

N8 Cashel Bypass & N74 Link Road Phase 2 Archaeological Investigations

Licence Number: 03E0346

Site Name: Site 11

Townland: Monadreela / *Móin na Draoile*

Barony: Middlethird

Parish: St. Patricks Rock

County: Tipperary

NGR: 209654 / 141772

OD Level: 149.40 m (centre of site)

Excavation Area: 2,800 m²

Fieldwork Date: May 2003

Site Director: Neil O'Flanagan

Report Author: Richard O'Brien

Client: South Tipperary County Council

Report Status: Final Report

Report Date: May 2014



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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 & N74 Link Road (03E0346). Site 11 (chainage 6620–6660) was situated within the townland of Monadreela, east of Cashel town and comprised the investigation. An extensive archaeological test excavation programme was carried out as part of the pre-construction phase of the project by Mary Henry Archaeological Services Ltd in 2002 (02E0286). Nothing was found during this work. However, due to extensive archaeological features being found in nearby fields it was felt prudent to undertake further testing. Phase 2 archaeological testing works were conducted by Judith Carroll Network Archaeology Ltd (JCNA) between in May 2003, under licence 03E0346 granted to Neil O’Flanagan.

The earliest evidence on the site came from Neolithic dates retrieved from pits and, considering both samples were of oak, the likely date for this activity was c. 3,600 BC and the Late Neolithic/Copper Age. Middle/Late Bronze Age activity consisted of a possible posthole and one pit and as one dated sample was a cereal grain this verified a contemporary cereal drying kiln in the locality, the exact location of which still eludes. It is likely undated features on site were contemporary, as occupation of the Monadreela hillside continued unabated, evidenced from adjacent excavations. No associated settlement was apparent but clearly willow, birch, hazel, spindle and pomaceous woods were the dominant wood species still being utilised in the area. This activity was probably of an exclusive domestic-character.

Although there was an apparent lacuna in activity on this part of the hillside until the Early Medieval period, adjacent excavations have shown the hillside continued to be utilised through-out the Late Bronze Age and Iron Age periods. A significant kiln discovery represented the earliest Early Medieval activity around Cashel and it is likely associated with one of the many ringforts in the locality, perhaps even with an unknown site further west upslope on the hillside.

The bulk of the excavated evidence consisted of the southern portion of the Medieval settlement itself, the features appearing to be associated with crop processing in the main. Along with the radiocarbon dating the environmental evidence provided a direct link between the archaeology investigated here and the nearby activities on Sites 8–11: therefore Site 11 represented the southern extent of the medieval settlement in Monadreela, the liminal extent of that settlement was c. 140 m north-south, therefore being quite nucleated. Further activity resulted in the creation of the field boundary that extended south

to the junction with George's-Land, perhaps an attempt to order the fields in a better fashion. This settlement dated from the early 13th to the middle/end of the 14th century, and may have belonged to the Druhil Family, before being abandoned. A link with the Boscabell moated site TI061-027 to the south is obvious and it is likely that the peasants living in Monadreela actually constructed the moated site. No contemporary evidence was found on Sites 13 and 14 to the immediate south, so this area may have been under cultivation in this period. This would account for some of the single and double-ditched linears found throughout these fields. The fields subsequently remained in pasture until the bypass construction and the fields outside the road-take are still used for grazing cattle.

The story of the rural medieval settlement in Monadreela has been published— (Hughes & Ó'Droma 2011, 17–29), and the collective picture as excavated as Sites 7–12 is adequately encapsulated within that paper. Considering the array and complexity of the archaeological discoveries along the edge of the Monadreela hillside, it is a recommendation in this report that the fields east and west of the site be subject to archaeological investigations prior to any proposed developments taking place. These fields should also be field-walked for research purposes should the land use ever revert to tillage.

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 March 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 south-east 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 north-west for its length. The route skirts close to the hilltop enclosure at Windmill TI061-072, 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 TI061-003, Gortmakellis tower house TI061-011, Ballyknock ringfort TI061-008, Boscabell moated site TI061-027, Rathordan ringfort TI061-074, Windmill ringfort TI061-072, Windmill Leper Hospital (*site of*) TI061-073, Windmill moated site TI061-167 and Farranamanagh ringfort TI060-084. The investigation of the *Rian Bo Phadriag* roadway (TI061-071) 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

The investigations 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. In the main the natural 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 north-west-facing slope of Windmill Hill (Sites 31–35) and Windmill / Deerpark ridge the natural contained limestone bedrock outcropping overlaid by bands of gravel (Sites 38–39). A cave is shown on the 1st Edition OS Map at the extreme south-west corner of Hughes' -Lot East, near the Corporation Boundary junction with Waller's-Lot.

