

N8 Cashel Bypass & N74 Link Road

Phase 2 Archaeological Investigations

Licence Number: 03E0754

Site Name: Site 30i

Townland: Cooper's-Lot / *Lota an Chúipéaraigh*

Barony: Middlethird

Parish: St John Baptist

County: Tipperary

NGR: 208300 / 139300 (centre of site)

Excavation Area: 3,600 m²

Fieldwork Date: June 2003

Site Director: Joanne Hughes

Report Author: Richard O'Brien

Client: South Tipperary County Council

Report Status: Final Report

Report Date: October 2013



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EXECUTIVE SUMMARY

This report contains the final results of an archaeological excavation carried out as part of the N8 Cashel Bypass and N74 Link Road Scheme in 2003. Site 30i (chainage 3720–3840) was situated in the townland of Cooper's-Lot, ngr 208300 / 139300 (centre of site), less than 1.7 km south of Cashel. The site was located in an area of low-lying ground in pasture at the time of excavation, with a field boundary forming the eastern site limit. This area of the bypass was not subject to any Phase 1 pre-construction testing in 2002. In March and April 2003 Phase 2 testing of Site 30 extended from the Rosegreen/Cashel road west as far as the Cahir/Cashel road (Fairburn 2006, Figure ix). This work was undertaken by Judith Carroll Network Archaeology (JCNA) Ltd, under the general testing licence for the bypass (03E0295). This work identified a number of potential archaeological features and licence number 03E0754 was issued to Joanne Hughes, JCNA to resolve these features in June 2003 (Hughes 2006f).

The excavation measured 30 m by 120 m, c. 3,600 m²: A total of five archaeological features and numerous north/south orientated cultivation furrows were recorded. At least two of these pits are interpreted as being the remains of roasting pits / pot boilers, with the cumulative evidence suggesting a possible structure had been sited here. A radiocarbon date obtained from one of the pits was dated to the Late Bronze Age period, radiocarbon dated to 1013–905 cal. BC (UBA-13783). The environmental evidence from the same pit included the charred remains of a hazelnut shell (*Corylus avellana*) and sloe stone (*Crataegus* sp.), from either gathered foodstuffs and/or fuel. In addition, a mixed charcoal assemblage of hazel (*Corylus avellana*), pomaceous woods (*Maloideae/Pomoideae* spp.), cherry-type (*Prunus* sp.) and oak (*Quercus* sp.) were recorded, indicating a mixed woodland species in the local and common throughout the Bronze Age period around Cashel. A number of *ex situ* artefacts were recovered one of which was a sherd of Cashel-type ware medieval pottery. These artefacts are considered night soil depositions from Cashel town. As the land was located within the Commons of Cashel this may explain the paucity of other archaeological features here, in that the fields were heavily cultivated, as shown by the frequency of cultivation furrows found.

INTRODUCTION

This report contains the final results of an archaeological excavation carried out as part of the N8 Cashel Bypass & N74 Link Road. The scheme involved an 8 km bypass of the town and a 2 km link road to the N74 (Figure 1). South Tipperary County Council completed the bypass and the new roads opened in October 2004. The project was funded by the Irish Government under the National Development Plan, 2000–6. The total archaeological cost was administered by the National Roads Authority through South Tipperary County Council, as part of the Authority's commitment to protecting our cultural heritage.

Project Background

RPS Consultants Ltd carried out a desk-based archaeological survey of the N8 Cashel Bypass and N74 Link Road route in 1995, recommending an eastern bypass of the town so as to avoid direct negative impacts on the Rock of Cashel, a National Monument (Cronin 1995). There was no Environmental Impact Statement (EIS) prepared for the project. RPS Consultants Ltd compiled an archaeological impact assessment of the route in 1999 (Lane 1999). The report identified five sites of cultural significance that would be directly impacted upon by the construction of the N8 Bypass. In addition five sites of archaeological potential were discovered by the Project Archaeologist from the examination of aerial photographs and a walkover survey of the route in April 2001. Between April and May 2002, Phase 1 Pre-Construction Archaeological Testing of these ten cultural heritage sites was undertaken by Mary Henry Archaeological Services, under Excavation Licence Numbers 02E0286, 02E0287, 02E0288, 02E0374, 02E0375, 02E0376, 02E0377, 02E0378, 02E0379 & 02E0380 (Lennon 2002). Those townlands investigated were Gortmakellis, Ballyknock, Monadreela, Boscabell, George's-Land, Windmill and Farranamanagh. Archaeological features discovered during this work formed the basis of the Phase 2 investigations of the bypass in 2003.

In 2003 a joint venture company Judith Network Archaeology Ltd (JCNA) was contracted by South Tipperary County Council to undertake Phase 2 works. This involved further archaeological testing of areas of the bypass previously unavailable, carried out under Excavation Licence Number 03E0295. Phase 2 works also involved Fixed Price archaeological resolution of a number of sites discovered in the Phase 1 works. Thus both testing and resolution works often occurred within the same field. This work began in April

and continued until August 2003, during which the main construction contractor Roadbridge Ltd began on-site works. The bypass officially opened in 2004. Initial post excavation works began in August 2003 but were suspended as JCNA Ltd went into liquidation in January 2004. Over the succeeding years some preliminary reports were issued by the various licence holders on an individual basis, while some specialist works were undertaken. Between 2008–10 the bulk of report writing and specialist analysis was completed under the supervision of the NRA Project Archaeologist. Remaining work since 2011 was undertaken directly by the NRA Project Archaeologist.

Project Description

The N8 Cashel bypass began north east of Cashel town, c. 3.5 km from the Rock of Cashel, in the townland of Gortmakellis. The bypass generally kept to the east side of Cashel for most of its length so as to minimise visual impacts on the Rock of Cashel. It continued south through flat, good agricultural land, before rising gradually and cutting through the eastern end of Ballyknock Hill, c. 166 m OD, at the western end of the Slieveardagh ridge. The bypass continued south through slightly undulating ground, skirting the eastern side of the Monadreela ridge, c. 151 m OD. The lower part of this ridge was low-lying, heavily water-logged ground. The bypass continued southeast through relatively flat land, before terminating 2 km south of Cashel in Owen's and Bigg's-Lot townland. The mainline of the bypass measured c. 70–80 m wide.

The N74 Link Road began in Windmill townland c. 400 m from the old N8 Cork road end of the bypass, heading west and then northwest for its length. The route skirts close to the hilltop enclosure at Windmill TS061-072, before descending through Windmill along flat, good agricultural land, before cutting through a low ridge in Deerpark townland. The route descended through Farranamanagh townland continuing north toward the N74 Tipperary road. The link road was 2 km in length, and c. 60 m wide.

The project was designed to avoid in as much as practical all known archaeological sites located close to the CPO such as Gortmakellis ringfort TS061-003, Gortmakellis tower house TS061-011, Ballyknock ringfort TS061-008, Boscabell moated site TS061-027, Rathordan ringfort TS061-074, Windmill ringfort TS061-072, Windmill Leper Hospital (*site of*) TS061-073, Windmill moated site TS061-167 and Farranamanagh ringfort TS060-084. The investigation of the *Rian Bo Phadriag* roadway (TS061-071) was the only

example where the bypass directly impacted a known RMP site and this was unavoidable as the roadway had to be traversed by the bypass.

Excavation Methodology

Archaeological testing began in spring 2003 across the entire bypass although lands at Owen's and Bigg's-Lot were unavailable for investigation until July. All sites were investigated by mechanical excavators under constant archaeological supervision. The topsoil was removed down to the natural glacial till, or to the top of archaeological features, depending on what was encountered first. The subsoil consisted of compacted yellow / orange clay. In areas of water-logged conditions such as at Monadreela, George's-Land and Owen's and Bigg's-Lot the natural changed to grey / white malleable clay. In areas of higher ground in Ballyknock, Windmill and Deerpark bedrock limestone outcropped close to the base of the topsoil. In particular on the northwest-facing slope of Windmill Hill (Sites 31–35) and Windmill/Deerpark ridge the natural contained bedrock outcropping and bands of gravel (Sites 38–39). A cave is shown on the 1st Edition OS six inch map at the extreme southwest corner of Hughes'-Lot East, near the Corporation Boundary junction with Waller's-Lot (see Figure iv).

A total of 56 Excavation Licence Numbers were issued by the Department of Environment, Heritage and Local Government during the course of the bypass archaeological works. This total included the general archaeological testing licence 03E0295 which was used across the scheme, the specific testing of the *Rian Bo Phadriag* roadway (TS061-071) in Owen's and Bigg's-Lot 03E1211, and the archaeological monitoring of bypass outfall drains across various townlands, 03E1087. In most instances the licence issued for specific archaeological testing of a site was retained for the subsequent resolution of that site, as resolution followed on immediately once archaeology was definitively identified.

The following tables list those sites on the N8 Bypass mainline and N74 Link Road where excavations uncovered definitive archaeological remains (see below). What is clear from these tables is the multi-period nature of many of the sites investigated. Such discoveries have been mirrored on both NRA-funded projects north and south of Cashel, although it is clear the density of sites uncovered around Cashel is exceptional (McQuade, Molloy, & Moriarty 2009, xiii). Although it could be explained that this higher site density was due to Cashel's prominence as an ancient royal capital in the early historic era, the higher numbers of prehistoric sites appears to indicate intense settlement around Cashel from the

beginnings of the Early Bronze Age. The good quality farming land, based on brown podzolic soils over limestone bedrock, was a main attraction for settlement. Coupled with this was Cashel's strategic location south of the bog lands around Littleton/Thurles, and north of the Galtee Mountains and River Suir plain. Although Cashel has no river many number of small streams (Arglo, Black, Halfmile & Maddock) fed by a widespread system of ponds served as convenient water sources: it was no coincidence that when excavations occurred beside these ponds i.e. Monadreela, Boscabell and Owen's and Bigg's-Lot, multi-period sites were uncovered.

The closest known archaeological features and monuments to this site is the Rían Bó Phadraig (the Track of St. Patrick's Cow, TI061-071) may have been an ancient route between the ecclesiastic centres of Lismore in Co. Waterford and Cashel. This monument was located 294 m to the east of Site 30i. Further east the large bivallate enclosure of Rathordan TI061-074 occupies a prominent position overlooking the town of Cashel and its environs (562 m east of Site 30i).

This area of the bypass was not subject to any Phase 1 pre-construction testing. In March and April 2003 Phase 2 testing of Site 30 extended from the Rosegreen/Cashel road west as far as the Cahir/Cashel road (Fairburn 2006). This work was undertaken by Judith Carroll Network Archaeology (JCNA) Ltd, under the general testing licence for the bypass (03E0295). This work identified a number of potential archaeological features and licence number 03E0754 was issued to Joanne Hughes, JCNA to resolve these features (Hughes 2006f).

Site No	Licence No.	Townland	Mesolithic	Neolithic	Copper Age	Early Bronze Age	Middle Bronze Age	Late Bronze Age	Iron Age	Early Medieval	Medieval	Post Medieval
			7000–4000 BC	4000–2400 BC	2400–2200 BC	2200–1600 BC	1600–1100 BC	1100–800 BC	800 BC–400 AD	400–1200 AD	1200–1500 AD	1500–1900 AD
1i	03E0673	Ballyknock										
1ii	03E0740	Ballyknock										
1iii	03E0727	Clonmore										
5	03E0299	Monadreela										
7	03E0300	Monadreela										
8	03E0379	Monadreela										
9	03E0345	Monadreela										
10	03E0392	Monadreela										
11	03E0346	Monadreela										
12	03E0393	Monadreela										
13	03E0378	Monadreela										
14	03E0395	Monadreela										
15	03E0394	Monadreela										
16	03E0427	Boscabell										
17	03E0413	Boscabell										
18	03E0425	Boscabell										
19	03E0426	Boscabell										

20	03E0470	Boscabell						Yellow		Green	Pink	Magenta	
21	03E0480	Boscabell				Light Green	Yellow						
22	03E0503	George's-Land				Light Green							
23	03E0508	George's-Land				Light Green		Red	Green				
24	03E0507	George's-Land								Pink			
25i	03E0731	Kilscobin & Hughes'-Lot East											Purple
25ii	03E0730	Kilscobin & Hughes'-Lot East			Orange		Yellow		Green	Pink			
25iii	03E0746	Hughes'-Lot East				Light Green		Red	Green	Pink			
25iv	03E0807	Hughes'-Lot East							Green	Pink			
25v	03E0756	Rathordan					Yellow						
27	03E0289	Waller's-Lot & Rathordan											Purple
29	03E0287	Waller's-Lot											Purple
30i	03E0754	Cooper's-Lot						Red					
30ii	03E0762	Cooper's-Lot								Pink			
30iii	03E1086	Owen's and	Pink	Light Blue	Orange	Light Green	Yellow	Red	Green	Pink			Purple

		Bigg's-Lot										
42	03E0582	Gortmakellis										
TI061:071	03E1211	Owen's and Bigg's-Lot										

Table i: Excavations undertaken on the N8 Cashel Bypass mainline

Site No	Licence No.	Townland	Mesolithic 7000-4000 BC	Neolithic 4000-2400 BC	Copper Age 2400-2200 BC	Early Bronze Age 2200-1600 BC	Middle Bronze Age 1600-1100 BC	Late Bronze Age 1100-800 BC	Iron Age 800 BC-400 AD	Early Medieval 400-1200 AD	Medieval 1200-1500 AD	Post Medieval 1500-1900 AD
31	03E0391	Windmill										
32	03E0399	Windmill										
33	03E0398	Windmill										
34	03E0418	Windmill										
35	03E0424	Windmill										
36i	03E0675	Windmill										
36ii	03E0676	Windmill										
37	03E0419	Windmill										
38	03E0760	Windmill, Deerpark &										

		Farranamanagh										
39	03E0757	Farranamanagh										
40	03E0502	Farranamanagh										
41	03E0674	Farranamanagh										

Table ii: Excavations undertaken on the N74 Link Road

Table ii illustrates the very prominent geographical attraction of the upland areas of Windmill Hill and Windmill / Deerpark, being the focus of settlement and ritual activity throughout prehistory. For Windmill Hill itself (Sites 31–36i) there is an apparent hiatus in activity between the Late Bronze Age and Medieval periods, centred round the hilltop enclosure TS061-072: it is likely the enclosure itself was occupied during this time with the surrounding fields perhaps used for agriculture rather than settlement.

Table iii lists those sites where licences were issued and investigations proved to be non-archaeological:

Site No.	Licence No.	Methodology	Townland
1iii	03E0727	Resolution	Clonmore
2	03E0297	Testing	Ballyknock
3	03E0296	Testing	Ballyknock
4	03E0298	Resolution	Monadreela
6	03E0349	Testing	Monadreela
25vi	03E0747	Resolution	Rathordan
25a	03E0294	Resolution	Waller's-Lot
26	03E0347	Resolution	Rathordan
28	03E0292	Resolution	Waller's-Lot
43	03E1087	Monitoring	various
1, 1a, 25, 30, 36, 38	03E0295	Testing	various

Table iii: Excavations which produced non-archaeological sites

No further works were undertaken on these sites.

As the bypass was a design-and-build-type project design changes were made during the construction period in 2003. Such changes only involved works within the Compulsory Purchase Order lands (CPO), and were subject to the prior approval of South Tipperary County Council. These changes meant that some areas which had been archaeologically tested were not impacted further and therefore archaeological remains were preserved *in situ*. Such areas have been identified in each relevant final report and notified to the Archaeological Survey of Ireland:

Site	Licence	Townland	NGR	Description
Site 22	03E0503	George's-Land	209522 / 141100	ploughed-out <i>fulacht fia</i> dated to the Early Bronze Age
Site 24	03E0507	George's-Land	209520 / 140985	undated pits & ditches
Site 25ii	03E0730	Hughes'-Lot East	209380 / 140607	western portion of an Early Medieval ringfort
Site 25iv	03E0807	Hughes'-Lot East	209317 / 140363	eastern portion of an Early Medieval ringfort
Site 25v	03E0756	Rathordan	209140 / 140070	pits & ditches, one date from the Late Bronze Age

Table iv: Excavations where portions of the archaeology was preserved *in situ* within the CPO

Local Information

The route of the bypass traversed a number of upstanding townland boundaries generally consisting of high clay and/or stone banks topped with hedging, occasionally with a ditch either on one side or both. In some cases these ditches were active streams (Boscabell / George's-Land boundary; George's-Land / Hughes'-Lot East boundary). The townlands of Gortmakellis, Ballyknock, Monadreela, Boscabell, George's-Land, Kilsobin and Rathordan were located within St. Patricks Rock parish. At the George's-Land / Hughes'-Lot East boundary (Site 25i) the route entered St. John Baptist parish, formerly the Cashel Corporation Municipal Boundary too, and included the townlands of Hughes'-Lot East, Waller's-Lot, Cooper's-Lot and Owen's and Bigg's-Lot. On the link road Windmill was located within Part of St. Patricks Rock parish. At the junction of Windmill / Deerpark (Site 38) the route entered Farranamanagh in the parish of Hore Abbey. The profiles of townland boundaries were recorded during excavation and incorporated into the relevant final report. Changes to these boundaries over time can be traced in the Historical Background section below.

There are many interesting placenames around Cashel recorded cartographically and / or in historical sources, such as *Poulmawkeorish* in Castl lake; *Poulagower* in Attykit; *Foresdin* in Hill's-Lot; *Carrigeenedeen* and *Fawnsuir* in Carron; *Parknapeast*, *Turreen Spring* and *Mullenavivva Pool* in Ballinamona; *Knockananulla* in Hore Abbey; *Gracias Well* in Deerpark; *Loughroentaggart*, *Lough Nahinch* and *Doon Fort* in Farranamanagh; *Ogaunoch and Coun* [Rathcoun?] and *the hill of Tubbiradoon...a well called Tubbiradoon near Doon Fort* (Davis White 1866, 47); *Goul's Pool* in Waller's-Lot; *Corralough Well* in Corralough; *Gallows Hill* in Hughes'-Lot East; *the Fahy and the common lands of the town alias Cottyne* (Fiants 1994, 485); *'Brockroghtie and a meadow near Gallows hill called Monyarnycrohy'* (IMC 1966, 281).

GEOLOGY & SOILS

The Cashel environs are situated on the eastern edge of the Golden Vale, and the southern edge of the central limestone plains of Ireland. The landscape has been formed by glacial meltwater and morainic deposition. The bypass route traversed the low-lying, fertile, well-drained and easily worked soils with underlying calcareous tills, which sweep away from the Knockmealdown and Galtee Mountains and Slievenamon to the south.

Ballyknock, in the north of the main route, and Windmill, in the southern part of the link road, are high prominent landmarks. The undulating land is made up of gently sloping rounded ridges oriented east/west. The streams create a cross-drainage system running between the ridges and along the bottom of the slopes, eventually flowing to the west, towards the River Suir drainage basin. The rock type of the area is composed of limestones from the Carboniferous period. On the west and southwest are the Hore Abbey Limestone and Lagganstown formations. To the southeast is the Ballyadams formation, with the Killeshin Siltstone and Clogrenan formations to the northeast and north respectively. The Hore Abbey formation consists of pale grey bedded limestone with chert, with the Lagganstown formation made up of dark thin cherty limestone. The Ballyadams formation is a Burren-type limestone with thick ledges. The Clogrenan formation is bluish-grey limestone with irregular nodules of black or blue chert, wackestones and packstone limestones. The Killeshin Siltstone formation is composed of muddy siltstone and silky mudstone (Archer, Sleeman & Smith 1996).

