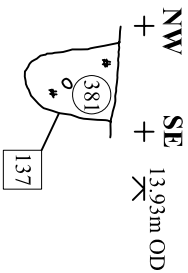


N18 Ennis Bypass, Site AR128, Cahircalla More, Co. Clare

04E0029

**Figure 5: Plan of structure 120**

Scale 1:50



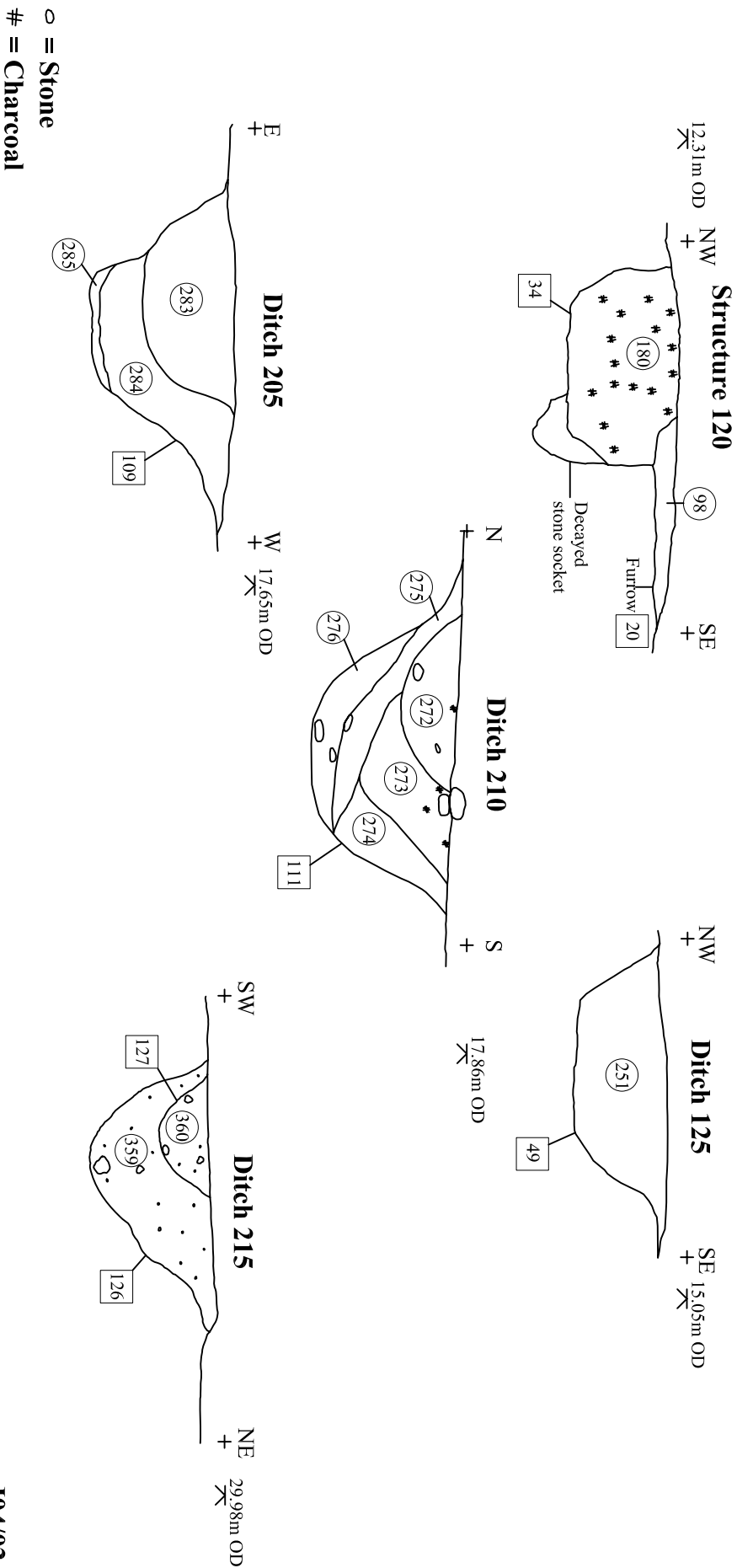
○ = Stone  
# = Charcoal



N18 Ennis Bypass, Site AR128, Cahircalla More, Co. Clare  
04E0029