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 (TI061-071) 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 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 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.

Monadreela

Prior to excavations commencing there was only one RMP site in Monadreela, (TI061-020), which lay on the eastern boundary of the townland. It was a large oval enclosure open at its north-west corner, c. 200 m from the CPO and bulldozed sometime after the mid 1950's as it was not depicted on the 3rd Edition OS Map (see Figure ix below).

A comprehensive programme of archaeological testing was undertaken by Mary Henry Archaeological Services Ltd during Phase 1 testing in spring of 2002. Under excavation licence number 02E0286 a 160 m length of the bypass was tested in Monadreela between chainages 6520–6680, designated as Strip Area 4 (Lennon 2002, Drawing 1). This work identified definitive archaeological features which became designated as Sites 10, 12 and 14 respectively (Lennon 2002, Figure 3, Plates 5 & 6, Contexts C27, C33, C38 & C44). As Site 11 lay between areas of known archaeology between chainage 6620–6660 it was decided to undertake additional testing during Phase 2 works in spring 2003 (O'Flanagan & Macleod 2004). This work revealed a number of features associated with the features on Site 10 and following consultation with South Tipperary County Council an area measuring 40 m north-south by 66 m east-west (c. 2,640 m²) was fully stripped. The excavation of those features revealed during testing was carried out by Judith Carroll Network Archaeology Ltd (JCNA Ltd) in May 2003, under the direction of Neil O'Flanagan, under licence 03E0346 (O'Flanagan 2006g).

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	Monadreea										
7	03E0300	Monadreea										
8	03E0379	Monadreea										
9	03E0345	Monadreea										
10	03E0392	Monadreea										
11	03E0346	Monadreea										
12	03E0393	Monadreea										
13	03E0378	Monadreea										
14	03E0395	Monadreea										
15	03E0394	Monadreea										
16	03E0427	Boscabell										
17	03E0413	Boscabell										
18	03E0425	Boscabell										
19	03E0426	Boscabell										
20	03E0470	Boscabell										

[illegible]

T1061:071	03E1211	Owen's and Bigg's-Lot											
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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 / Deepark, 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 (TI061-072): 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 place names around Cashel recorded cartographically and / or in historical sources, such as *Poulmawkeorish* in Castlelake; *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; *Grancias 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 melt water and moraine 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 limestone from the Carboniferous period. On the west and south-west are the Hore Abbey Limestone and Lagganstown formations. To the south-east is the Ballyadams formation, with the Killeshin Siltstone and Clogrenan formations to the north-east 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 limestone. 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 south-western 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 0.20–0.60 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 TI053-096 (Waddell 1990, 134; O'Brien 2007, 93–4).

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, north-east 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 [TI060-082], 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 TI061-027 (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 on these objects at present (www.homepage.eircom.net/~dunamase/Dunamase.html) There are a number of undated megalithic structures around Clonoulty and Hollyford north-west of Cashel, recorded by the Archaeological Survey of Ireland. The nearest megalithic tomb is the portal tomb at Lissava TI075-045 near Cahir, c. 18 km south of Cashel. In Rathcoun townland south-west of Cashel four undated barrows TI060-107007–TI060-107010 and one unclassified cairn TI060-107011 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 north-east of Cashel and are now RMP sites: Palmer's Hill TI061-052, Corralough TI061-053 and Ballyknock TI061-054 – 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 *fulacht fia*, 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 2009a, 72–4). Other recent discoveries around Cashel have been made from field walking including further ploughed-out *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 heroic literature and with very occasional archaeological discoveries: the Clonura leather shield, from c. 20 km north-east of Cashel. However recent excavation in advance of development has identified both 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 south-eastern 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 TI060-028 [classified as a ringfort on www.archaeology.ie], Carron / Rathnadov TI069-002001 [also classified as a henge], Knocksaintlour TI060-179,

Lalor's-Lot / Rathnadrinna TI061-089001 and Windmill TI061-072 were classified as hilltop enclosures (Grogan 2005, Fig. 7.6, 116). A number of other monuments perhaps could be added to this list; Ballyknock TI061-008 due to its very prominent location at over 180 m OD, Hughes'-Lot East enclosure 05E0671 (143 m OD), Rathordan TI061-074 (140 m OD), and the multi-ramparted Ballinree TI060-110 are worthy of future study. Based on current evidence the nearest hillfort to Cashel is Kedrah TI075-040, 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 TI069-072 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 TI061-022 (road / hollow-way) in Charterschool Land TI061-022 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 as the *blacke ditch* commonly called the *Doochy* (Davis White 1863, 5). Another road TI060-025 which serves as the townland boundary between Farranamanagh 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 north-east 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; Gleeson 2014). In Rathcoun a complex of ecclesiastical sites include a church TI060-107002, recorded as (*site of*) *Templemabee* [Mobhi], the unclassified religious house TI060-107003 (*site of*) *Monastery*—the only monastic site marked around Cashel—and holy well TI060-107004. Rathcoun and Templenoe are two townlands south-west 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 TI060-110. *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). King Brian Uí Briain is recorded as fortifying Cashel c. 995 (AI) – this annalistic reference may not be restricted to fortification of the acropolis 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 early 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.