Geological features such as swallow holes are recorded in Cooper's-Lot and Owen's and Bigg's-Lot. There is a cave marked on the 1st Edition OS six-inch map at the southwestern edge of Hughes'-Lot East near its junction with Waller's-Lot: the site is not recorded on later mapping. Locations of stepping stones and fords are first recorded on the 2nd Edition OS six-inch map in Hughes'-Lot East, possibly associated with the Cashel Reservoir on the Dualla Road. On the same map disused limekilns are shown in many townlands such as Farranamanagh, Rathcoun, Rathordan, Spafield and Windmill. The dominant soil type is the grey brown podzolic which are fertile, well-drained soils ranging in depth from 0.20 m – 0.60 m. It is an excellent soil type for agriculture, in particular horse breeding, for which this area of south Tipperary is renowned for.

ARCHAEOLOGY OF THE CASHEL AREA

Prior to the bypass archaeological excavations little was recorded of Cashel's prehistory, with a few uncontexted finds from around Cashel including a stone axe head, and various artefacts of bronze (axes, javelins / spearheads) and curiously, 262 bronze rings (see Appendix i). No prehistoric settlement sites were recorded – a situation that was to change with the bypass investigations. To the east of Cashel a Bronze Age burial had been discovered in Fussough townland, Dualla in 1933: a stone-lined cist burial containing an urn and human bones was dug up from a sandpit at the western base of the Kill Hills TS053-096 (O'Brien 2007, 93–4; Waddell 1990, 134).

The prehistory of Cashel has emerged slowly from beneath the citadel of the Rock of Cashel, whose mix of ecclesiastical and secular architecture generally dominates all discussion and research. The discovery from the middle of the 19th century onwards of metal artefacts from around Cashel, mainly bronzes such as axes, hinted at prehistoric activity in the area (Shearman 1852, 203). The recovery of artefacts from the Rock of Cashel summit is recorded from as early as 1849, with a bronze bell being found (Wyse Jackson 1956, 18). Perhaps the first archaeological excavation in Cashel occurred in the 1850's with investigations inside the Round Tower on the Rock (Fitzgerald 1857, 292). This may have been spurred by the establishment of the Cashel Chapter House Museum on John Street by Mr. Newport B. White in 1855. Two publications by his brother Rev. John Davis White listed a range of objects housed in the Museum, many of which were described as being found from around Cashel (Woodworth 1989, 149).

John Davis White included amongst the museum collection a large helmet [and human bones] found in Farranavarra, northeast of Cashel, possibly associated with the 1170's battle between the Irish and Anglo-Normans (Davis White 1892, 12). In his history of Ireland Giraldus Cambrensis described earthworks being thrown up near Cashel during a battle between the Anglo-Normans and Irish – *As [Raymond le Gros] was advancing towards Cashel...he heard that the men of Thomand had...come to block his path in the pass of Cashel. By laying down broken branches of trees and digging trenches they had greatly broken up a terrain already naturally difficult, and had also built a very strong palisade right across the path...the stockade was completely broken down and destroyed, not without great loss of life among the defenders, and they opened up a path with their swords, and then enlarged it* (Scott and Martin 1978, 161–3). The location of this ancient pass of Cashel is still

unknown. Davis White also reported on the discovery of human skulls and bones in Doon Fort, Farranamanagh, possibly associated with the Desmond Rebellion of 1581 (Davis White 1866, 46–7).

Following in the footsteps of Davis White a later cleric, Rev. Robert Wyse Jackson began recording antiquities around Cashel's hinterland in the 1950's, and some of the objects he discovered are listed in Appendix i (Wyse Jackson 1956a, 21). Cashel's Anglo-Norman moated sites were included in Barry's seminal study of this monument type in the 1970's, including the Boscabell moated site TS061-027 (Barry 1977). These and the other rural sites around Cashel were visited and listed as part of Reynolds's 1975 survey of Tipperary South Riding, followed by Cahill's 1982 study of the barony of Middlethird, as part of an unpublished Master's thesis for UCC. Local historians such as A. Finn, P. J. Davern, J. Knightly, M. 'Bob' O'Dwyer and E. Dalton have over the years lectured and occasionally published about Cashel (see Moloney 1994).

Prior to the bypass excavations in 2003 no discoveries of Mesolithic sites had been made in the Cashel area – the nearest such activity was represented by the uncontexted flints found at Ballybrado House, near Cahir (Woodman & Finlay 2001, 189); a Mesolithic date from the Bronze Age site of Curraghatoor, Co. Tipperary is considered unreliable (Cleary 2007, 39); a single Mesolithic macro flint was found in a medieval context in Toureen Peakaun near Cahir (Ó Carragáin 2011, 341–2) while a possible Mesolithic object, a single retouched jasper point from Chancellorsland, Co. Tipperary is paralleled with objects from the later Mesolithic site at Ferriter's Cove, Co. Kerry (Doody 2008, 329).

Cashel did not feature as a place of recorded Neolithic activity with no megalithic monuments nor house sites known. Only three flints were retrieved from the Rock of Cashel excavations in the 1990's – no further details are known at present (www.homepage.eircom.net/~dunamase/Dunamase.html) There are a number of undated megalithic structures around Clonoulty and Hollyford northwest of Cashel, recorded by the Archaeological Survey of Ireland. The nearest megalithic tomb is the portal tomb at Lissava TS075-045 near Cahir, c. 18 km south of Cashel. In Rathcoun townland southwest of Cashel four undated barrows TS060-107007–TS060-107010 and one unclassified cairn TS060-107011 are recorded clustered together.

A number of the metal artefacts now in the National Museum of Ireland have been assigned in the Early Bronze Age period (Grogan 2005, Fig. 3.1–3.4, 24–29) – see Appendix i below.

Recently three standing stones have been identified northeast of Cashel and are now RMP sites: Palmer's Hill TS061-052, Corralough TS061-053 and Ballyknock TS061-054 – these may date to sometime in the Bronze Age and significantly are located along the prominent Ballyknock ridge, as is a newly discovered ploughed-out burnt spread / *fulacht fiadh*, overlooking many of the N8 Bypass prehistoric sites (O'Brien 2003 17–26; O'Brien 2006, 15–23; O'Brien 2007, 87–96; O'Brien 2009, 72–4). Other recent discoveries around Cashel have been made from field walking including further ploughed-out burnt spreads / *fulacht fia* in Ballinamona (two sites), Ballinree (one site), Carron (two sites), Gortmakellis (one site), Kilsobin (one site) and Newtown (eight sites) (O'Brien 2008, 73–82), and artefacts such as a thumbnail scraper from Ballinamona, worked flint from Boscabell and Kilsobin, slag from Ballyknock, stone spindle whorls from Ballykelly, George's-Land and Ballinamona respectively, and a hammer stone from Ballinree and George's-Land (O'Brien 2003a, 48–52; www.facebook.com/rathnadrinna). These discoveries have been incorporated into the relevant final reports.

In later prehistory high status activity in the wider area is well represented; the discovery of two Late Bronze Age gold rings at Ardmayle, beside the River Suir and dated to the late 13th – early 12th centuries BC (Cahill 1989, 146), a Late Bronze Age Class IV sword from Aughnagomaun dated *c.* 700 BC (O'Brien 2007, 89–90), and a gold reel containing small gold balls (NMI W306) recorded as being found from Cashel (Cahill 1995, 66). The discovery of the Aughnagomaun sword is significant as earlier Middle / Late Bronze Age evidence was found in the same townland at (E2361) on the M8 North Project (Moore *et al* 2009, i). The lack of Bronze Age settlement sites was highlighted by Doody (1997, 94).

Iron Age Cashel was best represented in literature and with very occasional archaeological discoveries: the Clonura leather shield, *c.* 20 km northeast of Cashel. However recent excavation in advance of development has identified potential and definitive Iron Age sites: the discovery of a blue glass bead in Deerpark (Sherlock 2008, 350) may point to Iron Age activity and in the wider Cashel area a possible ritual site in Knockgraffon. The latter site consisted of an arc of eight postholes dated to 380–50 cal BC (SUERC–25889) while an internal posthole to the arc was contemporary, dated to 380–90 cal BC (SUERC–25890). Artefacts recovered included unidentified prehistoric pottery, a polished stone axe, three highly polished stones, two copper-alloy fragments and cremated bone (MacLeod 2012, 200–1).

Although Cashel was located on the southeastern periphery of the Discovery Programme's North Munster Project nevertheless its inclusion saw a number of sites traditionally and locally classified as ringforts re-classified as prehistoric. Upstanding monuments such as Camus TS060-028 [classified as a ringfort on www.archaeology.ie], Carron / *Rathnadov* TS069-002001 [also classified as a henge], Knocksaintlour TS060-179, Lalor's-Lot / *Rathnadrinna* TS061-089001 and Windmill TS061-072 were classified as hilltop enclosures (Grogan 2005, Fig. 7.6, 116). A number of other monuments perhaps could be added to this list; Ballyknock TS061-008 due to its very prominent location at over 180 m OD, Hughes'-Lot East enclosure 05E0671 (143 m OD), Rathordan TS061-074 at 140 m OD, and the multi-ramparted Ballinree TS060-110 are worthy of future study. Based on current evidence the nearest hillfort to Cashel is Kedrah TS075-040, located on the eastern side of the River Suir near Cahir, c. 16 km south of Cashel. The only definitive crannog in south Tipperary is recorded from Marhill TS069-072 just south of Rockwell College. Significantly this site is located in the same townland as a Middle Bronze Age site (E2269) and Medieval sites (E2124 & E2268) discovered on the M8 Cashel to Mitchelstown Road Project (see below).

The *Dhuvcloy* earthwork TS061-022 (road / hollow-way) in Charterschool Land TS061-022 has recently been associated with kingship processional rites (Gleeson 2012). In the extents of the Lands of Monecurialy of 1688 the highway from Cashel to Deansgrove was mentioned and the blacke ditch commonly called the *Dooocly* (Davis White 1863, 5). Another road TS060-025 which serves as the townland boundary between Farranananagh and Rathcoun is now classified as a redundant record (www.archaeology.ie/NationalMonuments/Flex/Viewer/). However on the 1st Edition OS six-inch map the boundary is shown as *Boheragaddy* and a much earlier reference and description of *Bothar Gadie*, 'a double-ditched road (*a biffosario lapideo*)' is found in an Inquisition taken at Clonmel in 1553 (Curtis 1941, 15). In the same source another road called *Botherewolyngyhy* has been equated with Windmill (www.logainm.ie).

Exotic material is represented by the Roman-period occultist's stamp from Spital-Land in Golden, c. 7 km west of Cashel (Bateson 1973, 74), and the Roman-type fibula, a dolphin brooch (Type H), the earliest datable find from the Rock of Cashel (Cahill 1982a, 101). The evidence of international trade is further represented by Romano-British pottery sherds and Bii amphorae sherds from the Rock of Cashel; the Bii amphorae were also found at Derrynaflan c. 15 km northeast of Cashel (Kelly 2010, 59–60). Other well-known objects from Cashel include bronze bells, a silver brooch (decorated with Scandinavian thistle design

from the late Norse period), a gilded copper crozier-head (set with turquoise and sapphire), the Kennedy-Crux Crozier, the silver-gilt Cashel Pyx, and various chalices and seals (Wyse Jackson 1956, 18–20; see Appendix i). A rare zoomorphic pennanular brooch dated to c. 600 AD was found in *Loughnafina*, west of Cashel town (Henry 2000, 200–1).

Early medieval Cashel is well attested in historical sources with the dominance of kings on the Rock under *Éoganachta*, *Uí Briain* and *Meic Carthaig* dynasties (see Historical Background below; Hodkinson 1994; Collins 1997; Gleeson 2012). In Rathcoun a complex of ecclesiastical sites include a church TS060-107002, recorded as (*site of*) *Templemobe* [Mobhi], the unclassified religious house TS060-107003 (*site of*) *Monastery*—the only monastic site marked around Cashel and holy well TS060-107004. Rathcoun and Templenoe are two townlands southwest of Cashel that preserve the word ‘temple’ in their name.

The plethora of ringforts and possible *Óenach* sites in the region point to a vibrant early medieval hinterland. Some of the forts around Cashel are recorded in historical sources. In the *Life of Saint Declan of Ardmore* a stone fort called *Rath na nIrlann* is specifically identified as being on the western side of Cashel (Power 1914, 28) – this fort may equate with Ballinree TS060-110. *Lis na nUrlann* (location unknown) is recorded in the Yellow Book of Lecan as being associated with the twelfth-century inauguration of the kings of Munster (Fitzpatrick 2004, 178–9). In a description of the lands of James Boiton recorded in the Calendar of the Patent and Close Rolls Elizabeth I 1594–6 local names such as ‘*High Rathe on the east*’ and ‘*the lands of Asmon, otherwise Boiton Rath*’ [Boytonrath] are recorded (Morris 1862, 392). Could the ‘*High Rathe on the east*’ either be referring to one of the Ballyknock forts TS061-008 or else to the Hughes’-Lot East enclosure [05E0671], (see below)? In the Patent Rolls of James I, Pat. 7 c. 1610 the following entry for the Windmill area is very informative – ‘*the stone house, towns and lands of the Windmill, Fleming’s Rath, and Parkinogrogory in the southern part of Cashell*’ (IMC 1966, 146). Could *Fleming’s Rath* be Windmill hilltop enclosure TS061-072?

King Brian Uí Briain is recorded as fortifying Cashel c. 995 (AI) - this annalistic reference may not be restricted to fortifying of the Rock itself. King Muircheartach Uí Briain had a house at Cashel c. 1091 (AFM) and within 10 years had handed over the Rock to the church in 1101 (Bracken & Ó Riain-Raedel 2006). Cormac’s Chapel, with its renowned Romanesque architecture was consecrated in 1134 (Ó Carragáin 2010). Although the OPW-funded excavations of the 1990’s on the Rock still remain unpublished, two of the burials excavated

in Area 1 have been dated by the Mapping Death Project to cal AD 1029–1155 and cal AD 1033–1155 (Gleeson 2013, 22). These burials are contemporary with activity at two of the bypass sites: oats from the lower fill of a cereal-drying kiln in Boscabell (Site 19, 03E0426), and a single adult femur displaying trauma, from the upper levels of the Hughes'-Lot East bivallate fort (Site 25ii, 03E0730); see respective final reports.

The archaeological inventory for South Tipperary has been updated and new data added to RMP sites around Cashel, see www.archaeology.ie. A recent rural excavation unearthed evidence of a ploughed-out ringfort / enclosure at Hughes'-Lot East (Hurley 2005, 348). Significantly, this site was located on a hillock to the southeast of the town, and its discovery suggested every such elevated location around Cashel was utilised as some form of defended settlement.

The last 20 years witnessed profound development changes in and around Cashel town itself, with a corresponding increase in the number of licence archaeological excavations taking place (Hughes & Ó Droma 2011, 19–20). Despite the large number of investigations little in the way of pre-13th/14th century AD material has come to light, equally compounded by a lack of publication. One of the more significant Cashel excavations was that in Friar Street in 1998 (O'Donovan 2004). New discoveries are still being made in Cashel town: a medieval carved head in the Dominican Friary (O'Brien 2010) and, a carved capital, probably from the Franciscan Friary was found built into a wall on the Dualla Road in Hughes'-Lot East (Hughes 2011).

A number of Anglo-Norman moated sites are recorded around Cashel including an elevated example at Windmill TS061-167 and one at Boscabell TS061-027, which was located close to the edge of the bypass (Sites 18–20). Gortmakellis tower house TS061-011 is a fine example of a five-storey late medieval structure, and the bypass was designed to avoid all impacts on this castle and its' environs.

Recent NRA Excavations Around Cashel

From 2005–7 archaeological discoveries around rural Cashel greatly increased - south of Cashel as far as the county boundary with Limerick on the M8 Cashel to Mitchelstown road and north of Cashel as far as the county (and provincial) boundary with Kilkenny on the M8

Cullahill to Cashel road. These excavations revealed sites containing multi-period activity similar to that found on most of the Cashel excavations too.

The following list summarises the archaeological excavations made south of Cashel on the M8 Cashel to Mitchelstown Road Project, final reports for which were produced in 2007 (all townlands are in Co. Tipperary unless otherwise stated).

Neolithic sites - Suttonrath (E2128), Caherabbey Lower (E2266), Loughfeedora (E2292) & Caherabbey Upper (E2298)

Early Bronze Age sites - Ballylegan (E2265), Ballydrehid (E2267), Cloghabreedy (E2273), Dogstown (E2288), Dogstown (E2289), Templenoe (E2290), Racecourse Demesne (E2297), Caherabbey Upper (E2298), Caherabbey Upper (E2299), Carrigane (E2303 Co. Cork) & Brackbaun (E2338 Co. Limerick)

Middle Bronze Age sites - Killemlly (E2126), Suttonrath (E2128), Ballydrehid (E2267), Marlhill (E2269), Knockgraffon (E2270), Knockgraffon (E2271), Cloghabreedy (E2273), Cloghabreedy (E2274), Shanballyduff (E2275), Dogstown (E2289), Clonmore North (E2294), Raheen (E2295), Lissava (E2296), Caherabbey Upper (E2299), Carrigane (E2303 Co. Cork), Brackbaun (E2306 Co. Limerick) & Brackbaun (E2339 Co. Limerick)

Late Bronze Age sites - Killemlly (E2126), Suttonrath (E2128), Ballylegan (E2265), Ballydrehid (E2267), Knockgraffon (E2270), Cloghabreedy (E2274), Loughfeedora (E2292) & Caherabbey Upper (E2299),

Iron Age sites - Killemlly (E2126), Ballylegan (E2265), Caherabbey Lower (E2266), Ballydrehid (E2267), Knockgraffon (E2270) & Knockgraffon (E2272),

Medieval sites - Marlhill (E2124), Marlhill (E2268), Suttonrath (E2127), Ballylegan (E2265), Knockgraffon (E2271), Tincurry (E2293) & Brackbaun (E2339 Co. Limerick)

Post Medieval sites - Loughfeedora (E2291) & Cloheenafishogue (E2302).

The following list summarises the archaeological excavations made north of Cashel on the M8 Cullahill to Cashel Road Project, final reports for which were produced in 2010 (all townlands are in Co. Tipperary unless otherwise stated):

Neolithic sites - Gortmakellis (E2356), Borris (E2491), Fennor (E2384) & Islands (E2388, Co. Kilkenny)

Late Neolithic sites - Gortmakellis (E2816)

Early Bronze Age sites - Gortmakellis (E2356), Gortmakellis (E2816), Borris (E2378), Borris (E2491), Inchirourke (E2383), Fennor (E2384), Fennor (E2385), Islands (E2386, Co. Kilkenny), Islands (E2388, Co. Kilkenny) & Warrenstown (E2390, Co. Kilkenny)

Middle Bronze Age sites - Gortmakellis (E2816), Parkstown (2368), Rathcunikeen (E2372), Borris & Blackcastle (E2374), Borris (E2375), Borris (E2376), Borris (E2378), Borris (E2379), Inchirourke (E2383), Islands (E2386, Co. Kilkenny), Islands (E2387, Co. Kilkenny), Islands (E2389, Co. Kilkenny) & Foulkscourt (E2391, Co. Kilkenny)

Late Bronze Age sites - Gortmakellis (E2816), Aughnagomaun/Ashhill (E2361), Ballydavid (E2370), Coolcree (E2818), Borris (E2376), Inchirourke (E2382), Islands (E2386, Co. Kilkenny), Islands (E2388, Co. Kilkenny), Islands (E2389, Co. Kilkenny), Foulkscourt (E2391, Co. Kilkenny) & Glashare (E2394, Co. Kilkenny)

Iron Age sites - Gortmakellis (E2816), Coolkip (E2362), Coolkip (E2363), Ballydavid (E2370), Borris (E2376), Borris (E2491), Inchirourke (E2382) & Glashare (E2394, Co. Kilkenny)

Early Medieval sites - Gortmakellis (E2356), Parkstown (2368), Ballydavid (E2370), Borris (E2376) & Borris (E2491)

Late Medieval sites - Gortmakellis (E2356), Gortmakellis (E2816), Moycarky (E2365), Moycarky (E2366), Moycarky (E2367), Parkstown (E2368), Borris & Blackcastle (E2374), Borris (E2376) & Inchirourke (E2382)

Post Medieval sites - Gortmakellis (E2356), Gortmakellis (E2816), Borris & Blackcastle (E2374)

The results of some of these excavations are incorporated into various Cashel final reports, can be viewed at www.nra.ie/archaeology and see McQuade (2009, 2, Table 1.1). The apparent lack of Mesolithic discoveries on either of these major road projects was mirrored on earlier infrastructure projects in south Tipperary - the Gas Pipeline of 1981–2 (Cleary 1987, vii), the Gas Pipeline of 1986 (Gowen 1988, vii), the Lisheen Mine Project 1996–8

(Gowen 2005, 61), and more recently again from the research excavation at Curraghatoor (Cleary 2007, 39). Clearly then, the hinterland of Cashel, where four townlands spread across the bypass produced Mesolithic material and/or radiocarbon dates, featured significantly in the movement of both people and materials during the Mesolithic. This movement was in no small part facilitated by Cashel's closeness to the River Suir.