Figure 6: Cremation burial pit and enclosure ditch sections

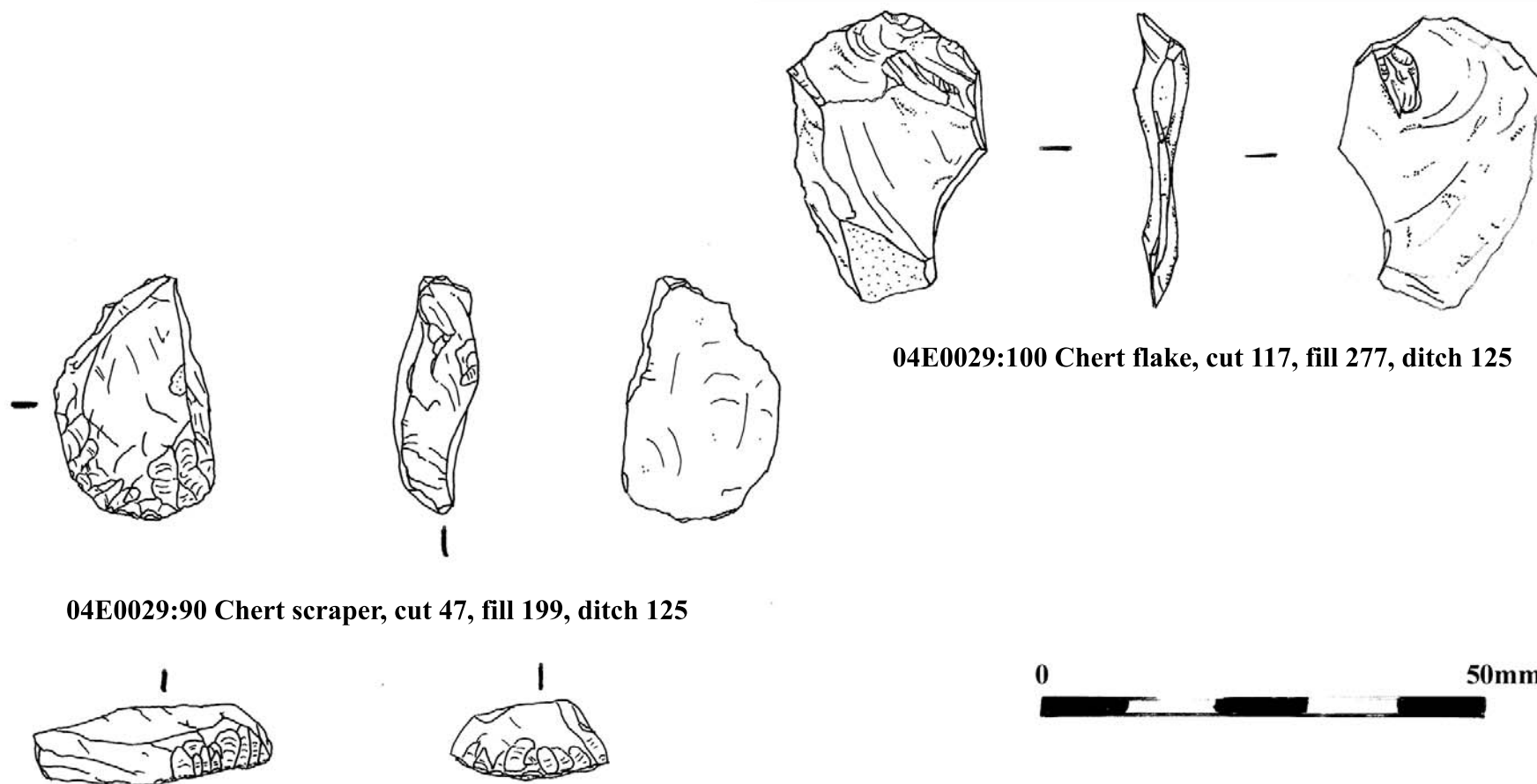
Scale 1:20



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N18 Ennis Bypass, Site AR128, Cahircalla More, Co. Clare  
04E0029  
Figure 7: Structure and ditch sections  
Scale 1:20