In the Fiants of the Tudor Sovereigns, under Elizabeth I 1576 the ‘*high rathe to the north*’ [Ballyknock?] and Lepers Hospital [Windmill] are listed amongst local names around Cashel (Fiants 1994, 485). 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 TI061-008 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 Parkinigrogory in the southern part of Cashell*’ (IMC 1966, 146). Could *Fleming’s Rath* be Windmill hilltop enclosure TI061-072?

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 south-east 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 licenced archaeological excavations taking place (Hughes & Ó Droma 2011; Moloney 2013). 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 medieval 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). The medieval town itself continues to be a focus of research (Slattery 2007; Hughes & Farrelly 2009; Hughes 2011a; O’Doherty 2012 & O’Brien, N. 2013). The most recently published excavations in the town—numbering three—revealed no archaeological features and, remarkably, no artefacts of any nature (see accounts in Bennett 2010).

A number of Anglo-Norman moated sites are recorded around Cashel (Barry 1977), including an elevated example at Windmill TI061-167 and one at Boscabell TI061-027, the archaeological zone of potential of which was investigated (Sites 18–20). Gortmakellis tower house TI061-011 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 - Borris (E2491), Fennor (E2384) & Islands (E2388, Co. Kilkenny)

Late Neolithic sites - Gortmakellis (E2816)

Early Bronze Age sites - 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 - 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 - Aughnagomaun/Ashhill (E2361), Ballydavid (E2370), Coolcroo (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 - Coolkip (E2362), Coolkip (E2363), Ballydavid (E2370), Borris (E2376), Inchirourke (E2382) & Glashare (E2394, Co. Kilkenny)

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

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

Post Medieval sites - 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 in and around Cashel. In 2009 and 2010 Earthsound Archaeological Geophysics Ltd undertook geophysical surveys at Rathnadrinna fort TI061-089001 and TI061-089002 in Lalor's-Lot. This work revealed a complex multi-period site, with evidence of large-scale earthworks predating the known fort (O'Brien *et al* 2011, 26). In 2011 Earthsound undertook a 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 (see 03E0730). A survey was conducted in the fields north of the Rock of Cashel in St Patricks Rock townland in 2011 (Gleeson 2014) and in the grounds of Cashel Palace Hotel in 2012 (Gimson & Regan 2012). Further research work in 2011 and 2012 centred on Windmill Hill sites TI061-072, TI061-073 and TI061-167 by Earthsound Archaeological Geophysics, UCC and the University of Bradford / NRA—identifying archaeological features—some of which may be associated with the activity discovered on Sites 31–36i (Gimson 2012). These results are incorporated into the various Cashel final reports.

Recent Research Excavations in Rathnadrinna Fort (TI061-089001), Lalor's-Lot, Cashel

Recent excavation funded by the Royal Irish Academy since 2012 has revealed multi-period activity at this site (O'Brien *et al*, 2011). The fort was classified as a hilltop enclosure (Grogan 2005, Fig. 7.6, 116), and evidence of prehistoric occupation on the hillside has been dated to the Early Bronze Age by the recovery of a chert arrowhead of the period. A large linear ditch predating the fort ramparts was constructed sometime in the Bronze Age period or earlier: by the Late Bronze Age period the ditch was being infilled and willow charcoal from these depositions were radiocarbon dated 748–405 cal. BC (UBA-24977), and 771–485 cal. BC (UBA-24975) respectively. The Early Medieval period is also represented on site in the form of multiple roundhouses, yards and a non-ferrous metal-working centre. A copper alloy/lead stud mount from a house-shaped shrine, inlaid in gold in a design of four entwined beasts/snakes surrounding the centre was found within the fort. This *ex situ* find has been stylistically dated to not later than the 8th century AD. Carbonised oat from the basal fill of a cereal-drying kiln discovered outside the external fort bank was radiocarbon dated cal. AD 777–980 (UBA-24976). Hazelnut found within lens of charcoal-rich clay in the central fort ditch was radiocarbon dated cal. AD 890–991 (UBA-24974). The preliminary findings from Rathnadrinna suggest the hillside had widespread prehistoric occupation—similar to Windmill hill—with the extant fort dating from at least the 7th century AD onwards (O'Brien 2014, 382–7). These results have been incorporated into the Cashel Bypass final reports where applicable.