Recent Geophysical Investigations Around Cashel

Between 2009–12 a number of research-led geophysical surveys were conducted on a number of sites around Cashel. Earthsound Archaeological Geophysics Ltd undertook geophysical surveys at Rathnadrinna fort TS061-089001 and TS061-089002 in Lalor's-Lot. This work revealed complex multi-period sites, with evidence of large-scale earthworks predating the known fort (O'Brien *et al* 2011, 26). Also in 2011 Earthsound undertook geophysical survey at Hughes'-Lot East (Site 25ii, 03E0730) in order to identify the full extent of the Early Medieval ringfort beyond the CPO (Bonsall 2012). The western edge of the ringfort was identified and the results have been incorporated into the final report for that site. Further research work centred on Windmill Hill sites TS061-072, TS061-073 and TS061-167 in 2011 by UCC and the University of Bradford / NRA and in 2012 by Earthsound Archaeological Geophysics identified archaeological features, some of which appeared to relate to the activity discovered on Sites 31–36i (Gimson 2012). These results are incorporated into the various Cashel final reports.

Appendix i: Catalogue of objects from Cashel in the National Museum of Ireland

Object: Copper alloy harness mount
 NMI No: 2004:178
 Find-spot: Ballytarsna
 Description: Copper alloy harness mount found by Mr. Alfie Coyle in a potato field on the southern side of the old N8 road, near the junction with Killock Quarry.

Object: Medieval pot sherd
 NMI No: 2004:146
 Find-spot: Rock of Cashel, surface find at exterior base of Cathedral south wall
 Description: Curved pot sherd probably belonging to a medieval vessel. The outer surface of the sherd is glazed. This glazing is green in colour with random dark green and brown dots. On one area of the outer surface of the sherd, there are traces of five incised lines. Max L 5.25; max W 3.28; T 6.90

Object: Socketed iron axehead
 NMI No: 2002:88
 Find-spot: St. Patrick's Rock, garden of Mr. Dinny O'Brien
 Description: Iron axehead with modern iron spike thru the shaft hole. The axehead has a widely splayed blade the sides of which curve inwards towards the shaft hole. This is triangular in shape and folds back to form the perforation to take the handle. In poor condition. Max L of axehead 13.15; W of blade 10.00; max T of blade, max 2.1

Object: Copper alloy ferrule
 NMI No: 1992:29
 Find-spot: Garden in Dogstown, New Inn
 Description: Copper alloy ferrule, decorated bronze mount

Object: Wood
 NMI No: 1984:107
 Find-spot: Curraghtarsna, Cashel
 Description: Trough of *fulacht*, reused from a dug-out canoe. Excavated timber C14 dated to 3120_35 BP (GrN 12618)

Object: Bronze spearhead or javelin head
 NMI No: 1968:285
 Find-spot: Cashel
 Description: Rounded blade with ornamental deep grooves close to the ridge of the socket, broad ribbon loops on the large squat socket. l. 6.4cm, l of loop 1.5cm, w of loop 2.1cm, diameter of socket mouth 2cm

Object: Bronze spearhead or javelin head
 NMI No: 1968:282
 Find-spot: St John Baptist Cashel
 Description: Bronze spearhead, socketed, looped, with bevelled edges on the blade and decorative ribbing. Conical socket. Loops are lozenge-shaped and placed midway between blade and mouth of socket. l. 11.3cm, l of blade 6cm, w of blade 3.5cm, l of loop 1.8cm, diameter of mouth 1.9cm

Object: Iron spike
 NMI No: 1953:9
 Find-spot: Hummocky' field near Ballysheehan Motte-and-Bailey
 Description: Iron spike

Object: Fragment of an iron horseshoe
 NMI No: 1953:10
 Find-spot: Hummocky' field near Ballysheehan Motte-and-Bailey,
 Description: Fragment of an iron horseshoe

- Object: Five medieval pottery sherds
NMI No: 1953:11-5
Find-spot: Hummocky' field near Ballysheehan Motte-and-Bailey
Description: Five medieval pottery sherds
- Object: Bronze spearhead
NMI No: 1938:8589
Find-spot: Cashel vicinity
Description: Bronze spearhead
- Object: Socketed bronze axehead
NMI No: 1937:3678
Find-spot: Cashel vicinity
Description: Socketed bronze axehead
- Object: Silver seal matrix
NMI No: 1912:59
Find-spot: Co. Tipperary
Description: Matrix of seal silver with a green stone set inside. The device on the stone is a sea horse. The legend reads S.IOKIS-CASELL-ARCHID. The matrix was formerly in the possession of Sir William Betham. It has been in the RIA collection for many years. The seal measures 1 1/6inch x 15/16inch.
- Object: Stone adze
NMI No: 1909:33
Find-spot: Near Cashel
Description: Of very unusual form, of close grained hard black stone. It measures 9 & 1/8 in length and 2 1/2 in breadth. It has a label gummed on which reads "ancient Irish stone adze found at Cashel Co. Tipperary."
- Object: Casts of Cormac's Chapel north doorway
NMI No: 1911:5
Find-spot: Rock of Cashel
Description: Casts of cormac's chapel north doorway also arcading from interior and side of ornamented stone coffin.
- Object: Bronze axehead
NMI No: 1892:49
Find-spot: Near Cashel
Description: Socketed celt. Bronze looped cutting edge curved socket fractured filleted near mouth. Extreme length 2 1/4in. greatest width 1 7/8in. external diameter at mouth of socket 1 1/4in.
- Object: Copper axehead
NMI No: 1881:133
Find-spot: Dundrum, found in 1842
Description: Copper, broad and flat, surface rough, narrow and straight large gaps in one end of cutting edge, workmanship very rude. Extreme length 6 1/2inches thickness at centre 1/4inch, greatest width 4 inches, width at narrow end 1 3/4inches
- Object: Bronze axehead
NMI No: 1880:15
Find-spot: From Cashel
Description: Socketed celt, bronze, brownish, patinated, looped, cutting edge curved, mouth if socket nearly round portion battered by hammering, length 2 7/8in. width at cutting edge 2 1/4in. greatest external diam. Of socket 1 1/2inch
- Object: Silver paten
NMI No: 1880:98
Find-spot: Found when digging a grave in burial ground adjoining Cormac's Chapel, Rock of Cashel

- Description: Silver circular and thin rim broad and flat centre portion slightly concave cracked in several places part of rim detached diameter 4 ½in width 5/8ths inch length detached portion 3 11/16ths inches wt. 1oz. 9dwt. 11gr.
- Object: Silver coin Edward II
NMI No: 1875:122
Find-spot: Northeast part of Cathedral, Rock of Cashel
Description: Edward II, found with Bronze pin No. 121
- Object: Bronze pin
NMI No: 1875:121
Find-spot: Northeast part of Cathedral, Rock of Cashel
Description: Pin bronze, stem tapering to a fine point and slightly diminishing towards head, on upper half of its length ornamented with diagonal hatchings, head formed by two horse's faces turned outwards, length 3 5/8inches, and greatest thickness of stem more than 1/8inch
- Object: Copper and silver coins
NMI No: 1877:16
Find-spot: Cashel
Description: Copper square Youghal Token 9/16 inch square.
Silver Mecklenburg shilling
- Object: Iron key
NMI No: 1877:12
Find-spot: Cashel
Description: Iron brown much rusted, pipe in shank, bow semi-oval and attached to shank by two scrolls. Extreme length 3 3/8inches, greatest width of bow 1 15/16inch. Measurement across shank and bit 1 inch
- Object: Stained glass
NMI No: 1877:11
Find-spot: Cormac's Chapel, Rock of Cashel
Description: Fragment of stained glass. Greenish with reddish brown stripes. Portion of latter forming lozenge shaped ornamentation with central circlet of same colour. Pattern similar to that of fresco painting on walls of Cormac's Chapel, in which structure it was found. Greatest length 1 ¾inch, extreme width 1 ½inch
- Object: Bell metal portions
NMI No: 1877:10
Find-spot: Cormac's Chapel, Rock of Cashel
Description: Portions of bell metal (2) brownish green, respective measurements 1 ½inch x 7/16inch, and ¾ inch x ½inch
- Object: Copper alloy Lion
NMI No: 1877:1
Find-spot: Found in open space between Cormac's Chapel & Cathedral, Rock of Cashel
Description: Brass lion, greenish in sitting posture, rectangular socketed projection in rear of hind legs, base oblong and irregularly rounded in front, height 2 ft 20inches length of base 7/16th inch width 5/8th inch
- Object: Glass fragment
NMI No: 1877:14
Find-spot: Cashel
Description: Greenish grey remains of 'bull's eye' on one of the faces. Extreme length 3 1/8inches greatest width 1 ¼inch greatest thickness 5/8inch
- Object: Wooden bow
NMI No: R:2470
Find-spot: Near Dundrum
Description: Wooden bow, found in the moat of a square rath near Dundrum

Object: Gold bracelet
NMI No: W307-309
Find-spot: Cashel
Description: Three individual gold bracelets

Object: Gold ball & reel
NMI No: W306
Find-spot: Cashel
Description: Gold ball & reel

Object: Copper alloy bell
NMI No: W2 WK209
Find-spot: Cashel
Description: Copper alloy bell

Object: Bronze rings (262)
NMI No: W232-493
Find-spot: Cashel
Description: Bronze patinated and tarnished. Apparently solid. Annular but one is cut through showing it to be solid. Some are circular in cross-section. Some are regular on the inside and some seem to be rough or unfinished casting. The sizes range from 1.50 external diam with 1.40 internal diam to 2.90cm

HISTORICAL SOURCES

For the historical background to Cashel town and its environs see White (1863: 1866 & 1892), Gleeson (1927), Finn (1930), Bradley (1985), Fogarty (2000), MacShamhráin (2004), Marnane (2007), and more recently Marnane & Darmody (2011). Some key dates in the history of Cashel include:

- AD 370 Traditional date of Kings of Munster ruling from Cashel.
- 448 Traditional date for Saint Patrick's visit to Cashel, and baptism of King Aengus.
- 580 Cairpre, King of Cashel died.
- 593 Feidlimid, King of Cashel died.
- 662 Maenach, King of Cashel died.
- 666 Cú-cen-Máthair, King of Cashel [& Munster] died.
- 713 The battle of Carn Feradaig, in which Cormac King of Cashel, died.
- 742 Cathal, King of Cashel died.
- 820 Feidlimid, son of Crimthann, took the kingship of Cashel.
- 821 Artrí, King of Cashel died.
- 847 The first recorded king-bishop of Munster died in Cashel.
- 976 Brian Boru was crowned King of Munster.
- 995 The fortifying [building] of Cashel, Inis Locha Gair, and Inis Locha Sainglenn, and many buildings besides, by King Brian Boru.
- 1093 Diarmait, son of Tairdelbach Ua Briain, submitted to Muirchertach, i.e. his brother, and they made peace and a covenant in Cashel and in Les Mór, with the relics of Ireland, including the Staff of Jesus, as pledges, and in the presence of Bishop Ua hÉnna of Cashel and the nobles of Mumu.
- 1095 Cashel [the Rock] was burned [cause of burning unknown].
- 1101 Muirchertach O'Brien, King of Munster bequeathed the Rock to the church.
- 1102 Cashel was attacked and burned by the *Éili* of north Tipperary.
- 1107 Cashel [the Rock] was burned by lightning.
- 1115 Cellachán Ua Cellacháin of Cashel was slain.
- 1118 Mael Sechnaill Ua Faeláin was treacherously slain in Cashel.
- 1127–34 Traditional date for the building of the Cormac's Chapel on the Rock.
- 1130's Benedictine monks settle on the Rock of Cashel
- 1141 The bishopric of Cashel was made Metropolitan.
- 1172 King Henry II of England presided over a synod in Cashel.
- 1178 Cashel was plundered by the Normans.
- 1179 Cashel [the Rock] was burned [cause of burning unknown].
- 1194 Tadc, son of Mathgamain Ua Briain, was put to death by the foreigners in Cashel, despite the protection of the legate Archbishop Ua hÉnne of Cashel and Patrick.
- 1216 Cashel was designated as a borough town.
- 1220's References to the old and new *vill* (town) of Cashel survive.

- 1224–37 Sir David Latimer founded a Leper Hospital of St. Nicholas in Cashel.
- 1228 King Henry III returned the town to the ownership of the Archbishop, and a Fair is granted.
- 1243 Foundation of the Dominican Friary of Cashel, north of the town wall.
- 1265 Foundation of the Franciscan Friary of Cashel, east of the town wall.
- 1272 Foundation of the Cistercian monastery of Hore Abbey, south of the Rock.
- 1279 Letters of protection for two years for Adam Stripling, merchant of Cashel, about by the King's licence to go to parts beyond the sea.
- 1317 Edward Bruce of Scotland visits Cashel during his invasion of the country.
- 1320 Grant to the bailiffs and worthy men of Cashel, in aid of enclosing the town with a stone wall, that they may take the following customs in the accustomed form for five years from every crannock of wheat, peas, beans and every kind of corn, 1d.
- 1346 Commission to Adam Preston of custody of the castle of Cashel, during the King's pleasure, with the accustomed fee.
- 1378 King Richard II confirmed all the privileges of Cashel' Corporation; in Cashel Royal Service was proclaimed.
- 1378 King Richard II learned that there is no law, justice or good governance in any parts around the town of Cashel, but rather rebellion, extortion, murder, killing, robbery and open war made by the King's Irish enemies and rebels upon that town, so that the provost and commons of that town can scarcely be kept without great relief by the King in this part.
- 1381 The town of Cashel is situated in the march and is so devastated by invasions of the King's enemies that it cannot support the household of the King's Lieutenant and other officers except in the houses of the Friars Preachers and Friars Minor of that town; and because of the destruction of the surrounding parts where the said friars are wont to receive alms for sustenance, they have scarcely enough on which to live. Order to pay the Friars Preachers 5m as an aid for repairing their church and houses.
- 1494 The Earl of Kildare, Gerald Mór burned St. Patrick's Cathedral, believing the bishop to be hiding inside!
- 1540 The religious institutions of Cashel were seized by the English Crown.
- 1581 During the Desmond Rebellion cattle raids in Cashel result in the deaths of 60 townsmen.
- 1637 King Charles II of England granted a Charter to the town: it was to be known as '*City of Cashel*'.
- 1622 Archbishop Miler Magrath of Cashel died.
- 1641 The town of Cashel is invaded by the O'Dwyer Clan and many English settlers killed.
- 1647 The Rock of Cashel is conquered by forces loyal to the English Parliament, led by Irish man Lord Inchiquin.
- 1687 King James II of England granted Cashel a Charter.
- 1749 The roof of St. Patrick's Cathedral is removed.
- 1869 Following a Parliamentary inquiry the Corporation of Cashel is dissolved.

Townland History

Cooper’s-Lot is located within the parish of St John Baptist and the Commons of Cashel, known as ‘Cottin’ or ‘Cotyn’, an area that contained almost 4,000 acres. In all 17th century sources the owners are listed as the Commons of Cashel / Liberties of Cashel and controlled by the local Protestant elite (www.downsurvey.tcd.ie/landowners; www.logainm.ie).

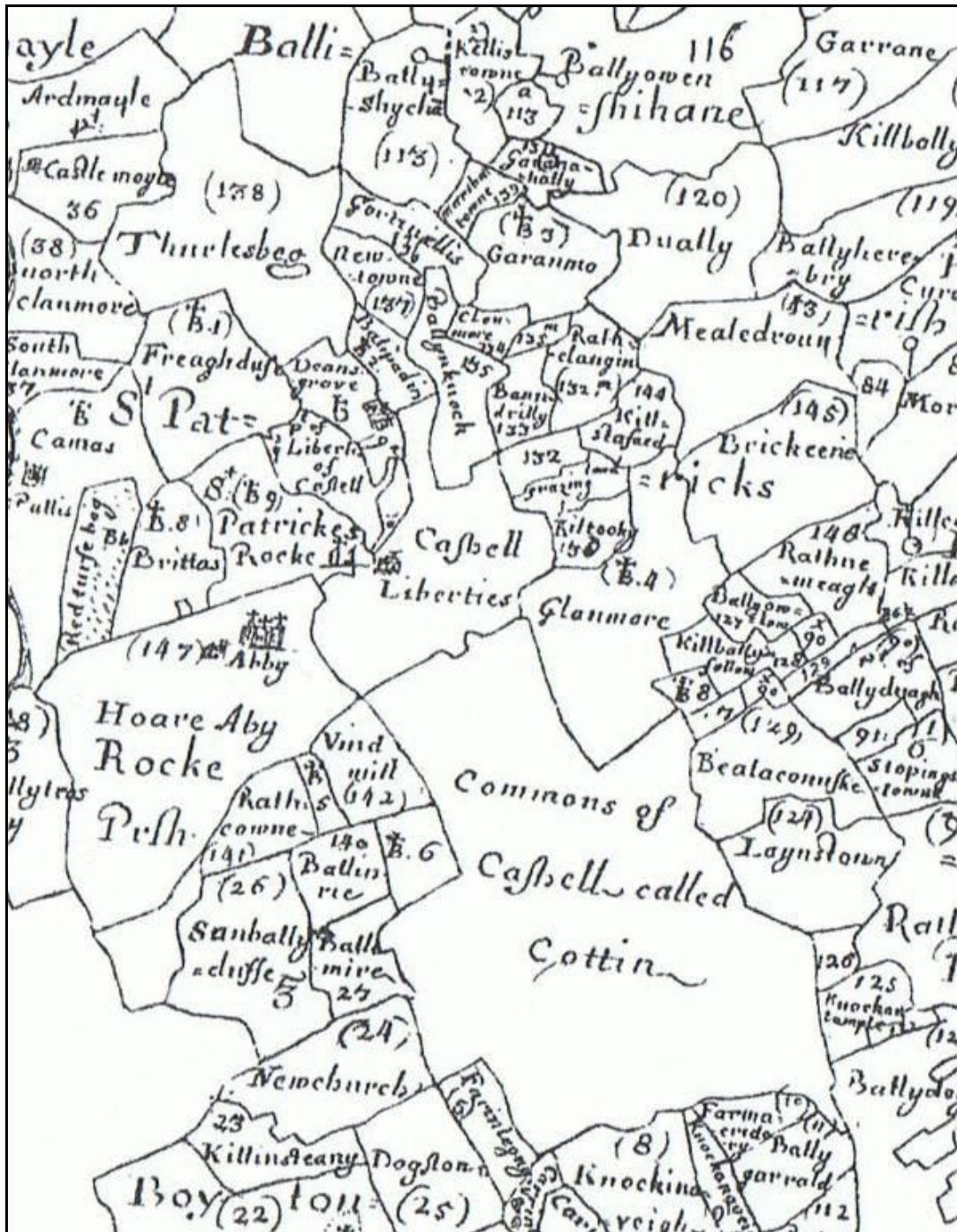


Figure i: Down Survey map of the Barony of Middlethird by W. Petty, 1654–6. Rathdangin is marked (132)