J04/02u

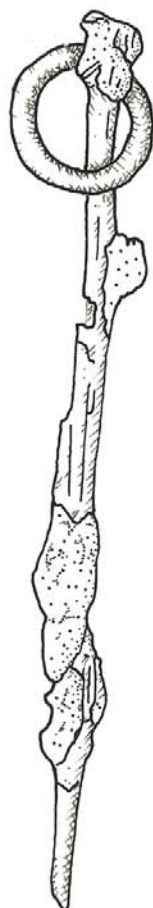
N18 Ennis Bypass, Site AR128, Cahircalla More, Co. Clare, 04E0029

Figure 8: Chert tools from ditch 125

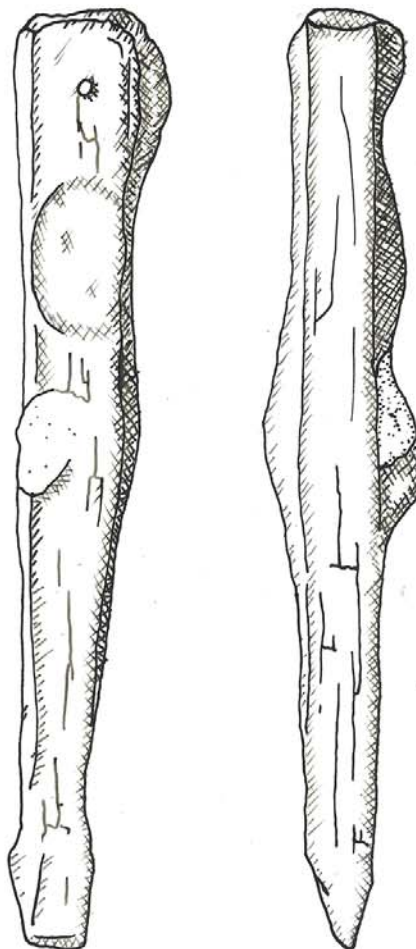
Drawn Astrid Nathan

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

04E0029:1



04E0029:79



0 30mm

J04/02u

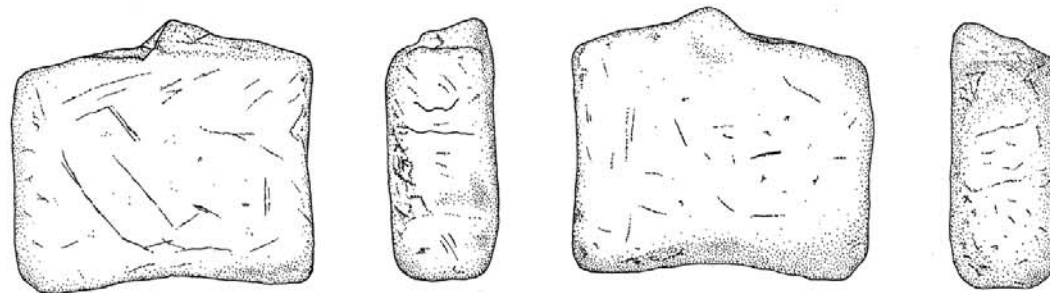
N18 Ennis Bypass, Site AR128,  
Cahircalla More, Co. Clare, 04E0029