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 ½ inches thickness at centre ¼ inch, greatest width 4 inches, width at narrow end 1 ¾ inches
- Object: Bronze axehead
 NMI No: 1880:15
 Find-spot: From Cashel
 Description: Socketed celt, bronze, brownish, patinated, looped, cutting edge curved, mouth of socket nearly round portion battered by hammering, length 2 7/8 in. width at cutting edge 2 ¼ in. greatest external diam. Of socket 1 ½ inch
- 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 ½ in width 5/8ths inch length detached portion 3 11/16ths inches wt. 1 oz. 9 dwt. 11 gr.
- Object: Silver coin Edward II
 NMI No: 1875:122
 Find-spot: North-east part of Cathedral, Rock of Cashel
 Description: Edward II, found with Bronze pin No. 121
- Object: Bronze pin
 NMI No: 1875:121
 Find-spot: North-east 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 5/8 inches, and greatest thickness of stem more than 1/8 inch
- 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 3/8 inches, greatest width of bow 1 15/16 inch. 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 ¾ inch, extreme width 1 ½ inch
- 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 lighting.
- 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 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 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 was 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 was 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 was situated in the march and was 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 was invaded by the O'Dwyer Clan and many English settlers killed.
- 1647 The Rock of Cashel was 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 was removed.
- 1869 Following a Parliamentary inquiry the Corporation of Cashel was dissolved.

Townland History

In the Place Names Database of Ireland the following dates are listed under Monadreela townland; 1243–44, 1280–90, 1297, 1303, 1304, 1306–1309, 1312, 1327, 1360, 1389, c. 1400, 1636, 1638 & 1640 (www.logainm.ie). These dates, particularly those pre-dating the 17th century derive from an interpretation of the '*dreela*' element of the name being associated with the de Druhull family (also spelt Druil, de Drehull, Droyll, Droill, de Droill, Druhill, de Drohuill and Drule), a local name recorded in such sources as the Calendar of Ormond Deeds

and Red Book of Ormond. A link with the medieval settlement discovered in Monadreela was obvious but a critical examination of these primary sources casts doubt on many of the dates listed under the Place Names Database of Ireland being associated with Monadreela.

As Table v below shows the earliest definitive Tipperary connection can be made for John de Drehull in 1297, and the earliest definitive Cashel connection is with Robert Druill in 1308. A number of the other early fourteenth century dates pertain to either Cashel or the general Tipperary area but clearly, the final date was 1312 when John de Drehull was named amongst jurors sitting in Cashel. Is this the same John de Drehull listed in 1297? Those dates from the mid to late fourteenth century, 1327 and after relate only to New Ross, Co. Wexford and Co. Kilkenny. Does this evidence suggest the name de Drehull no longer survived around Cashel by the 1400's? Clearly there were plenty references in the last decade of the 13th / first decade of the 14th century to the family being associated with Cashel and/or the Tipperary area. A study of the family, the land deeds referring to family members and identifying the location of Moyrathbyran, mentioned in the sources would be beneficial research.