Books of Survey and Distribution for County Tipperary

In the Books of Survey and Distribution the following proprietors are listed in 1640 for the townlands in the parish of St. Patrick's Rock that were investigated on the bypass:

Proprietor	Townland
Edmond Stapleton, Gortmakellis	Gortmakellis
Walter Sall, Garrane Clonmore	Bandrilly &
John Hanly, Cashel	Kilscobin
Derby Ryan, Cashel	Windmill

Table v: Extracts from the Books of Survey and Distribution for St. Patrick's Rock, 1640 (Marnane 2001)

In Petty's Census of Ireland for 1659 can be found the following information for those townlands where excavations took place on the bypass:

Parishes	Places	No. of People	Titulados Name	English	Irish
St Patrickes rocke Parish	Georg island	7	Oliver Lathom gent Anne Salli Widdow gent		7
	Killstobine	3	as above		3
	Rathardin	22	Thomas Perkins	2	20
	Gort McEllice	29	Mathew Pennyfether gent	2	27
The additional upon review					
St Patricks rock P'ish	Rathardin	2	?		2

Table vi: Census of Ireland c. 1659 (Pender 1939, 306–9)

In the Tipperary Hearth Money Records can be found the following information for those townlands where excavations took place on the bypass:

[Year] 1665 Baronia de Midlle Third. Parochia De St. Patrick's Rocke		
[Name]	Hths.	s.
John Kearney, de Kyllscohyne	1	2
James Hyad	1	2
Math. Pennyfeather, Gorttmcellis	2	4
Hugh Sterman, Rathordan	1	2
Thomas Kealy	1	2
Teige Kealy	1	2
William Dwegin	1	2
Edmond Rushell, Windymill	1	2

Table vii: Tipperary Hearth Money Records for 1665 (Laffan 1911, 13)

[Year] 1666–7 Barony of Middlethird.					
Parishes of St. Pates, Rock...					
[Name]	Hths.	s.		Hths.	s.
*Ballyfarsny			Rathdangin		
Edmund Leary	2	4	Morrish Hackett	1	2
Richard McJames	1	2	Richard Brittine	1	2
Connor Harrell	1	2	Donnogh Carny	1	2
Teige O'Kelly	1	2	James Head	1	2
Daniel Scully	1	2	Richard Carny	1	2
John Boyton	1	2	Windmill		
Teige Rian	1	2	Edmund Russell	1	2
Gortmaceill	Hths.	s.	Rathordane	Hths.	s.
Mathew Pennyfather	2	4	Thomas Kelly	1	2
William Hackett	1	2	James Woodlocke	1	2
Edmond Lahy	1	2	Teige Kelly	1	2
Gerald Listune	1	2	Thomas Hickey	1	2
David Nolane	1	2	John Kent	1	2
			John Carny	1	2
Killscobin	Hths.	s.			
Mr. Richey	1	2			

*Most likely this is Farnamanagh as it is in the Parish of St. Patrick's Rock and next to Hoar Abbey.

Table viii: Tipperary Hearth Money Records for 1666–7 (Laffan 1911, 97–8)

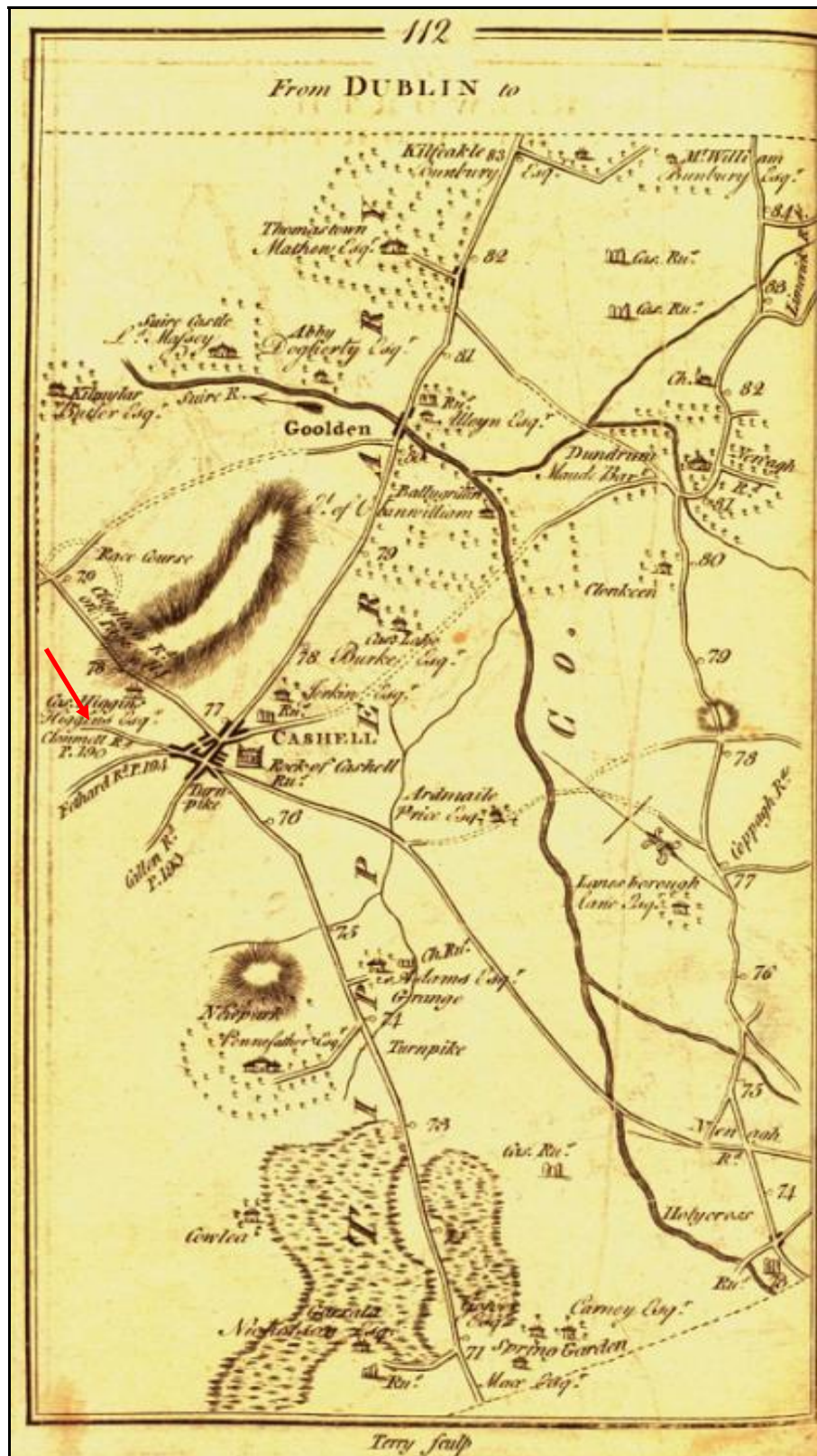


Figure ii: Taylor Skinner Road Map of Cashel 1778, approximate location of Site 30i indicated.

The townland does not appear in the Tithe Applotment Books for Cashel, being in the Commons of Cashel.

Census Returns for 1841 & 1851

These census returns reveal the full extents of the Great Irish Famine in the Cashel area.

Census Year	1841				1851			
	Houses	Male	Female	Tot. Persons	Houses	Male	Female	Tot. Persons
Gortmakellis	14	-	-	95	8	-	-	43
Ballyknock	13	-	-	88	6	-	-	39
Clonmore	4	-	-	23	2	-	-	9
Monadreele	10	35	33	68	2	4	8	12
Boscabell	16	49	48	97	8	23	25	48
George's-Land	1	4	2	6	1	3	5	8
Kilscobin	2	3	5	8	2	2	3	5
Hughes'-Lot East	10	28	33	61	8	21	22	43*
Rathordan	27	102	92	194	18	58	58	116
Waller's-Lot	6	27	14	41	9	31	25	56*
Cooper's-Lot	7	14	18	32	5	15	18	33
Owen's & Bigg's-Lot	5	17	15	32	5	20	13	33
Windmill	20	57	61	118	8	26	16	42
Deerpark	2	6	8	14	1	4	4	8
Farranamanagh	47	160	159	319	34	92	83	175

Table ix: Census Returns for 1841 & 1851. *indicates part included in Cashel Urban District (Dalton 1994, 167–8; Meskell 1987, 254–6)

Such comparative information allows the full impacts of the Famine to be realised at local level. These figures should be treated with caution, however, as Smyth (2012, 13) has recently illustrated the inaccuracies in the 1841 statistics. Townlands like Clonmore and Windmill saw a 50 % or more reduction in the number of houses over the 10 year period represented in the censuses. Monadreele lost eight of its 10 houses and suffered a drastic reduction in population (68 persons reduced to 12). This would have had enormous negative impacts on the locality, both socially and economically. In Monadreele, the remains of the dwelling discovered on Site 14 may represent one of these mud-walled houses abandoned during the Famine (see 03E0395 final report).

1st Edition OS six-inch map 1840

On the 1st Edition OS Map Cooper's-Lot is bounded on the north and east by Waller's-Lot, on the south by Price's-Lot, on the southwest by Owen's and Bigg's-Lot, and on the northwest by Spafield. At the extreme southeast corner of the townland the southern boundary of Cooper's-Lot intersected with the Cashel Parliamentary Boundary which ran north/south along a portion of the Rosegreen road, before branching northeast to follow the Rathordan boundary. Less than half a dozen buildings are shown on the west side of this

road. A laneway leads west from the road to a farm complex in the northern portion of the townland. North again of this farm a Swallow Hole is indicated, with a laneway leading from it to the Rosegreen road. A possible rock outcrop abutting a field boundary is depicted north of the farm and southwest of the Swallow Hole. No buildings are shown on the route of the bypass which bisected the middle of the townland in a southwest/northeast direction.



Figure iv: 1st Edition OS six-inch map of Cooper's-Lot 1840 with Site 30i indicated. Source: www.osi.ie

Primary Valuation of Tenements recorded in Griffith's Valuation for St Patrick's Rock Parish

This small townland contained the graveyard consisting of less than an acre (2 r. 38 p.), valued at 17s, and belonging to Cashel Commissioners. Fourteen tenants were listed including William Phelan Esq. who also was the Immediate Lessor to most of the other tenants. Two tenants were listed with a house and land and two others with a house and garden. Two female tenants owned a house only; Judith Carey's house was valued at 10s while Mary Ryan's was valued at 17s. Patrick Ryan was the only tenant with an office and land of less than an acre (2 r. 34 p.), valued at £1 2s and buildings at 6 s, with a cumulative value of £1 and 8s. The total acreage for Cooper's-Lot was 199 acres (1 r. 20 p.), with land valued at £245 4s, buildings at £8 19s giving a total value of £254 3s.

Townland	Acres (roods & perches)	Land £	Buildings £	Total £
Gortmakellis	357 (1 r. 18 p.)	£302 16s	£15 8s	£318 4s
Ballyknock	250 & 27 perches	£200 3s	£10 7s	£210 10s
Clonmore	65 & 15 perches	£47 18s	£4 11s	£52 9s
Monadreea	20 & 38 perches	£68 13s	£2 3s	£70 16s
Boscabell	268 (1 r. 5 p.)	£165 3s	£10 1s	£175 4s
George's-Land	104 (2 r. 5 p.)	£70 8s	£1 2s	£71 10s
Kilscobin	117 (1 r. 16 p.)	£86 2s	£3 4s	£89 6s
Hughes'-Lot East	413 (9 p.)	£680 7s	£140 14s	£821 1s
Rathordan	842 (3 r. & 4 p.)	£848 11s	£37 5s	£885 16s
Waller's-Lot	153	£314 13s	£24 16s	£339 9s
Cooper's-Lot	199 (1 r. 20 p.)	£245 4s	£8 19s	£254 3s
Owen's & Bigg's-Lot	143 & 27 perches	£148 10s	£3 19s	£152 9s
Windmill	299 (2 r. & 31 p.)	£382 15s	£11 5s	£394
Deerpark	152 (3 r. 9 p.)	£276 7s	£35 17s	£312 4s
Farranamanagh	655 (3 r. 10 p.)	£565 16s	£51 5s	£617 1s

Table x: Extract from the Primary Valuation of Tenements in St. Patrick's Rock & St. John Baptist parishes recorded in the Griffith's Valuation, August 1850, listed per total value of land and buildings.

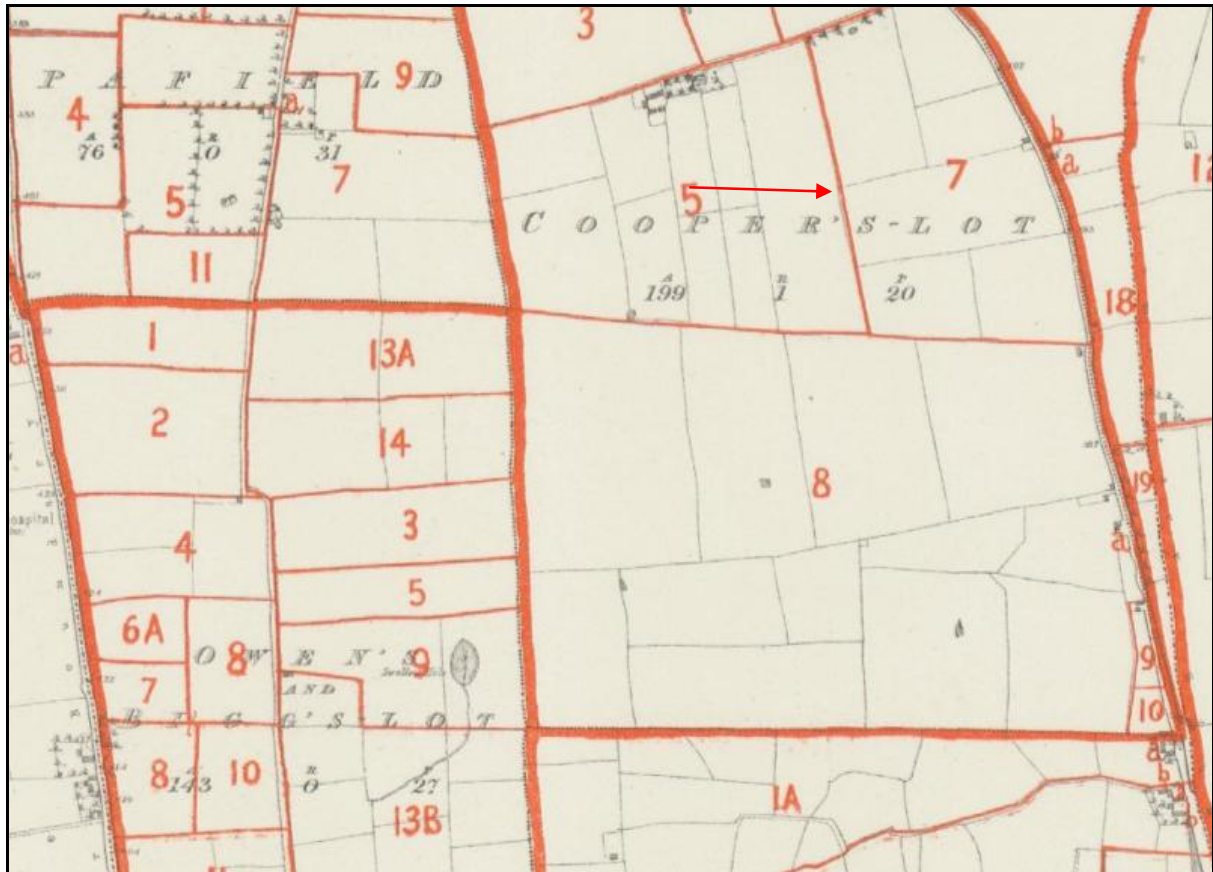


Figure v: Griffith's Valuation map with Site 30i indicated

In the Ordnance Survey Namebooks No. 126 from Relickmurry to Templemore, Cooper's-Lot was described as "Cooper's Lot Lady Caroline Damer's Lot}--Generally so called. R.C. Rector $\frac{3}{4}$ mile S.E.E. from the City of Cashel, west of the road to Clonmel and in the Barony of Middlethird. Is all tillage or pasture land.'" (O'Flanagan 1930, 110).

1st Edition OS 25-inch map

In the area of the excavation a new field boundary, oriented eastwest has been erected, thereby splitting the larger rectilinear field into two smaller fields of 4.251 and 4.342 acres respectively.

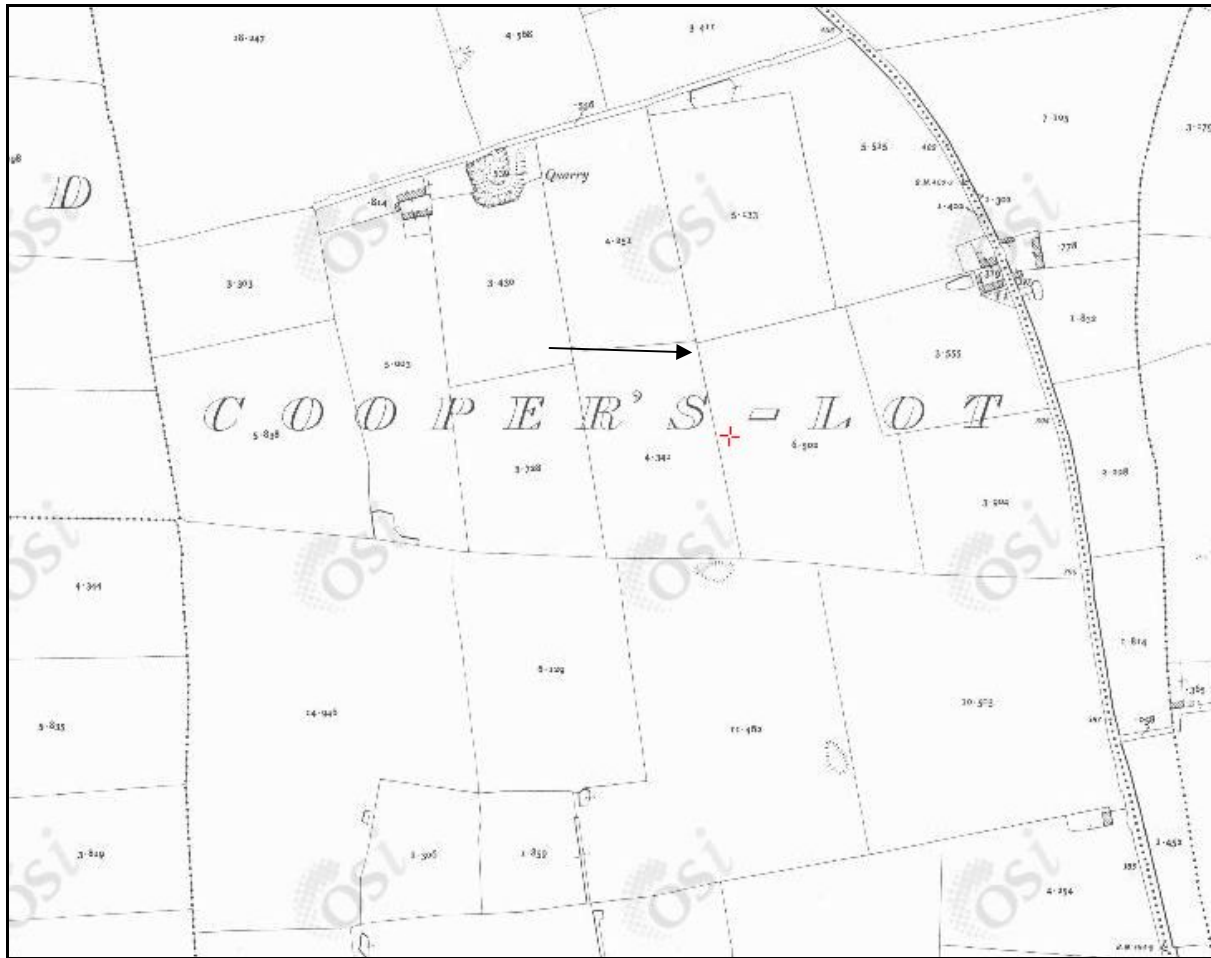


Figure vi 1st Edition OS 25-inch map of Cooper's-Lot 1901–05, with Site 30i indicated. Source: www.osi.ie

2nd Edition OS six-inch map

The growth of Cashel town is reflected in the northern townland boundary becoming the Urban District Boundary. A quarry is depicted east of and beside the farm complex and the Swallow Hole is not shown. The undulating fields are indicated by the 400 ft contour indicated on various fields. In the southwest corner of the townland some ponds, one a large pear-shaped pond, and slight alterations to field boundaries are indicated. Beside the Rosegreen road in the southeast corner 'Union Burial Ground' is marked, now known as St. Mary's Famine Graveyard.