Figure 9: Ring pin and possible chisel

Drawn: Astrid Nathan

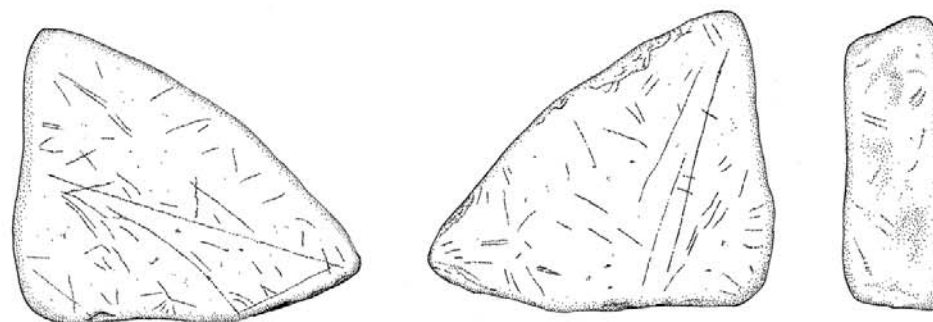
T V A S  
I R E L A N D  
L T D

04E0029:99



0 50mm

04E:0029:108



0 50mm

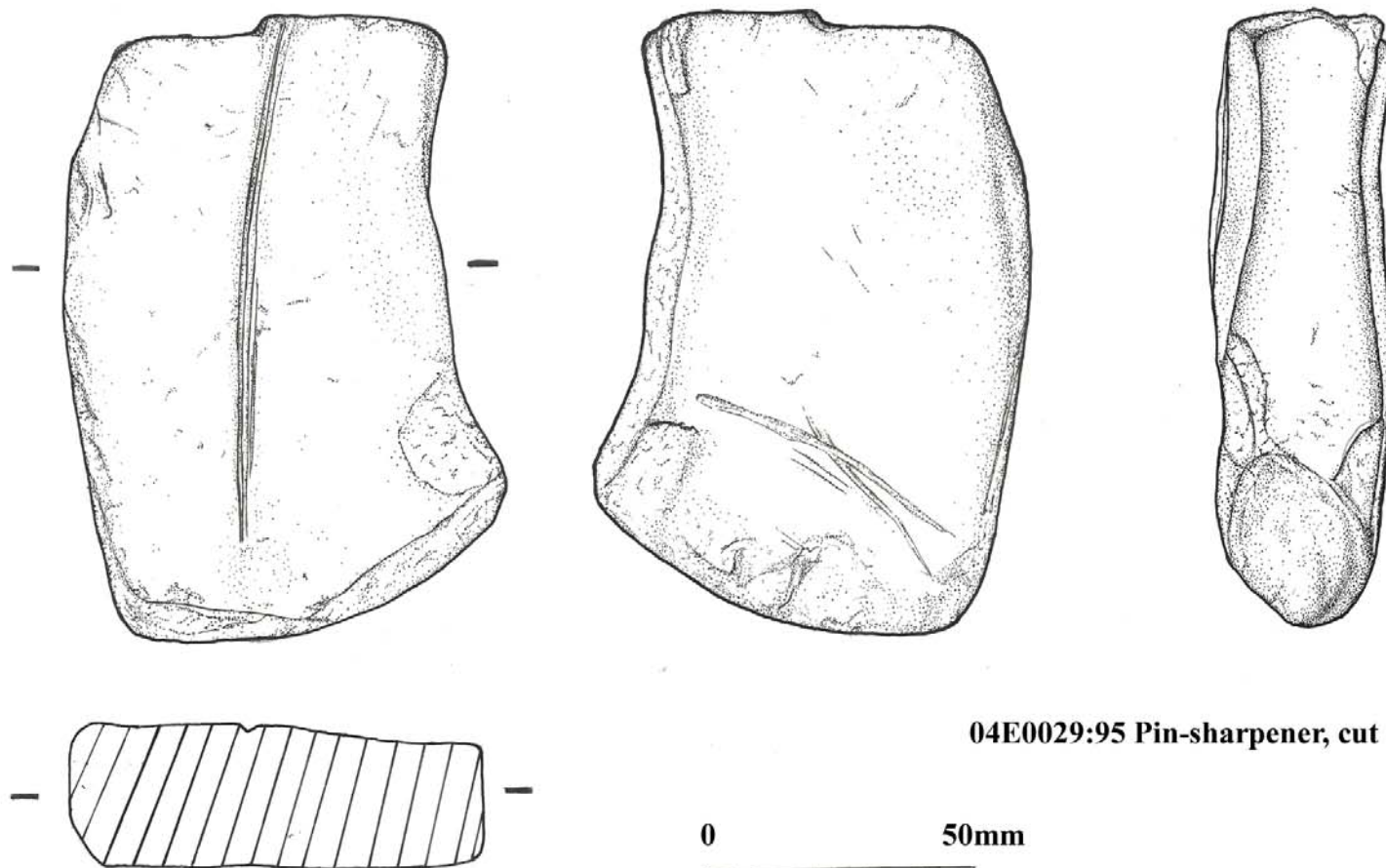
J04/02u