DATE	NAME	DESCRIPTION	INTERPRETATION	SOURCE
1243-44	William de Druhull	Listed as a witness	No obvious Tipperary association	COD I 44
1280-90	Adam Druil	Listed as a witness to a Deed, refers to 'a carucate of land in the tenement of Duffrac, lying between the King's highway and the sea on the south of said tenement'	No Tipperary association	COD I 44
1297	John de Druhull	Mentioned	No obvious Cashel association, tentative Tipperary association	COD I 44
1301-02	John Drulle	Received letter re call for army to serve against the Scots	No obvious Cashel association, tentative Tipperary association	CDI 19
[1303]	Johann de Druhull	Johann de Druhull mentioned in the extent of the manor of Nyncheaunlef (Co. Tipperary) concerning lands in Corrayth	No obvious Cashel association	RBO 53
1303	Johanne de Druhull	Johanne de Druhull mentioned in the extent of the manor of Thurles concerning lands in Clonmore and Gortathly	No obvious Cashel association	RBO 72
1304	Willelmo de Druhull	Willelmo de Druhull mentioned in the extent of the manor of Ballygauean (Gowran) Co. Kilkenny concerning lands in Kilram	No obvious Tipperary association	RBO 60
1306	W. de Druhull	Willelmo de Druhull mentioned for Moycarky concerning lands in le Mawerie and le Horeston	No obvious Cashel association	RBO 35
1307	Gilbert de Druhull	Mentioned	No obvious Cashel association, tentative Tipperary association	CJR II 334
1307	Gilbert Droyll	Has to attend at court in Cashel along with Stephen Tirry regarding lands at Moyrathbyran	No obvious Cashel association, tentative Tipperary association	CJR II 335
1307		Common pleas at Cork Gilbert Droill named along with Stephen Terry regarding lands at Moyrathbyran which Gilbert now holds, and one tenant Ph. son of Matthew Maunsel. Philip alleged there was an error in the deed. Gilbert did not appear	No obvious Cashel association, tentative Tipperary association	CJR II 394
1308	Gilbert Droill	Mentioned in pleas at Dublin, and previously at Cashel court	No obvious Cashel association, tentative Tipperary association	CJR III 72
1308	J. de Druhull	Mentioned under the lands of Robert Purcell	No obvious Cashel association, tentative Tipperary association	RBO 56
1308		At court in Cashel John Droill mentioned as the late husband of Christiana, who held dower lands [tenements] as a gift from John in Moyrathbyran - one messuage, one mill, one carucate of land, three acres of meadow, one acre of wood and thirty acres of moor	No obvious Cashel association, tentative Tipperary association	CJR III 73

1308	Gilbert de Droill	Gilbert now held the tenements but was a minor. Court made John le Flemeng Gilbert's guardian	No obvious Cashel association, tentative Tipperary association	CJR III 74
1308	Robert Druill	Listed under Tipperary (Cashel), suggests he may be a knight	Cashel association	CJR III 76
1308	Gilbert Droyll	Gilbert Droyll listed as a minor. Listed under Tipperary	Tipperary association	CJR III 76
1308	William Droill	Listed under the liberty of Kilkenny William Droill, in his bailiwick with corn in his haggard, twenty acres of wheat and oats worth forty pence an acre	Kilkenny association	CJR III 104
1309	John de Drohuill	'Robert Wodelok acknowledges that he owes John de Drohuill, knight, two sacks of wool worth twenty marks'. Listed under Tipperary	Tipperary association	CJR III 133
1312	John de Druhull	John de Druhull named amongst jurors sitting in Cashel 'Final concord made in the King's Court at Kilkenny...before Arnald le Poer, then seneschal of Kilkenny' - William son of William de Druhull and his wife Burga listed in a deed concerning the manor of Downmore, location unknown	Cashel association	CJR III 257
1327	William de Druhull	'Deed of attorney by Thomas Drute, burgess of Rospointe, [New Ross] ...'	Kilkenny association?	COD I 254
1360	Thomas Drute	Listed as 'rector of Rathbagh'. Also spelt [Rathbathagh, Rathbough] and located in county Kilkenny	New Ross association	COD II 54
1389	John Druyl	Listed amongst individuals in the barony of Shilleloghir in county Kilkenny	Kilkenny association	COD II 210
c.1400	David Drute		Kilkenny association	COD II 351

Table v: Analysis of entries listed for Monadrecla in the Place Names Database of Ireland

Civil Survey for County Tipperary 1654–6

In the Civil Survey for County Tipperary 1654–6 the parish of Patricks Rock was described as follows: '*The sd Parish lyeth intirely in the Barony of Middlethird & County of Tipperary. The Tythes of the sd Parish is an intire Viccarage belonging to the Sea of Cashell. The whole Tythes was worth in 1640 £100. The sd parish containeth the severall Townships following with their old extent of Irish Acres whereof...Kylscoubine one acre, Georgesland one Acre. Rathdangen three acres; Banadrily one acre, Ballin Knuck five acres. Gort McEllis two acres...Windmill fower Acres...*' (Simington 1931, 219–20).

Monadreeela was referred to as Banadrilly (probably “gap of the mire”) and itemised with the townland of Clonmore to the north, comprising ‘*two acres old extent*’. The townlands were together described as comprising 119 Plantation Acres: 60 acres arable, 58 acres pasture and 1 acre of meadow, valued at £5, none unprofitable. The Proprietor in 1640 was ‘*Walter Sall of Garrane Irish Papist. The sd lands are bounded on the South with Rathdangan in this parish & Ballykunock in this parish, on the West with the sayd lands of Ballykunock in this parish. On the North with GortmcEllis in this parish, & on the east with the lands of Garranemore in this parish. The sd Walter Sall pprietor in fee by descent from his ancestors. The sd lands are wast without impvemt.*’ (ibid 223). Although it is impossible to verify, the one acre of meadow may refer to the marshy part of Monadreeela beneath Ballyknock hill.