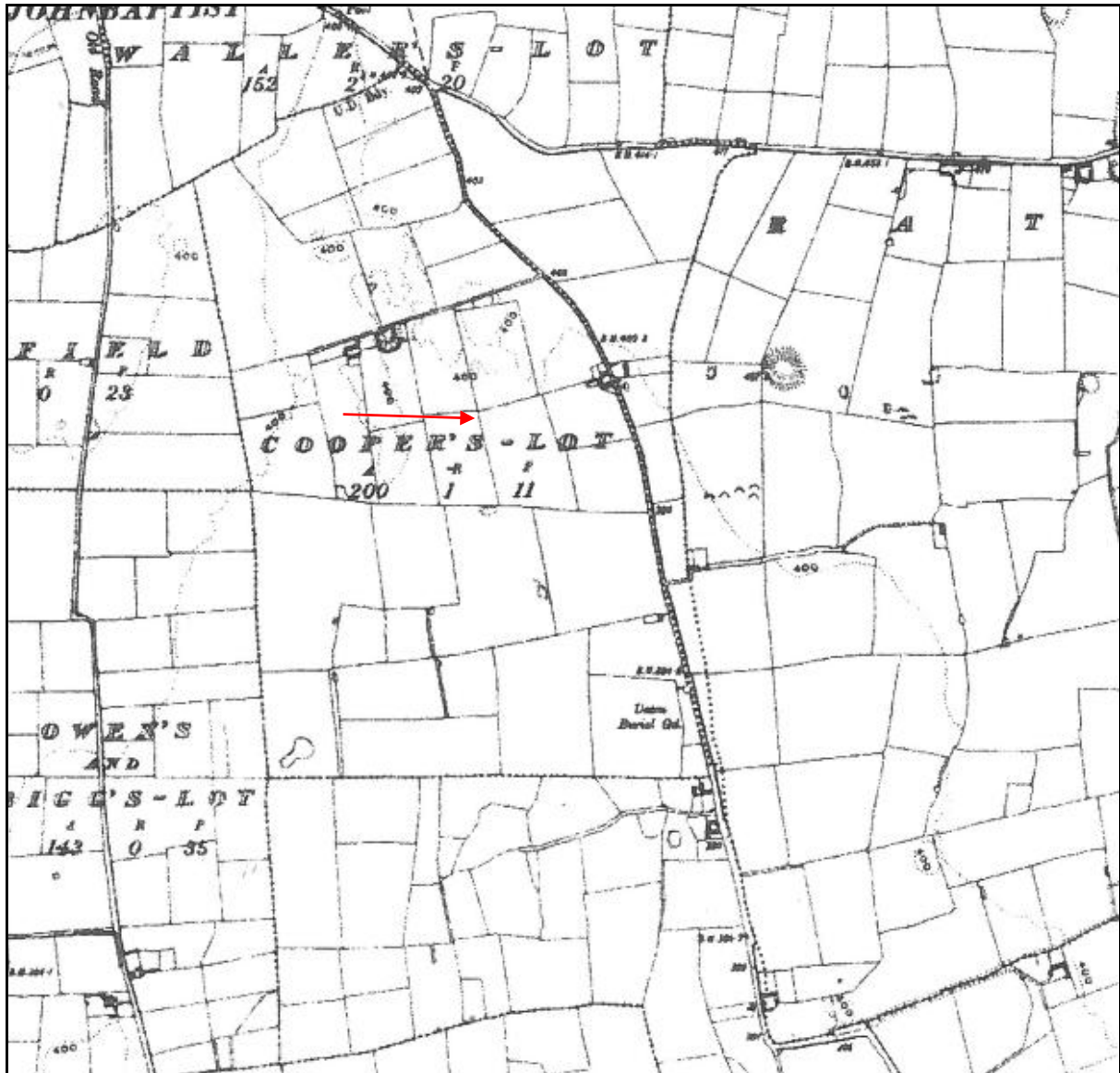


Figure vii: 2nd Edition OS six-inch map location of Site 30i, surveyed 1903, published 1906. Source: www.osi.ie

On the 3rd Edition OS six-inch map location 1954 there was no change from the preceding map.

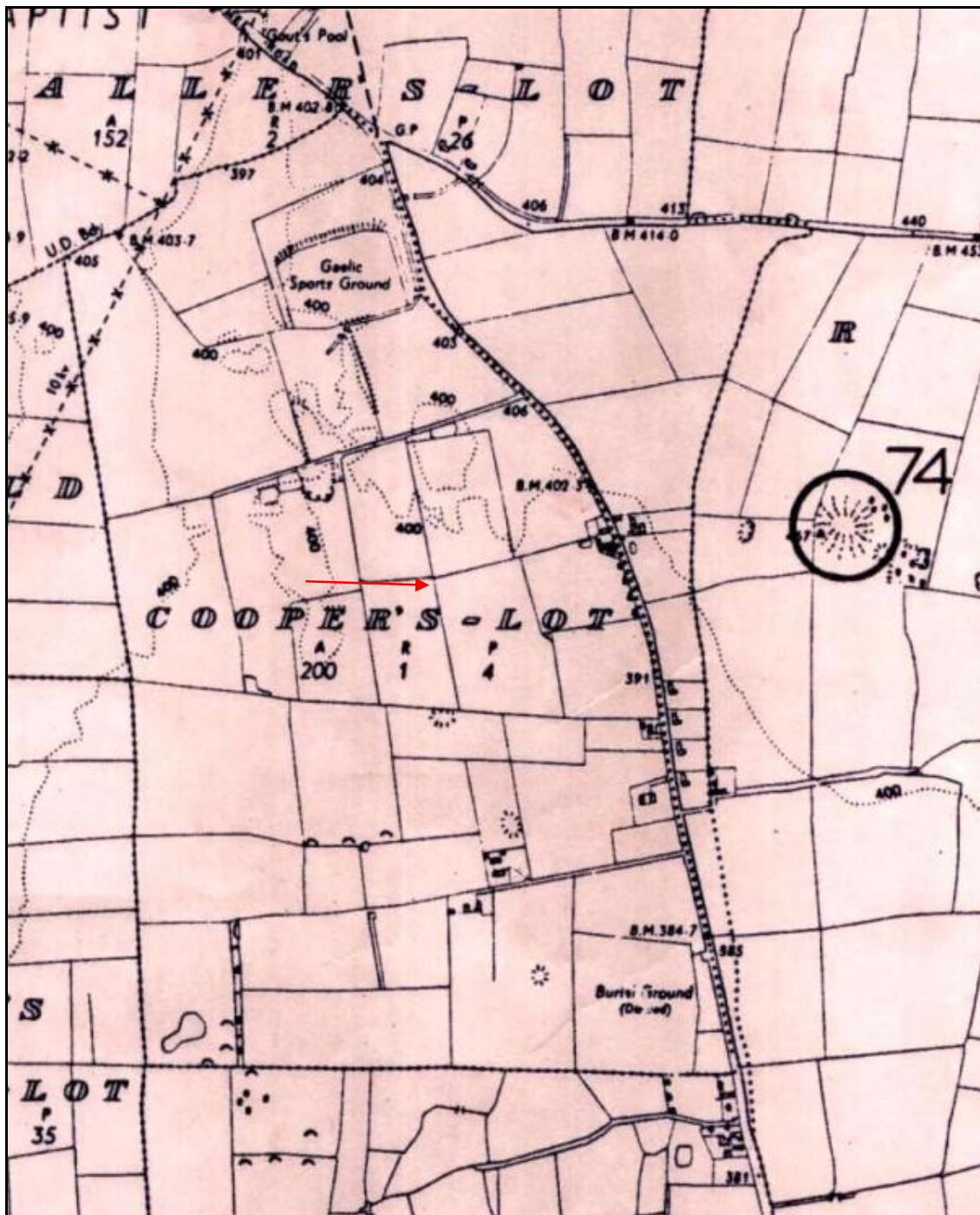


Figure viii: 3rd Edition OS six-inch map of Site 30i, 1954 (revised 1952 & 1954). Source: www.osi.ie

Vertical Aerial Information

The field boundary erected around the turn of the century had been removed sometime after 1954, thereby returning the fields to their pre-1840 layout (compare Figure viii & Plate 1).

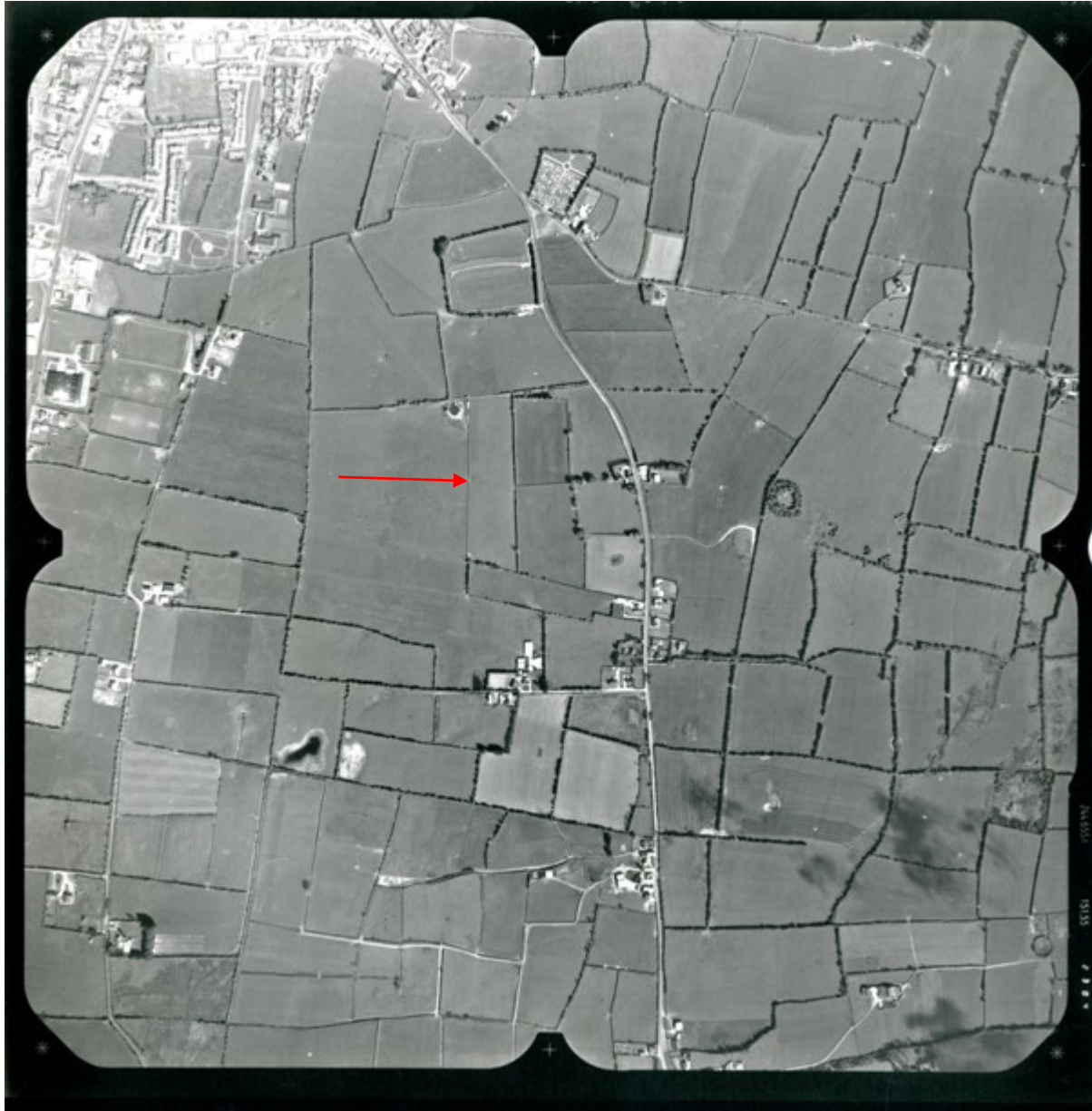


Plate 1: Vertical aerial image of Site 30i taken in 1994; N at top (source: South Tipperary County Council)



Plate 2: Vertical aerial image of Site 30i taken in 2000; N at top (source: Kilkenny County Council)

EXCAVATION (Figures ix, 3–5 & Plates 3–9)

As these fields had not been tested during Phase 1 works it was decided in consultation with South Tipperary County Council to undertake testing in advance of construction. Site 30 consisted of archaeological testing in the herringbone pattern extending from the Cashel/Cahir road at Loughfeedora northeast to the Cashel/Rosegreen road at Cooper's-Lot, chainages 2200–4100, NGR 208300 / 139300 (Figure x). Three separate archaeological areas were identified during this testing and each designated as an archaeological site - Sites 30i, 30ii & 30iii (Fairburn 2006). On Site 30i a number of features were uncovered west of a north/south oriented field boundary (Hughes 2006f). The field was under pasture at the time of excavation and the ground level was relatively flat. A pond is located to the northwest in an adjoining field. Following testing an area measuring 30 m by 120 m was stripped under archaeological supervision and the features fully excavated by hand (Hughes 2003e).



Figure ix: Site 30 archaeological testing in Cooper's-Lot, Owen's and Bigg's-Lot and Loughfeedora in 2003

Topsoil

The topsoil (13) on this site comprised friable mid brown silty clay with moderate angular and sub-angular stone (limestone) inclusions throughout. It was on average 0.4 m deep.

Subsoil

The subsoil (14) on this site generally comprised orange/brown sandy / silty clay with very frequent limestone inclusions throughout. Patchy variation in the natural subsoil was observed across the site where the sandy silty clay appeared grey in colour, possibly due to retention of moisture.



Plate 3: Site 30 test trench WT8 facing west

Five subsoil-cut features were identified west of a north/south aligned field boundary within an area measuring 4 m². One feature was definitively dated to the Late Bronze Age and further pits are suggested to be contemporaneous based on proximity and morphological similarity to the dated pit. Four artefacts were retrieved from unstratified contexts during Phase 2 archaeological testing: objects 03E0295:25 was a base sherd of Cashel-type ware medieval pottery and 03E0295:26 was a base sherd of glazed red earthenware from a bowl or

jug, post medieval in date (Appendix 7); 03E0295:23 was a hammerstone of unknown date (Appendix 8); and 03E0295:24 was an iron rowel spur of probable post medieval/early modern date (Appendix 9). The significant find was the sherd of medieval pottery as Site 30i was located only c. 500 m from the Site 30ii medieval coin hoard (see 03E0762 final report); although the sherd was more likely a night-soil deposition from the town.

Late Bronze Age pit (Figures 4 & 5)

A subcircular pit [01] was identified at the eastern limit of the site. It had well defined steeply cut sides and the break of slope to the base was gradual in the north east and south but sharp at the west. It measured 1.20 m long, 0.94 m wide and 0.2 m deep. The base of the pit was irregular with deeper pockets in places, possibly representing dislodged stone sockets. The pit contained loose dark/brown silt with frequent angular limestones, degraded sandstones and large pebble inclusions throughout (02). It also contained occasional charcoal flecking and burnt bone inclusions. The bone was in a poor state of preservation (pulp) and no diagnostic fragments were recoverable. It is unclear therefore if this feature represents a cremation pit (with human bone) or domestic pit (with animal bone). Hazel (*Corylus avellana*) charcoal was radiocarbon dated to 1013–905 cal. BC (UBA-13783) the Late Bronze Age (see Appendix 8). Analysis of the environmental sample did not shed any further light on the function of the pit (see Appendix 6). The identified charcoal included four woodland species of hazel (*Corylus avellana*), pomaceous woods (*Maloideae/Pomoideae* spp.), oak (*Quercus* sp.) and cherry-type (*Prunus* sp.). In addition, a single instance of carbonized hazelnut (*Corylus avellana*) shell and sloe-stone (*Crataegus* sp.) fruitseed were also recovered from deposit (02). Such a varied combination of woodland species, fruit and nut seeds may support a domestic refuse-type function for the pit.



Plate 4: Pre-excavation of pit [01] facing west, scales 1 m



Plate 5: Mid-excavation of pit [01] facing south, scale 1 m

Possible Late Bronze Age pits and postholes (Figures 4 & 5)

Two pits [03] and [09] and two postholes [05] and [07] were located around pit [01]. The basal fill of each pit was peaty. Pit [03] was located 0.3 m north of pit [01]. It was subcircular in shape measuring 0.85 m long, 0.5 m wide and 0.2 m deep. The edges of the pit were not as well defined as pit [01]. It had gradually sloping sides with no distinct break of slope to a flat base. The base included a small circular stakehole-like depression, but there was no difference noted between the fill (04) of the pit and the possible stakehole. Deposit (04)

comprised a loose silty mid-brown peat with very frequent large charcoal fragments and occasional small stone inclusions throughout. This deposit was otherwise archaeologically sterile.

The second, slightly smaller pit [09] was located 0.7 m south of [01] and measured 0.5 m long, 0.44 m wide & 0.18 m deep. It was subcircular feature in plan, with sharp break of slope at the top to gradually sloping sides and no discernible break of slope to a rounded base. The pit contained three deposits (10), (11) and (12). The basal fill (12) was a moderately compact dark/brown peaty clay with frequent charcoal flecking. This was sealed by a deposit of loose greyish/brown silty clay with very frequent burnt clay particles, large charcoal fragments and occasional small stone inclusions throughout (11). The upper deposit (10) was a loose mid-brown silty clay with frequent small stone inclusions and very frequent larger charcoal fragments throughout.



Plate 6: Mid-excavation of pit [09] facing southwest, scale 1 m

Posthole [05] was located 0.3 m from both pits [01] and [03]. It was circular in plan, with a well defined U-shaped cut measuring 0.35 m in diameter and 0.13 m deep. The fill was loose, dark brown silty clay with moderate charcoal flecking throughout (06). This deposit was archaeologically sterile although a single rounded stone was noted embedded in the base of the pit. A second larger posthole [07] was located 0.6 m southeast of pit [01]. It differed from posthole [05] as its' sides were vertical but it also had a rounded base. Like [05] it was circular in plan, measuring 0.3 m in diameter and 0.2 m deep. It contained deposit (08) of

blackish/brown silty peat which had frequent large charcoal fragments throughout. This fill also contained a single large stone in the base of the deposit. It is possible that each posthole contained a post-pad for an upright post and although this cannot be definitely proven, with such peat-like deposits in the area, a post-pad would have aided an upright post.