N18 Ennis Bypass, Site AR128, Cahircalla More, 04E0029

Figure 10: Mini anvils

Drawn Astrid Nathan

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



04E0029:95 Pin-sharpener, cut 108, fill 264

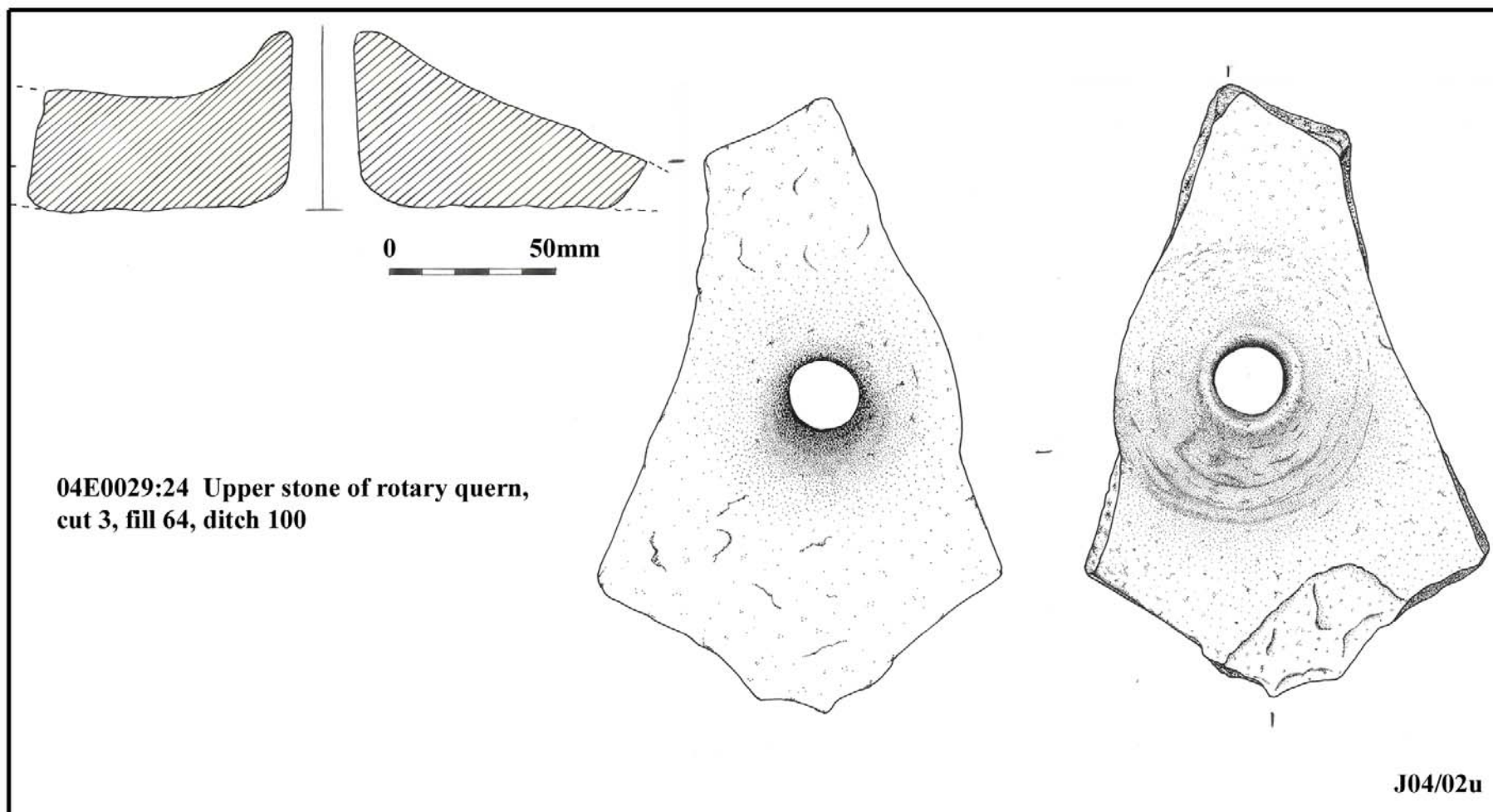