Figure i: Down Survey Map of the Barony of Middlethird by W. Petty, 1654–6. 'Banndrilly' was marked (133).

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. Patricks Rock that were investigated on the bypass:

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

Table vi: Extracts from the Books of Survey and Distribution for St. Patricks Rock, 1640 (Marnane 2001)

Walter Sall was a member of the influential Sall family who lived in Cashel (MacCotter 1999). For instance, under the Charter granted to the City of Cashel by James II, 1638 John Sall was named Mayor of Cashel, both Robert and Francis Sall free burgesses, Geoffrey Sall merchant and both John Sall Fitz-Geoffrey and John Sall Fitz-Walter apothecaries (Finn 1930, 6–7).

Other 17th Century Sources

There are no recorded inhabitants of Monadreela in the Census of Ireland for 1659 (Pender 1939), nor in the Tipperary Hearth Money Records for 1665–7 (Laffan 1911). This may suggest Walter Sall was using the entire lands for grazing animals. In 1666 Monadreela was called *Banedrely* / *Baunedrilly* (www.logainm.ie).

Smith–Barry Cashel Estate

Much land around Cashel had been granted to the Protestant Erasmus Smith, later of the Smith–Barry estate, for services rendered to the Crown following the Cromwellian confiscations in 1652. One of the descendants, John Smith–Barry inherited these lands in 1755 and Monadreela formed part of the grant. In his analysis of the Smith–Barry Estate, valuable information relating to townlands investigated during the bypass has been recorded by Marnane (2001–2005).

Tenant	Denomination	Acres	Rent p.a.	Tenure
Barnaby Phelan	Gortmakellis, Newtown & Clonmore	260	£79	3L/1740
Wm. Pennefather	Monadreela	73	£18	3L/1729
Richard Lockwood	Windmill & Ballinree	318	£80	3L/1731

Table vii: The Smith–Barry Cashel Estate c. 1755. 'Irish acres, 3L = three lives from that date' (ibid 99)

William Pennefather, of the well-known Pennyfather family of Cashel is the only tenant listed for Monadreela and the lands had been in the family since 1729. In 1766 Monadreela was called *Monedrily* (www.logainm.ie).