Post-medieval cultivation furrows (Figures 3 & 4)

A consistent pattern of cultivation furrows was observed across Site 30i; this pattern was mirrored across all of the test trenches in Cooper's-Lot and Owen's and Bigg's-Lot as far as the Old Road (*Rian Bo Phadraig*). The pattern comprised roughly north-south orientated furrows up to 0.4 m wide and extending across the entire width of the road-take. They were spaced *c.* 1–1.5 m apart and measured *c.* 0.4 m wide and *c.* 0.2 m deep. A number of these furrows had post-medieval, modern bottle glass and ceramic sherds lodged in their silty clay fill; these finds were not retained for specialist analysis. Because of the density of cultivation furrows observed on the site, an echo of the agriculturalisation of these commonage fields, and given the likelihood that they are post-medieval in date, it was agreed with the Project Archaeologist that only those furrows that bore any stratigraphic link with other features on the site would be investigated. A sample selection of these cultivation furrows were investigated and recorded by hand and were conclusively proved to be post-medieval in date. For that reason it was agreed that the furrows identified on this site would be recorded by DGPS, a note made of the number and orientation of all other furrows on the site, and no further investigation was done (Figure 4).



Plate 7: Cultivation furrows across the site facing east, scale 1 m



Plate 8: Cultivation furrows across the site facing north, scale 1 m



Plate 9: Mid-excavation of cultivation furrow facing northwest, scale 1 m

DISCUSSION

This present report presents the complete and updated detail of the excavation including results from radiocarbon dating. Some of the features initially found during testing were re-numbered - hence the photoboard in Plates 4 and 5 has changed (see above).

Late Bronze Age pit & associated features

Three pits and two postholes were uncovered within a 4 m² area and fully excavated. It is likely that additional features were located here but were destroyed by later ploughing, observed as the most intensely-spaced cultivation furrows noted on the bypass excavations. Furthermore, it is likely the upper portions of some/all features were removed during ploughing. Pit [01], the centre feature contained hazel (*Corylus avellana*) charcoal radiocarbon dated to 1013–905 cal. BC (UBA-13783) the Late Bronze Age period. The pit also contained occasional charcoal flecking and burnt bone inclusions. Although the bone was in such a poor state of preservation that it was unidentifiable it was likely to be animal bone. Analysis of the charcoal included four woodland species of hazel (*Corylus avellana*), pomaceous woods (*Maloideae/Pomoideae* spp.), oak (*Quercus* sp.) and cherry-type (*Prunus* sp.), in addition, a carbonized hazelnut (*Corylus avellana*) shell and a sloe-stone (*Crataegus* sp.) fruitseed were also identified. Such a varied combination of woodland species, representing the wood selected for fuel at the site, fruit and nut seeds may support a domestic, pot boiler-type function for the pit. Hazel (*Corylus avellana*) and oak (*Quercus* sp.) would

have been common to the dense woodland at the time, while the cherry-type and pomaecous woods would have grown on the margins of woodland or in clearances (Appendix 6). The environmental evidence showed that dense woodland was located in this area south of Cashel with easy access to waterlogged areas (the local ponds), but also that episodes of tree clearances and woodland margins were represented.

The remaining features on Site 30i comprised two pits and two postholes, all located in close proximity to the Late Bronze Age pit. Pit [09] was morphologically the most similar to the dated example, and is interpreted as a possible roasting pit. Its secondary fill (11) contained burnt clay particles, which may have been gathered up from a nearby hearth and dumped into the pit? This fill had sealed a basal deposit of peat, (12) which resembled the fill noted in nearby pit [03]. It is possible that the peat represented a natural formation, and the charcoal may have been deposited from adjacent activities. This natural formation process may account for the possible stakehole in the base of pit [04] also being filled with the peat – when the stake was removed the peat filled the lacuna left. The two postholes [05] and [07] were substantial features, and the possible post-pad evidence from each may suggest they were part of structure / fenceline, especially as they were spaced only 1 m apart, with the dated pit located centrally between. No hearth was found in the area although such evidence and other settlement-type features were likely removed due to the intensity of the cultivation furrows here.

Across the N8 Cashel Bypass & N74 Road Scheme features of directly comparable date were identified on Sites 5 and 9 Monadreela; Site 23 George's-Land and Site 25iii Hughes'-Lot (see various final reports; Hughes 2006e). To the east is Windmill Hill and contemporary dating evidence was found at the burnt mound complex on Site 30iii Owen's and Bigg's-Lot and at Site 38 Windmill/Deerpark. On the latter site willow (*Salix* sp.) charcoal was radiocarbon dated to 1123–906 cal. BC (UBA-13802), derived from a metal-working hearth that produced slag (see 03E0760 final report). The evidence for Late Bronze age activity in the immediate environs of Cashel is therefore both widespread and diverse.

The evidence for Late Bronze age activity in the wider area includes radiocarbon dated material from houses at Curraghatoor, Co. Tipperary (Doody 1987). As part of the N8 Cashel to Mitchelstown Road Scheme evidence for Late Bronze Age settlement was identified at the following sites: Ballylegan Co. Tipperary where a round house was identified; structural evidence was identified at Caherabbey Upper and Knockgraffon; at Suttonrath the presence

of three postholes and pits was interpreted as structural evidence, notwithstanding the lack of a ground plan identified during the excavation (McQuade *et al.* 2009, 29, 90). Northeast of Cashel in Ashhill townland a stakehole comprising the trough of a burnt mound was radiocarbon dated to 1052–896 cal. BC (Moore, Green, Hardy & Breen, 2009). Further north in Coolcroo a trough was radiocarbon dated to 1041–845 cal. BC, slightly later than the Site 30i activity (Barker & Green 2009a). Although later in date, the large-scale enclosure in Ballydavid northeast of Cashel, radiocarbon dated to 835–552 cal. BC, would have had its genesis in this earlier period with the beginnings of iron-working technologies (Hardy, Green & Stevens 2010, 64),

Post-medieval cultivation furrows

A consistent pattern of cultivation furrows was observed on Site 30i and in Cooper's-Lot townland as well as across Owen's and Bigg's-Lot townland to the southwest (Hughes 2006f; Hughes 2006g; Hughes 2006h). It generally comprised of pairs of eastwest orientated linear furrows with a 1–1.5 m gap between pairs. In general, the furrows were clearly cut into the natural substrate, many of them were intermittent with clear *terminii*. The majority of the furrows contained silty clay fills with stone inclusions, suggesting perhaps that some functioned as drains. Bell (1984, 81) inferred that medieval ridge and furrows were frequently curvilinear, although by the 19th century cultivation ridges were generally dug in straight lines. He also stated that a common practice was 'trenching', which involved digging deep furrows and using the excavated earth to cover the newly-planted crop seeds. The pattern of furrows observed here in part resembled this practice of 'trenching' (Bell & Watson 2008). It seems likely that the pattern of cultivation furrows represented later-medieval / post-medieval activity on the site, a time when the lands south of Cashel were part of the Commons of the town (see Figure i above). This may account for the intensity of cultivation noted here which inadvertently, though progressive, destroyed many earlier archaeological features.

CONCLUSION

All excavation works have finished in association with the N8 Cashel Bypass & N74 Link Road. The excavation undertaken on Site 30i (03E0754) revealed a possible Late Bronze Age settlement in the form of pits and postholes. When discussed with the contemporary activity on nearby sites there is abundant evidence for a continuous and vibrant Bronze Age presence around the Cashel/River Suir region, attested to also in the material culture of the time (Grogan 2005, 145–150). This intensive settlement allowed the emergence of large, defended enclosures/power elites to appear in the locality, such as on Windmill Hill, Rathnadrinna and the Rock summit itself (O'Brien, Gimson & Bonsall 2011, 32).

There is a very high probability of archaeological features associated with Site 30i continuing outside the CPO. Therefore proposed developments within this area should be subject to archaeological investigations prior to commencement.

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<http://www.ucc.ie/celt/published/T100005C/index.html> [Annals of the Four Masters, accessed June 2013]

Appendix 1 Context Register

Context No.	Type	Description
[01]	Cut	Cut of subcircular pit, filled with (02). Sharp break of slope at the top at the west & northern sides, more gradual towards the east & southern sides. Break of slope to the base was gradual in the northeast & south but sharp at the west. The base was irregular with deeper pockets in places, possibly representing dislodged stone sockets. Measured 1.20 m long, 0.94 m wide & 0.2 m deep
(02)	Fill	Fill of pit [01]. Loose dark/brown silt with frequent angular limestones, degraded sandstones & large pebble inclusions throughout. Occasional charcoal flecking & burnt bone inclusions also. A sample from this feature has been dated to cal BC 1013–905 (UBA-13783)
[03]	Cut	Cut of shallow, subcircular pit, filled with (04). Gradual break of slope at the top, gently sloping sides & a gradual break of slope to a flat base. A single small subcircular pocket (measuring 0.15 m long, 0.12 m wide & 0.16 m deep) was noted in the base possibly, representing the base of a stakehole? The deposit in the two features was the same. The overall dimensions of this pit were 0.85 m long, 0.5 m wide & 0.2 m deep
(04)	Fill	Fill of pit [03]. Loose silty mid-brown peat with very frequent large charcoal fragments & occasional small stone inclusions throughout. The fill of the possible stakehole in the base was the same as the main fill of the pit
[05]	Cut	Cut of circular posthole, filled with (06). Sharp break of slope at the top, gradually sloping sides & no obvious break of slope to a U-shaped base. Measured 0.35 m in diameter & 0.13 m deep
(06)	Fill	Fill of posthole [05]. Loose, dark brown silty clay with moderate charcoal flecking throughout & a single rounded stone inclusion in the base of the deposit
[07]	Cut	Cut of circular posthole, filled with (08). Very sharp break of slope at the top, steep & almost vertical sides with a gradual break of slope to a rounded but irregular base. Measured 0.3 m in diameter & 0.2 m deep. A single large stone was identified in the base of this cut, possibly representing a support / pad for a post?
(08)	Fill	Fill of posthole [07]. Blackish/brown silty peat containing frequent large charcoal fragments throughout
[09]	Cut	Cut of small subcircular pit filled with deposits (10), (11) & (12). Sharp break of slope at the top, gradually sloping sides with no discernible break of slope to a rounded base. Measured 0.5 m long, 0.44 m wide & 0.18 m deep
(10)	Fill	Upper fill of pit [09]. Loose mid-brown silty clay with frequent small stone inclusions & very frequent larger charcoal fragments throughout. Above (11)
(11)	Fill	Secondary fill of pit [09]. Loose greyish brown silty clay with very frequent burnt clay particles & large charcoal fragments & occasional small stone inclusions throughout. Below (10), above (12)
(12)	Fill	Basal fill of pit [09]. Moderately compact dark/brown peaty clay with frequent charcoal fragments throughout. Below (11)
(13)	Deposit	Topsoil. Friable mid-brown silty clay with moderate angular & sub-angular limestone inclusions throughout. Measured c. 0.4 m deep
(14)	Deposit	Subsoil. Orange/brown sandy, silty clay with very frequent limestone inclusions throughout. Patchy variation in the natural subsoil was observed across the site

		where the clay appeared grey in colour, possibly due to retention of moisture
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Appendix 2 Finds Register

Find No	Context No	Description
03E0295:23	[9]	Hammerstone.
03E0295:24	Unstratified	Iron rowel spur.
03E0295:25	Unstratified	Medieval pottery. Base sherd of Cashel-type ware pottery.
03E0295:26	Unstratified	Post-medieval pottery. Base sherd of glazed red earthenware from a bowl or jug.

Note: The same licence number, 03E0295, was used for Phase 2 archaeological testing, including the Site 30 testing undertaken here.

Appendix 3 Sample Register

Licence no	Sample no	Context no	Description
03E0754	01	(02)	Fill of pit [01]
03E0754	02	(06)	Fill of circular posthole [05]
03E0754	03	(04)	Fill of pit [03]
03E0754	04	(08)	Fill of possible posthole [07]
03E0754	05	(10)	Fill of pit [09]
03E0754	06	(11)	Fill of pit [09]
03E0754	07	(12)	Fill of pit [09]

Appendix 4 Photography Register

There were 557 digital photographs taken during the testing of Site 30 and the excavation of Site 30i which were retained in the archives.

Appendix 5 Drawing Register

Sheet No.	Scale	Description
1	1:10	Section of [01]
1	1:10	South-west facing section of [05]
1	1:10	South facing section of [07]
1	1:10	Post-excavation profile of [03]
1	1:10	South-east facing section of [09]

Appendix 6 Environmental Report

Scheme – N8 Cashel Bypass & N74 Link Road

Site Name- Site 30i Cooper's-Lot

Excavation number –03E0754

County – Tipperary

Job code – ENV/083

Author- Susan Lyons

Date – 22/05/10

Plant Macrofossil Remains & Charcoal Report

Contents

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- 3 Methodology
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 - 3.2 Charcoal
- 4 Results
- 5 Discussion
- 6 Conclusion
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Tables

- Table 1 Composition of plant remains from Site 30i, Cooper's-Lot (03E0754)
- Table 2 Charcoal Identifications from Site 30i, Cooper's-Lot (03E0754)

INTRODUCTION

This report discusses the plant macrofossil remains and charcoal remains recorded from the soil samples associated with the archaeological excavations at Site 30i, Cooper's-Lot (03E0754). While the carbonized plant remains and the charcoal are both constituted as environmental remains, they represent the results of two separate human activities. The remains of charred/waterlogged cereal remains and wild taxa can suggest evidence for arable farming and the selection of crops and plants brought to the site. The wood charcoal material on the other hand is characteristic of the wood species selected as a fuel resource and can go some way to understanding the local woodland environment.

The primary objective of the plant remains and charcoal project is to identify, analyse and interpret the botanical remains present in order a) highlighting the function of certain areas of the site or indeed the features recorded within and b) to help with understanding the change in the floral environment and activities at the site over time.

This report will later form part of an overall scheme-wide synthesis of environmental archaeological remains from the excavations along the N8 Cashel Bypass and N74 Link Road (Lyons, *forthcoming*).

1 BACKGROUND

Site 30i was excavated as part of the archaeological mitigation programme associated with the N8 Cashel Bypass and the N74 Link Road under archaeological excavation licence number 03E0754. Site 30i contained a series of pits and postholes. No finds pertaining to the function of these features were retrieved (Fairburn, 2009).

Just one flot sample from pit **C2** was analysed for plant macrofossils and charcoal remains.

2 METHODOLOGY

3.1 Plant remains

The sample was ¹processed by Eachtra Archaeological Projects Ltd (Eachtra Archaeological Projects Ltd, 2009).

3.1.1 *Sample processing (after Eachtra Archaeological Projects Ltd)*

The processing technique employed for bulk dry soil samples is one of floatation. This is where each sample is soaked in water and agitated by hand to loosen any charred remains from the soil particles which allows for this material to be separated and float to the surface. This floating material (flot) is poured off and trapped in a sieve (mesh size 250 µm) and, once dried, scanned for plant remains using a binocular microscope. The larger residual material left behind (retent) is washed through a 1mm, 2mm and 5mm mesh or sieve and air-dried. Once dry, each retent is sorted by eye and any material of archaeological significance removed.

3.1.2 *Quantification and identification of plant remains*

The flot samples are viewed under a low powered binocular microscope (magnification x0.8 to x5). Where preservation allowed, all charred remains recovered were identified to species level where applicable and the constituents quantified numerically. Those plant remains which were abraded or fragmented were recorded using an abundance key to highlight the concentrations of material identified from each sample:

+ = rare (1-10), ++ = occasional (11-50), +++ = common (51-100) and ++++ = abundant (>100)

Plant species are made using reference to the author's seed collection and standard seed atlases and references; *Flora of the British Isles* (Clapham, A R, Tutin, T G, Warburg, E F, 1957), *Zadenatlas der Nederlandsche Flora* (Beijerinck, W.1976),

¹ Soil samples are processed according to the standards and guidelines outlined in the Institute of Archaeologists of Ireland (IAI) 'Environmental Sampling Guidelines for Archaeologists', (IAI, 2006) and

Palaeoethnobotany: Handbook of Procedures. 2nd edition, San Diego: Academic Press (Pearsall, D 2000)

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3.2 Charcoal

3.2.1 Quantification of charcoal remains

Quantifying charcoal samples can be difficult as many wood species can be affected by heat in different ways and hence become fragmented into an arbitrary number of fragments. Due to the potential for a very high number of charcoal fragments from the samples, a representative sample of 50 charcoal fragments (Keepax, 1988) are randomly chosen from larger samples for identification and analysis. In the case of smaller samples all charcoal fragments within are identified. The charcoal fragments of each species identified are counted, weighted (grams) and bagged according to species.

3.2.2 Identification of charcoal remains

Wood charcoal identifications were undertaken in accordance with Section 25 of the National Monuments Act, 1930, as amended by Section 20 of the National Monuments Amendment Act 1994, to alter an archaeological object.

The flot remains were sieved through a bank of sieves (2mm, 1mm and 0.5mm) to separate the larger charcoal samples from the much smaller charcoal fibres, which would prove more difficult to identify.

The larger sized charcoal fragments (>3mm in width) were fractured to view the three planes [transverse, radial and tangential sections] necessary for microscopic wood identification. The wood species identifications were conducted under a binocular microscope using incident light and viewed at magnifications of 100x, 200x and 400x where applicable. Where applicable the number of growth rings and the curvature of the rings are also noted, which can help with determining if the material is from trunk wood or smaller branches/twigs.

Wood species identifications are made using wood reference slides and wood keys devised by Franklin and Brazier (1961), Schweingruber (1978), Hather (2000) and the International Association of Wood Anatomists (IAWA) wood identification manuals and (www.lib.ncsu.edu/insidewood) by Wheeler, Bass and Gasson (1989).

4 RESULTS

The plant remains recorded from Site 30i are presented in **Table 1**.

The results of the charcoal identifications are presented in **Table 2**.

Charcoal – Fragmented charcoal was recovered in relatively low concentrations from pit (C2).

Four species totalling 15 identifications were recorded. Hazel (*Corylus avellana*), poameous woods (Maloideae/Pomoideae spp.), oak (*Quercus* sp.) and cherry-type (*Prunus* sp.) were all identified.

Carbonized nutshell – A single fragment of carbonized nutshell was recorded from pit (2). Based on the curvature and striation marks on the shell, it is tentatively identified as hazelnut (*Corylus avellana*) shell.

Carbonized wild taxa – A single fruitstone identified as hawthorn (*Crataegus* sp.) was recovered from C2.

5 DISCUSSION

The only botanical remains recorded from Site 30i other than charcoal was carbonized nutshell and a hawthorn fruitsone/sloe. Nut shell recorded from archaeological sites is usually interpreted as the waste debris of gathered foodstuffs that have been discarded onto fires, the remnants of drying or parching hazelnuts near or over a fire and material collected with wood for fuel or kindling (Moffet *et al*, 1989; Greig, 1991). Gathered foodstuffs such as hazelnut are high in protein, fats, and other vitamins (Vitamin E) and minerals (Monk 2000) and would have played a

part in a daily diet. Hazelnuts and sloes may have also been attached to wood that was collected as firewood for fuel (Monk, 2000), which could explain their presence within this pit.

Based on such a low concentration of botanical remains from these pits, it is difficult to ascertain the exact function of these pits and no further interpretations can be put forward at this time.