J04/02u

N18 Ennis Bypass, Site AR128, Cahircalla More, Co. Clare, 04E0029

Figure 11: Pin-sharpener

Drawn Astrid Nathan





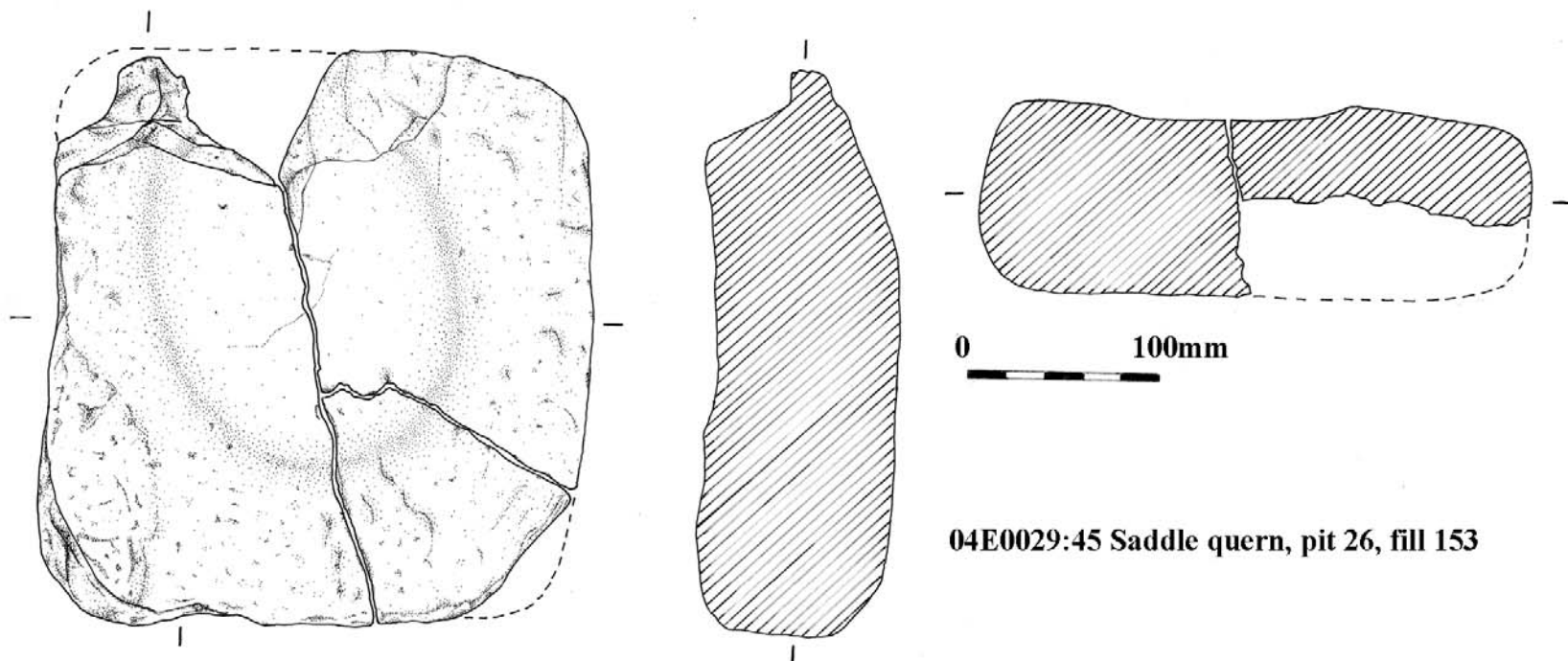
N18 Ennis Bypass, Site AR128, Cahircalla More, 04E0029