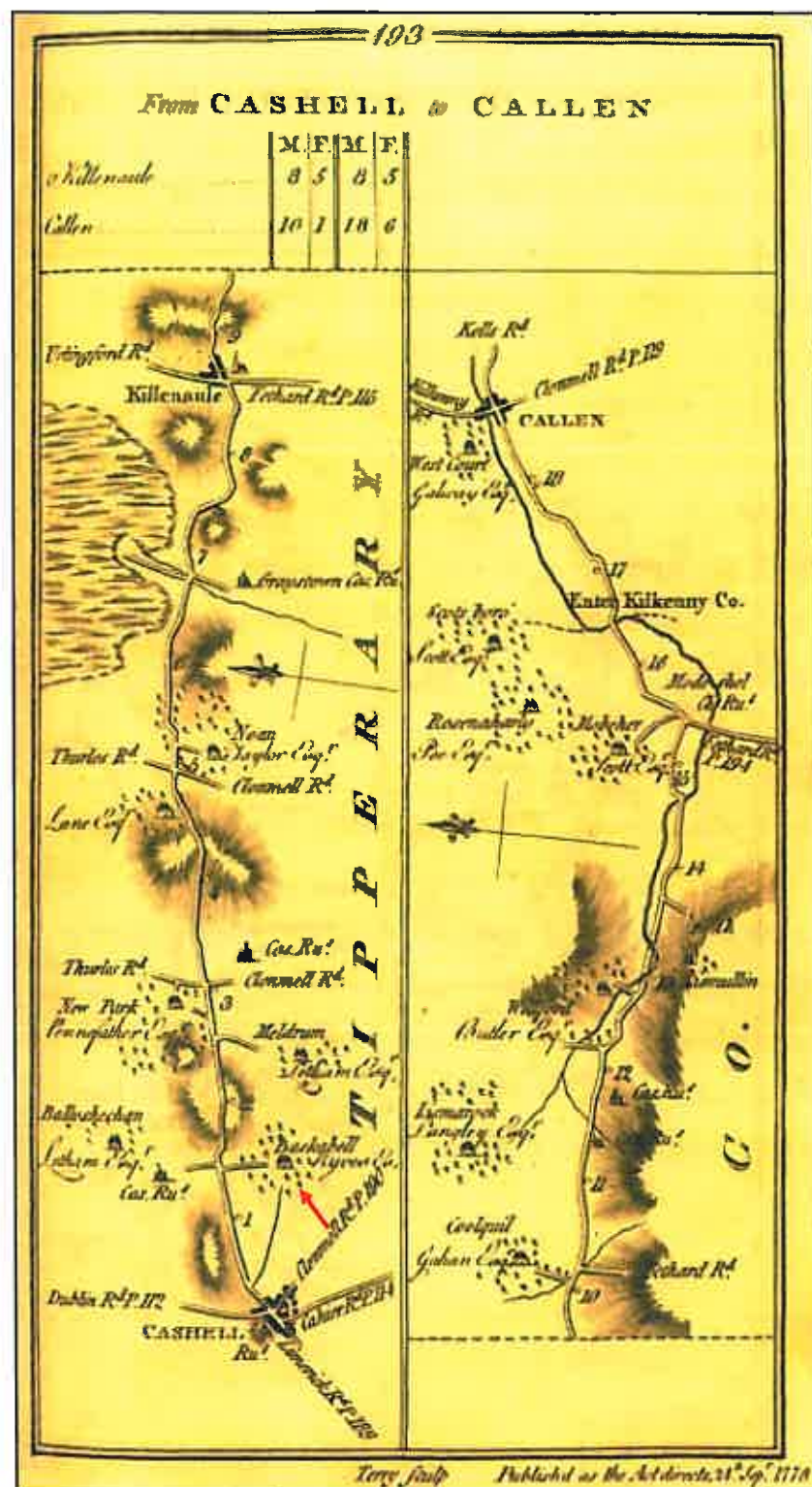


Figure ii: Taylor Skinner Road Map 1778. Around Monadreela only 'Baskabell Ryves Es.' is marked.

Tenant	Denomination	Rent p.a.
Barnaby Phelan	Gortmakellis	£79
Thomas Pennefather	Monadreela	£72
Sundry tenants	Monadreela	£116

Table viii: Rental of Smith-Barry Cashel Estate November 1813 (based on Marnane 2002, 60–1)

The above rental shows another Pennefather, Thomas, as a tenant of Monadreela along with unnamed tenants. The combined rent per annum on the lands, £188 was very high in comparison to the rent on lands at Gortmakellis. The rent per annum for Gortmakellis remained £79 from 1755 to 1813, while for Monadreela it increased from £18 rent per annum in 1755 to £188 in 1813. It is unclear why the valuations were so different but it may reflect some of the notorious financial dealings practiced by the Pennefathers sitting on Cashel Corporation, for which much has been written (Finn 1930; Marnane 2007).

The Second Report of the Commissioners of Education (recorded 1824, published 1826) listed a Roman Catholic school in ‘Moonadrilla’, described as a ‘thatched house with mud walls, an income of £10, teacher Mr. James O’Donnell and catering for 40 students’ (Moloney 1994, 224, Appendix VII). Unfortunately it is not possible to pin-point this school, although the above description would equate with the archaeological findings on the excavation of Site 14 (O’Brien 2013e).

Tithe Applotment Books for Cashel

In the Tithe Applotment Books for Cashel dating from 1827 although 16 surnames are listed for Moneadrila/Monadula, at least four are duplicate entries (www.titheapplotmentbooks.nationalarchives.ie). Names include Gavin / Gavan, Maher, Ryan, Coonane / Coonan, Smith–Barry, Quishion / Cushion and Keating / Keahry. There is no mention of James O’Donnell and his school; did it no longer exist or had the teacher changed? The Pennefathers are no longer associated with Monadreela either. Smith–Barry, Ryan and possibly Gavin / Gavan [Garavan] were still listed in the Griffiths Valuations of 1850 (see below).