Charcoal was the primary charred material recorded from pit C2. Charcoal is a common result of occupational activity on archaeological sites and usually reflects the use of hearths and burning activities in and around the site and/or cleaning out and dumping of this burnt debris into nearby open features. At Site 30i the charcoal for the most part is likely to represent the remains of firing debris associated with activities associated with these features. A mixed charcoal assemblage of hazel, pomaceous woods, cherry-type and oak were recorded.

Hazel woodlands replaced birch in the early post-glacial forests and remains on some shallow limestone soils to the present day (Pilcher & Hall, 2001). The species can tolerate most soil types, but not waterlogged conditions and forms a small deciduous tree or shrub. It commonly occurs in understorey of oak and/or ash woodlands, where it may grow to a height of 10m or more. In open areas or woodland glades hazel grows as a shrub. Hazel is a common species recorded from Irish archaeological sites and its widespread presence is highlighted in pollen diagrams from the Neolithic to the medieval period (Caseldine, 1996). It produces good firewood and is a suitable wood for kindling. The wood is soft enough to be split yet flexible and strong enough to be used in rope making and basketry. It has also proved a useful resource in the construction of hurdles, wattling, palisades and trackways from prehistoric times (Pilcher & Hall, 2001).

The pomaceous wood species includes the genera *Malus* (apple), *Pyrus* (pear), *Sorbus* (rowan/mountain ash or whitebeam) and *Crataegus* (hawthorn). They are anatomically very similar and in the absence of bark, buds and leaves cannot be differentiated between each other very often. The pomaceous wood types are small deciduous spiny trees or shrubs and are common to the scrub margins of woodlands and hedgerows (Gale & Culter, 2000). The apple species, often crab apple (*Malus sylvestris*) in woodlands, is a light-demanding tree and is often found in open oak

woods. When dry, crab apple makes for good firewood. Rowan or mountain ash (*Sorbus* sp.) is a hard, smooth wood which can be split and worked with ease. The wood from all members of the Pomoideae is hard with a close, compact grain, ideal for carving and engraving.

The cherry species can be difficult to distinguish in the absence of bark, buds and leaves. Wild cherry (*P. avium*) is a medium to tall tree, common to woodlands and hedges on light, well-drained soils. It produces inferior firewood. The timber is a red colour and although tough and hard is unsuitable for outdoor use as it decays easily (Gale and Culter, 2000). Bird cherry (*P. padus*) is a smaller tree and less common than wild cherry. It grows in marginal woodland as a solitary tree and can live for up to eighty years (Rackham, 1980). The wood has no real economical value, although has been used in barrel production (Gale and Culter, 2000). Both species are used in the production of ornamental or culinary objects (Gale and Culter, 2000). Blackthorn (*Prunus spinosa* L.) is a spiny shrub often found in woodlands where the canopy has been opened up and is quick to colonise clearings and rapidly forms dense thickets, particularly in coastal regions. It is also found near streams, growing close to alder (Orme and Coles, 1985). This species does not usually live beyond forty years and produces new shoots from their roots. When fully matured, its sharp thorns act as a barrier shielding younger trees from grazing animals (Hickie, 2004).

Oak is a tall deciduous woodland tree, often growing in association with hazel and ash. Most species prefer damp, non-calcareous soils on lowland or montane sites. Of the 27 European species, pedunculate oak (*Quercus robur*) and sessile oak (*Quercus petraea*) are native to Ireland. Pedunculate oak is common on heavy clay lowland soils whereas sessile oak thrives on the lighter loams characteristic of higher ground (Culter & Gale, 2000). The wood is easy to cleave both radially and tangentially and has provided one of the most important building materials since the prehistoric period (Gale & Culter, 2000). The heartwood timber is renowned for its durability but the paler sapwood is susceptible to beetle and fungal attack. The strength of the timber depends on the species and is influenced by climatic and edaphic factors (Edlin, 1951). When burnt, oak charcoal, particularly the dense heartwood, has higher

calorific values than most European woods and this can make for good long-lasting fuel (Culter & Gale, 2000).

6 Conclusions

The analysis of the plant remains and wood charcoal from pit (C2) at Site 30i, Cooper's-Lot provided the opportunity to highlight and interpret the archaeobotanical material recorded at the site.

No botanical remains indicative of arable agriculture, such as cereal remains, were recorded at the site. The presence of carbonized nutshell and sloe-stone many reflect the remains of gathered foodstuffs or fuel debris brought to the site.

Four wood species were recorded from charcoal fragments recovered from C2. This material is likely to represent the wood selected for fuel at the site, but based on the charcoal alone it is difficult to ascertain the exact nature of this feature. Hazel, and oak would have been common to the dense woodland, while the cherry-type and pomaecous woods would have grown on the margins of woodland or in clearances.

7 Recommendations

1. There is no further identification work required on these samples from Site 30i, Cooper's-Lot. Any additional processed samples associated with features excavated at the site should also be scanned to determine if there are any other plant remains present, which may help with the interpretations put forward.
2. All flot samples associated with Site 30i should be *retained permanently* in accordance with the National Monuments Act 1930 (Section 2) and the National Monuments Act 1994 (Section 9) and for future archaeobotanical research studies to be carried out.
3. A record of the methodology and results of this analysis should be included in any final report

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Table 1. Composition of plant remains from Site 30i, Cooper's-Lot (03E0754)

Context number	Sample number	Flot volume (grams)	Context description	Wood charcoal	Carbonized nutshell	Carbonized wild taxa	Comments
2	1	1.2 grams	Fill of pit	++	+	+	<i>Crataegus</i> sp. (x)

Key: + = rare (1-10), ++ = occasional (11-50), +++ = common (51-100) and ++++ = abundant (>100)

Table 2. Charcoal Identifications Site 30i, Cooper's-Lot (03E0754)

Context number	Sample number	Flot volume (grams)	Context description	Wood Species Identifications	No. of fragments	Charcoal weights (grams)	No. of growth rings	Growth ring curvature	Comments
2	1	1.2 grams	Fill of pit	Corylus avellana (hazel)	9	0.7 grams	2 - 4 rings	weak	
				Maloideae spp. (pomaceous woods)	4	0.4 grams	2 rings		
				Prunus sp. (cherry-type)	1	0.2 grams			
				Quercus sp. (oak)	1	0.2 grams			

Appendix 7 Medieval and Post Medieval Pottery Report**The pottery from****Site 30: Cooper's-Lot, Owen's and Biggs-Lot, Loughfeedora (03E0295)****N8 bypass and the N74 link road, Cashel, Co. Tipperary****Clare McCutcheon MA MIAI****Introduction:**

Two sherds of pottery were presented for study. One sherd 03E0295:25 dates to the 13th-14th century while the second sherd 03E0295:26 is from a small post-medieval vessel, possibly a bowl or jug.

Cashel-type ware (03E0295:25):

A single sherd of Cashel-type pottery was recovered. Although not directly related to this pottery, it is of interest to note the recovery nearby of eighteen silver pennies of Edward II (1307-1327).

The sherd is identified as part of the base of a medieval jug, locally-made and styled Cashel-type, wheel-thrown, glazed and typical of the mid-13th to early 14th centuries. The sherd is worn but shows dark grey in section with pink/cream surfaces. The use of the suffix *-type* indicates that the ware is most probably locally made although no kiln has yet been recorded (Blake & Davey 1983, 39-40). A possible area of pottery production is at Crokerath, mentioned in 1308-9 as part of the manor of Knockgraffon, some three miles to the south-east of Cashel (White 1932, 147). Nearly thirty miles further east, at Callan Co. Kilkenny, the place name Pottlerath or *Ráth an Photaire* may also indicate the presence of a potter. Both

suggestions, however, are based on the name of the rath rather than any specific reference to the making of pottery. At the manor of Thurles, Philip, David, William and Agnes Crocker were listed as tenants in 1303 (*ibid* 79-80) and the name Crocker is a sure indication of pottery production, coming from the English term for earthenware potter (Le Patourel 1968, 102). It is very possible that there was a lively pottery production in the south Tipperary/Kilkenny area during the 13th and early 14th centuries.

Assemblages containing locally-made medieval glazed pottery were recovered at Bank Place, Chapel Street, the County Hospital (McCutcheon forthcoming (a-d)) and at Friar Street (Johnston & McCutcheon 2004). Excavations in Golden, Kilfeakle and Tipperary town have also produced some very similar glazed medieval pottery but the quantities are still too small to say for certain that these originated specifically in Cashel itself (McCutcheon forthcoming (e-g)).

Glazed red earthenware (03E0295:26):

Glazed red earthenware or 'brownwares' were made widely in Britain and Ireland from the later 17th century through to the 19th century (Dunlevy 1988, 24-5). Because of the standardisation of the clay and vessel form it is always difficult to specify a particular production site but a typical kiln was excavated at Tuam, Co. Galway with milk pans and dishes comprising a majority of the vessels (Carey & Meenan 2004). The fabric is generally sandy earthenware, usually oxidised buff to light orange through to brown. The clear lead glaze takes its colour from the fabric with variations due to firing conditions (Jennings 1981, 157).

The sherd is the base of a small vessel, possibly a jug or a bowl with internal ginger coloured glaze.

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Appendix 8 Metal Finds Report

Catalogue of metal finds from N8 Cashel Bypass.

Jacqueline Mac Dermott.

The finds are catalogued by site number, excavation number and artefact number. Objects recommended for illustration or photography are listed within each site.

Site 30i, Cooper's Lot, Owen's and Bigg's Lot and Loughfeedora.

A well preserved rowel spur was found unstratified on Site 30i. It has straight sides and a short blunt-ended goad with a slit for a rowel or disc. One of the arms has a fixed rivet fitting with evidence for tinning, which slowed down the corrosion process and brightened the spur's appearance (Jope 1956, 35-42; Ellis 1995, 127). The earliest rowel spurs appeared in the 13th century, but only became popular in the 14th century (Ellis 1995, 127). These medieval spurs had arms that plunge downwards from the goad junction to bend at the ankle. The Site 30i spur has modern style straight arms. Its general appearance suggests it is not of any great antiquity.

03E0295:24

Rowel spur. Iron. Short blunt goad with split for rowel or disc, now missing. Straight arms, one broken, the other terminating in a round headed fixed rivet. Evidence of tinning on rivet head. L 124mm; W 65mm; T 11mm. Context: unstratified.

References:

Ellis, B. 1995. 'Spurs and Spur fittings' in Clark, J. *The medieval horse and its equipment*. London.

Jope, E.M. 1956. 'The tinning of Iron Spurs: A continuous practice from the Tenth to the Seventeenth Century' in *Oxoniensia Vol 21*.

Appendix 9 Worked Stone Report

**Identification of Stone Artefacts from
the N8/M8 Cashel Bypass – Cooper's
Lot, Owen's and Bigg's Lot and
Loughfeedora Townlands**

Client –

South Tipperary County Council,

County Hall,

Emmet Street,

Clonmel.

Service provided by:

RUNITT Geological and Geoarchaeological
Services, Tig na gClocha, Carrigadrohid, County
Cork Tel: 087 6847622 Email: r.unitt@ucc.ie

Identification of Stone Artefacts from the N8/M8 Cashel Bypass – Cooper's Lot, Owen's and Bigg's Lot and Loughfeedora

Introduction

This report describes the petrography of stone finds uncovered during the development of the N8/M8 Cashel Bypass from Cooper's Lot, Owen's and Bigg's Lot and Loughfeedora townlands. The report includes an introduction to the local geology and a description of the stone finds and their probable provenance.

Geology of Cashel and the Adjacent Areas of County Tipperary

The geology of Cashel and surrounding areas is composed entirely of Carboniferous aged rocks (355-290 million years ago) with a variable covering of glacial sediments. The Carboniferous rocks are sedimentary in nature having formed in environments ranging from warm shallow seas to swamp-filled river deltas.

The oldest rocks are composed predominantly of limestone deposited in warm shallow equatorial waters during the Lower Carboniferous period. Differences in the limestone and its associated rocks have meant that they have been divided into a number of separate 'Formations'. The following is a list of the 'Formations' and their distinctive geological characteristics.

The 'Durrow Formation' is found to the north and west of Cashel and consists of fossiliferous limestone and shale, characterised by coral-bearing shale and thick muddy limestone.

The 'Suir Formation', occurring from northwest to southwest of Cashel, consists of pelley bioclastic limestone or cross-bedded oolitic grainstone.

The 'Ballyadams Formation' can be found to the north, south and east of Cashel and consists of pale-grey limestone. Characteristic features include thick-bedded colonial coral-bearing bioclastic limestone. In many outcrops large lithostrotian coral colonies are found.

The 'Lagganstown Formation', occurring to the south and west Cashel, consist of thick-bedded shaly limestone with seams of irregular chert nodules.

The 'Hore Abbey Formation', which forms the Rock of Cashel as well as other areas to the west and southwest, consists of many different limestone types and can be very rich in chert.

The 'Clogrenan Formation', occurring northeast to southeast of Cashel, consists of blue-grey, crinoidal, cherty limestone.

The limestone 'Formations' are overlain by sandstones and shale of Upper Carboniferous age, representing a regression of the sea to the south to be replaced by large deltaic systems. Outcrops form the Slieve Ardagh coalfield and extend to areas east, north and west and Cashel. The rocks are again separated into 'Formations' dependant upon their distinctive geological characteristics.

The 'Killeshin Formation' overlies the limestone via a disconformity (break in deposition/erosion). The Formation consists of dark-grey mudstone with minor flaggy sandstones and occasional nodules (bullions) of iron-carbonate cemented clay-stone.

The 'Breggaun Flagstone Formation' occurs in small areas to the north and east of Cashel and consists of micaceous sandstone and silty shale.

The bedrock geology is overlain by a mixture of glacially derived unconsolidated sediments, alluvial sediments associated with the local watercourses and a variety of subsoils and soils derived from both the bedrock and superficial deposits.

Cooper's Lot, Owen's and Bigg's Lot and Loughfeedora (Site 30)

Cooper's Lot, Owen's and Bigg's Lot and Loughfeedora are underlain by limestone (some cherty) of the Ballyadams Formation and the Lagganstown Formation.

A single stone artefact was recovered from this site consisting of a coarse-grained sandstone cobble, used as a hammerstone and probably derived from local glacial or alluvial sediments.

Catalogue of Stone Finds from Cooper's Lot, Owen's and Bigg's Lot and Loughfeedora

Site 30

03E0295:23 – Hammerstone: Pale grey, coarse-grained, slightly micaceous sandstone.

Appendix 10 Radiocarbon Date

Site 30i: 03E0754	Lab code UBA-13783	Context (02) Sample 1: Hazel charcoal <i>Corylus avellana</i>	Radiocarbon Age BP 2809 +/- 22	Calibration data set: intcal 09.14c # Reimer <i>et al</i> 2009
		% area enclosed	cal AD ranges	Relative area under probability distribution
		68.3 (1 sigma)	cal BC 994-985 980-927	0.128 0.872
		95.4 (2 sigma)*	cal BC 1013-905	1.000

Information about radiocarbon calibration

RADIOCARBON CALIBRATION PROGRAM*
CALIB REV6.0.0

Copyright 1986-2010 M Stuiver and PJ Reimer

*To be used in conjunction with:

Stuiver, M., and Reimer, P.J., 1993, Radiocarbon, 35, 215-230.

Annotated results (text) - -

Export file - c14res.csv

References for calibration datasets:

PJ Reimer, MGL Baillie, E Bard, A Bayliss, JW Beck, PG Blackwell,
C Bronk Ramsey, CE Buck, GS Burr, RL Edwards, M Friedrich, PM Grootes,
TP Guilderson, I Hajdas, TJ Heaton, AG Hogg, KA Hughen, KF Kaiser, B Kromer,
FG McCormac, SW Manning, RW Reimer, DA Richards, JR Southon, S Talamo,
CSM Turney, J van der Plicht, CE Weyhenmeyer (2009) Radiocarbon 51:1111-1150.

Comments:

* This standard deviation (error) includes a lab error multiplier.

** 1 sigma = square root of (sample std. dev.^2 + curve std. dev.^2)

** 2 sigma = 2 x square root of (sample std. dev.^2 + curve std. dev.^2)

where ^2 = quantity squared.

[] = calibrated range impinges on end of calibration data set

0* represents a "negative" age BP

1955* or 1960* denote influence of nuclear testing C-14

NOTE: Cal ages and ranges are rounded to the nearest year which may be too precise in many instances. Users are advised to round results to the nearest 10 yr for samples with standard deviation in the radiocarbon age greater than 50 yr.

Graham Hull TVAS
TVAS (Ireland) Ltd
Alish
Ballinruan
Crusheen, Co. Clare
Ireland
VAT No. IE6360113C



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

Radiocarbon Date Certificate

Laboratory Identification: UBA-13783
Date of Measurement: 2010-07-02
Site: N8Cashel Bypass Site30i 03E0754
Sample ID: 30i S1 2
Material Dated: charcoal
Pretreatment: AAA
Submitted by: Graham Hull TVAS