Figure 12: Rotary quernstone

Drawn Astrid Nathan

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





04E0029:45 Saddle quern, pit 26, fill 153

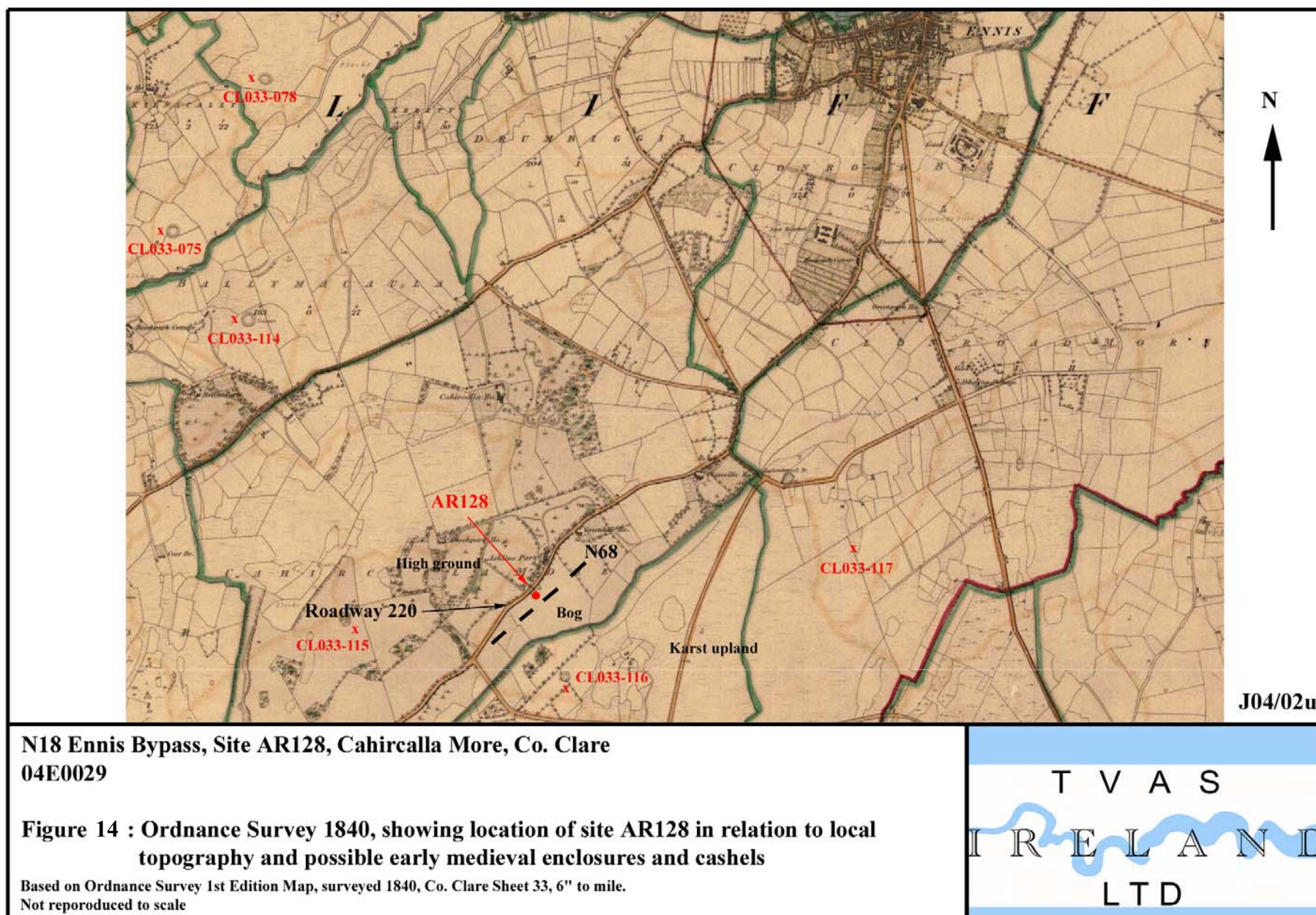
J04/02u

N18 Ennis Bypass, Site AR128, Cahircalla More, 04E0029

Figure 13: Saddle quern

Drawn Astrid Nathan

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







**Plate 1. Site AR128 in local landscape. Looking north-west**



**Plate 2. Enclosure AR128. Looking north**



**Plate 3. Enclosure 100, structure 120 and ditch 200. Looking south**





**Plate 4. Structure 120, prior to excavation. Looking north. Scales 1m and 0.5m**



**Plate 5. Structure 120, fully excavated. Looking north. Scales 1m and 0.5m**



**Plate 6. Enclosure 100, Slot 16. Looking north. Scales 1m and 0.2m**



**Plate 7. Enclosure 100, Slot 7. Looking north-east. Scales 1m and 0.5m**





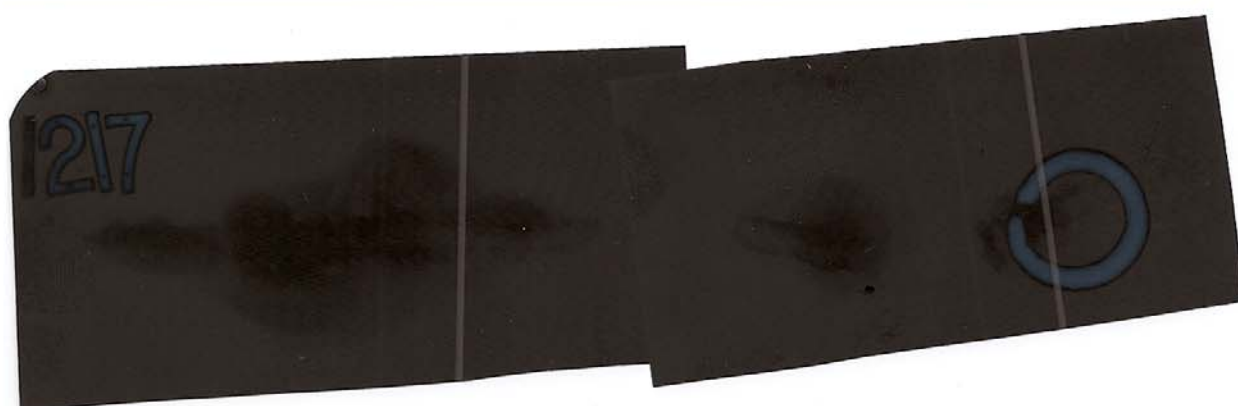
**Plate 8. Enclosure 100 and ditch 125 (foreground).  
Looking south-west. Scale 1m**



**Plate 9. Ditch 215. Looking south-east**



**Plate 10. Ditch 210. Looking north-west. Scales 1m, 0.5m and 0.3m**



**Plate 11: Ring pin 04E0029:1 and X-ray photograph**