¹⁴C Date: 2809±22

AMS δ¹³C: -22.4

25iv S1 25

UBA-13776

Radiocarbon Age BP 2160 +/- 20

Calibration data set: intcal09.14c

% area enclosed cal AD age ranges

68.3 (1 sigma) cal BC 247- 319

206- 174

95.4 (2 sigma) cal BC 354- 290

232- 158

133- 117

Reimer et al. 2009

relative area under
probability distribution

0.434

0.566

0.459

0.515

0.026

25iv S18 2

UBA-13778

Radiocarbon Age BP 1148 +/- 20

Calibration data set: intcal09.14c

% area enclosed cal AD age ranges

68.3 (1 sigma) cal AD 877- 900

918- 962

95.4 (2 sigma) cal AD 782- 789

810- 847

856- 971

Reimer et al. 2009

relative area under
probability distribution

0.368

0.632

0.016

0.103

0.981

25iv S2 25

UBA-13779

Radiocarbon Age BP 1488 +/- 20

Calibration data set: intcal09.14c

% area enclosed cal AD age ranges

68.3 (1 sigma) cal AD 562- 601

95.4 (2 sigma) cal AD 542- 622

Reimer et al. 2009

relative area under
probability distribution

1.000

1.000

25v S3 300

UBA-13781

Radiocarbon Age BP 2924 +/- 21

Calibration data set: intcal09.14c

% area enclosed cal AD age ranges

68.3 (1 sigma) cal BC 1191- 1177

1160- 1144

1131- 1108

1105- 1055

95.4 (2 sigma) cal BC 1253- 1239

1213- 1040

1032- 1030

Reimer et al. 2009

relative area under
probability distribution

0.135

0.169

0.261

0.435

0.022

0.977

0.001

30iis12 11

UBA-13782

Radiocarbon Age BP 1189 +/- 22

Calibration data set: intcal09.14c

% area enclosed cal AD age ranges

68.3 (1 sigma) cal AD 782- 789

810- 849

851- 881

95.4 (2 sigma) cal AD 775- 892

Reimer et al. 2009

relative area under
probability distribution

0.107

0.505

0.388

1.000

30i S1 2

UBA-13783

Radiocarbon Age BP 2809 +/- 22

Calibration data set: intcal09.14c

% area enclosed cal AD age ranges

68.3 (1 sigma) cal BC 994- 985

980- 927

95.4 (2 sigma) cal BC 1013- 905

Reimer et al. 2009

relative area under
probability distribution

0.128

0.872

1.000

33 S2 3300

UBA-13784

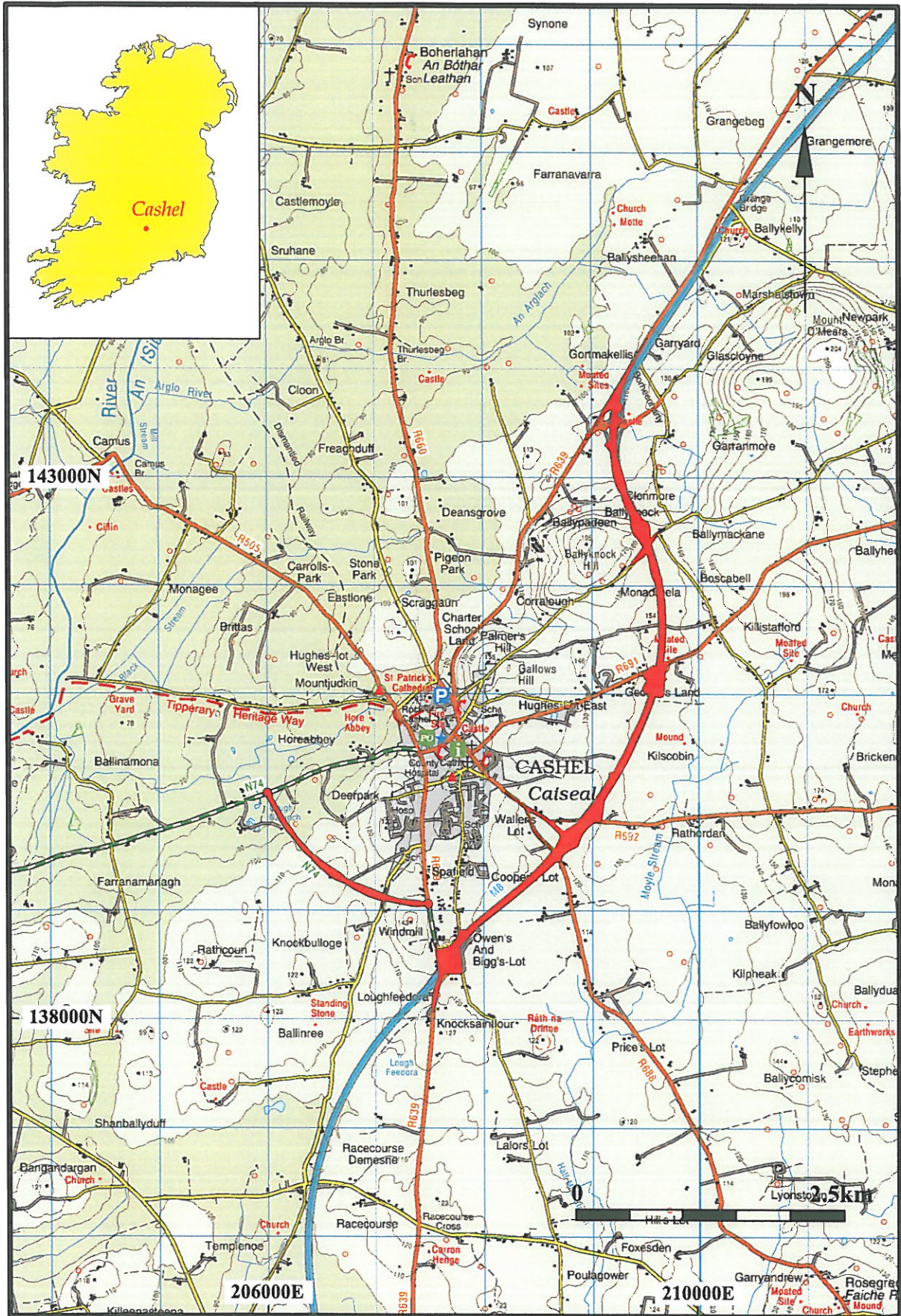
Radiocarbon Age BP 3097 +/- 22

Calibration data set: intcal09.14c

% area enclosed cal AD age ranges

Reimer et al. 2009

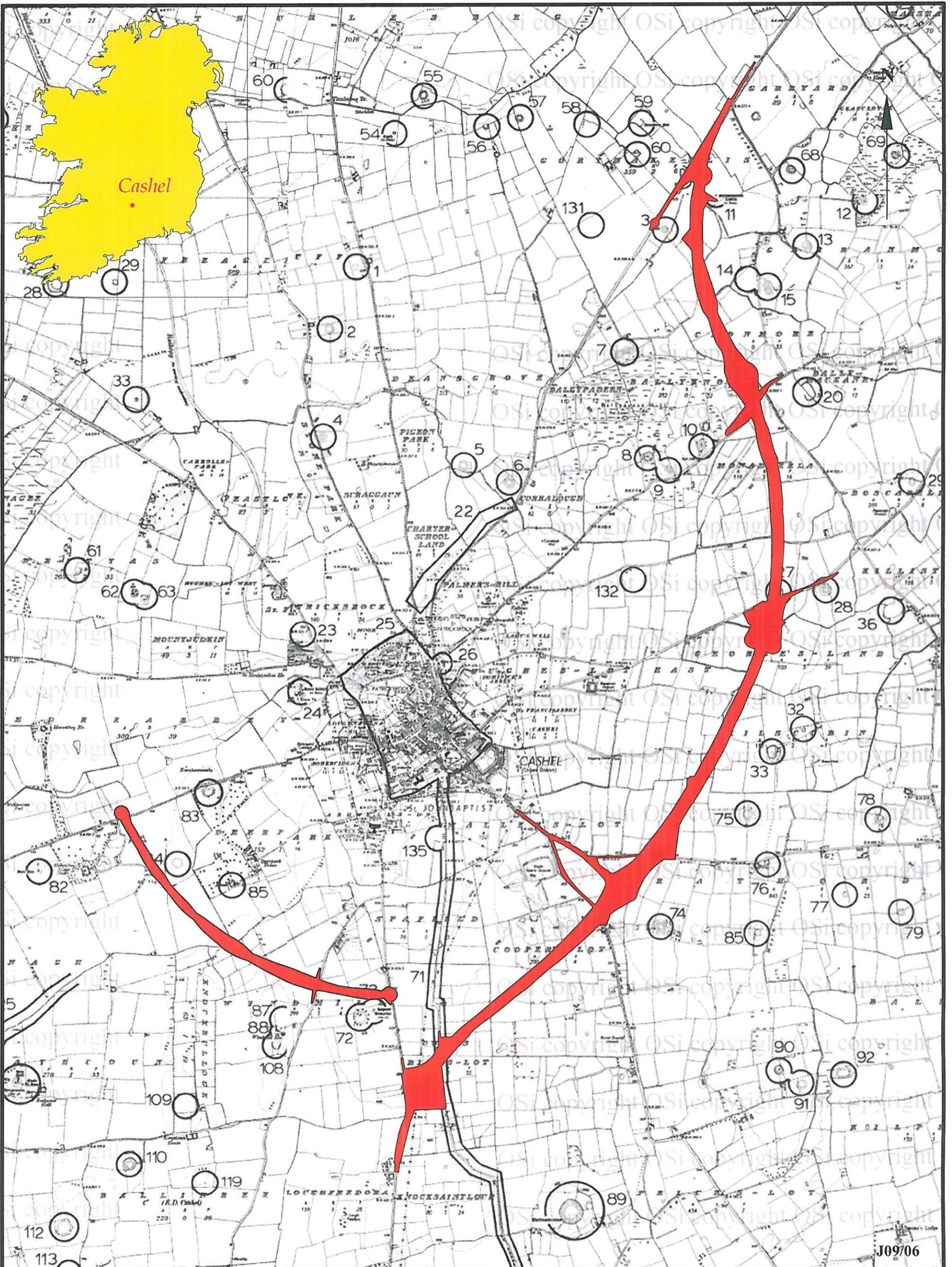
relative area under



**N8 Cashel Bypass & N74 Link Road,
Co. Tipperary**

Figure 1: Location of N8 Scheme
 Scale 1:50 000
 Based on Ordnance Survey Ireland Discovery Series 2nd Edition 2001-3, 1:50000.
 Reproduced at 1:50,000, Copyright OSI & Govt. of Ireland, OSI Licence No. AR00494 10





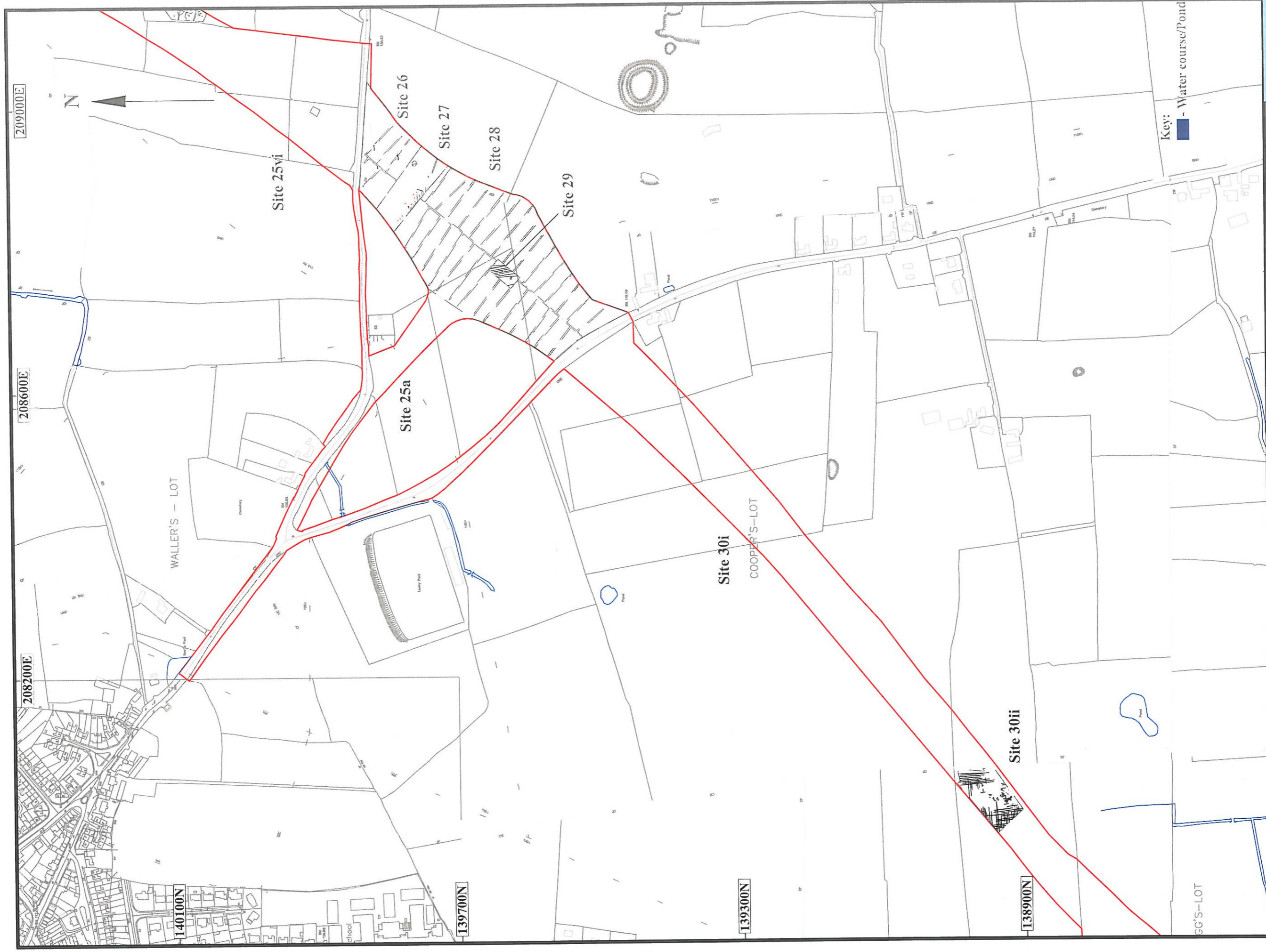
N8 Cashel Bypass & N74 Link Road, Co. Tipperary

Based on RMP Map (1998) (SR) - sheet 52, 53, 60, 61, 68, 69.

Figure 2: Scheme Location & RMP Details
Scale 1:20 000

0 1km

TVAS
IRELAND
LTD



N8 Cashel Bypass & N74 Link Road, Co. Tipperary

Figure 3: Location plan of Sites 25vi-30ii

Scale 1:5000

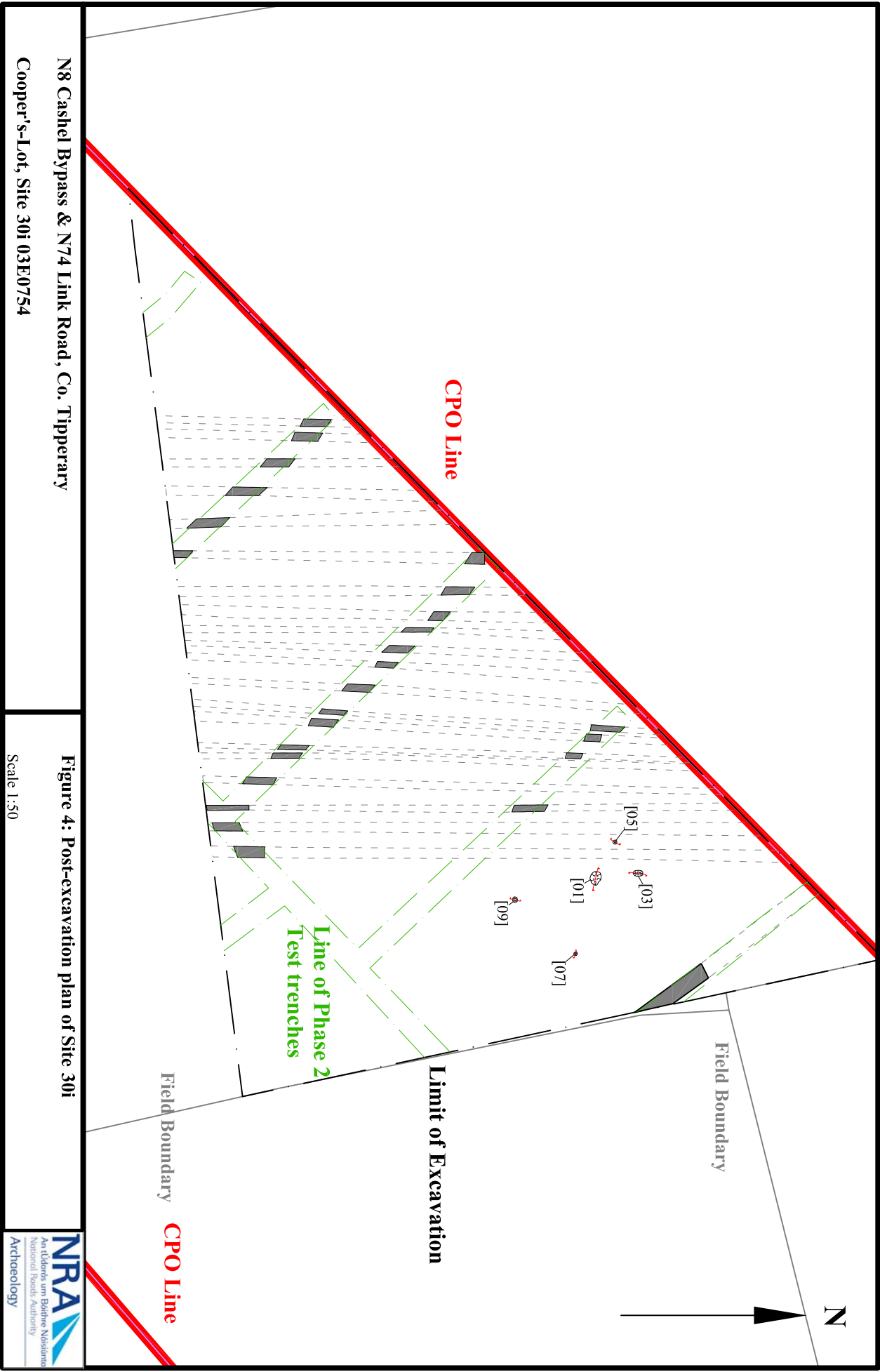
Based on Ordnance Survey 1st Edition, Co. Tipperary, Sheet 61, 6"

Surveyed 1840-41, Copyright OSI & Govt. of Ireland, OSI Licence: AR004941G

250m

0

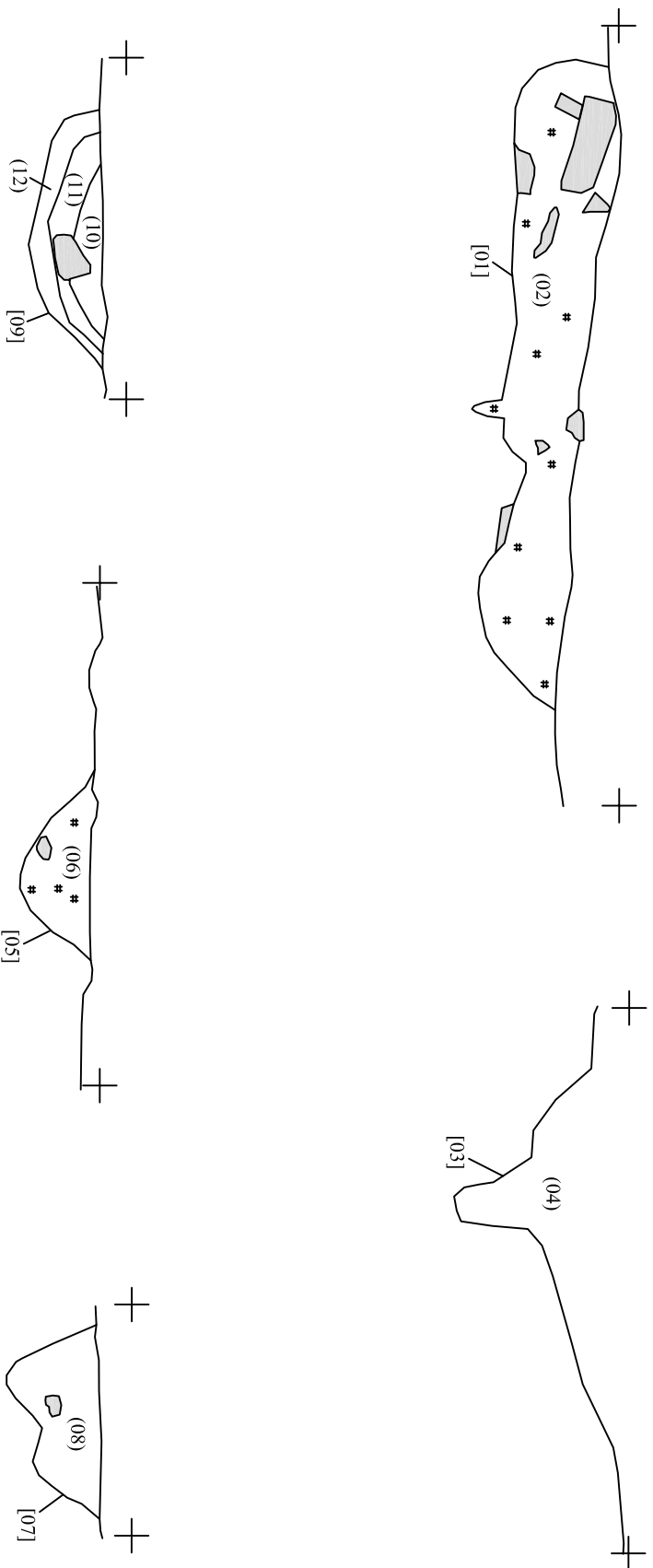
T V A S
I R E L A N D
L T D



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Figure 4: Post-excavation plan of Site 30i

Scale 1:50



Key:
 # - charcoal
 ◐ - stone



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Figure 5: Sections from Site 30i

Scale: 1:20