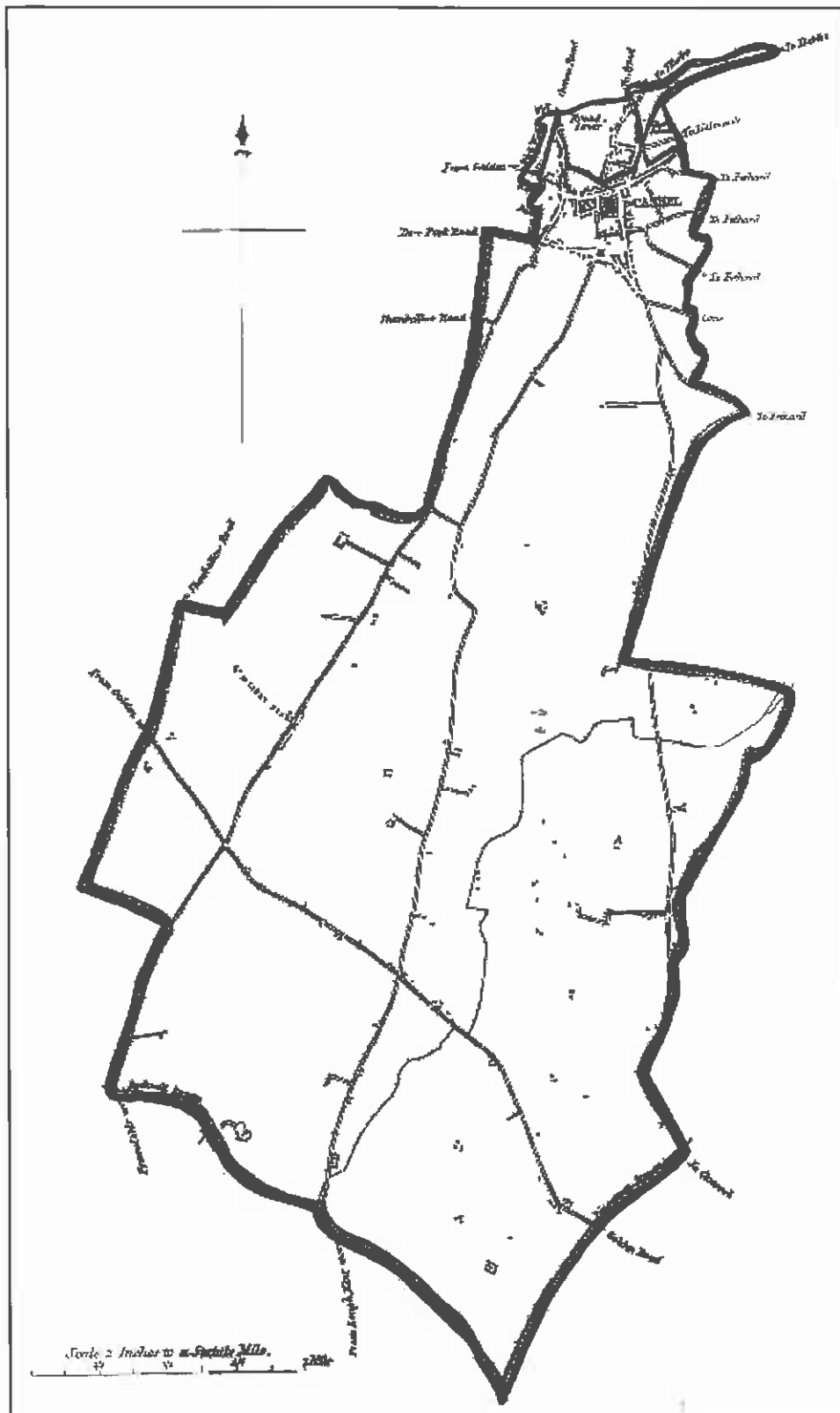


Figure iii: Municipal Corporation Boundaries (Ireland) Proposed Municipal Boundary of the Borough of Cashel, December 1831.

Although Monadreela was located outside the remit of the Corporation, the previous tenants, the Pennefathers had exercised almost autocratic control of Cashel Corporation from the 18th century (Finn 1930, 27).

Ordnance Survey Namebooks for Co. Tipperary 1840

In the Ordnance Survey Namebooks the townland name is given as *Móin na draoile*, the bog of the mire. It was ‘*on the road from Fethard to the Mail Coach road to Dublin from Cashel & South of that from Cashel to Killenaule and in the Barony of Middlethird. Is all arable and pasture*’ (Ó Flanagan 1930, 137). The name probably derived from the wet valley running north-south from Ballyknock Hill.

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			
Townland	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
Monadreela	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. Monadreela 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 Monadreela, the remains of the dwelling discovered on Site 14 may represent one of these mud-walled houses abandoned during the Famine (O'Brien 2013e).

1st Edition OS six-inch map

On the 1st Edition OS six-inch map Monadreela was bounded on the west and north by Ballyknock, on the north-east by Clonmore and Ballymackane, and on the east and south by Boscabell (Figure iv). A farmhouse and smaller out-building was located at the junction with Croke's Lane / Boscabell townland boundary, subsequently excavated as Site 14 (03E0395). The farmhouse was orientated east-west at a slight south-easterly angle; the out-building was separate and to the north-east. Both were set within a rectangular tree-lined field which extended east to intersect with a north-south orientated field boundary, and to the south the plot formed the northern boundary of Croke's Lane. Croke's Lane appeared open on this side although there was a suggestion of a gate near the lane. At the south-western corner of the townland was Ryan's (see below).

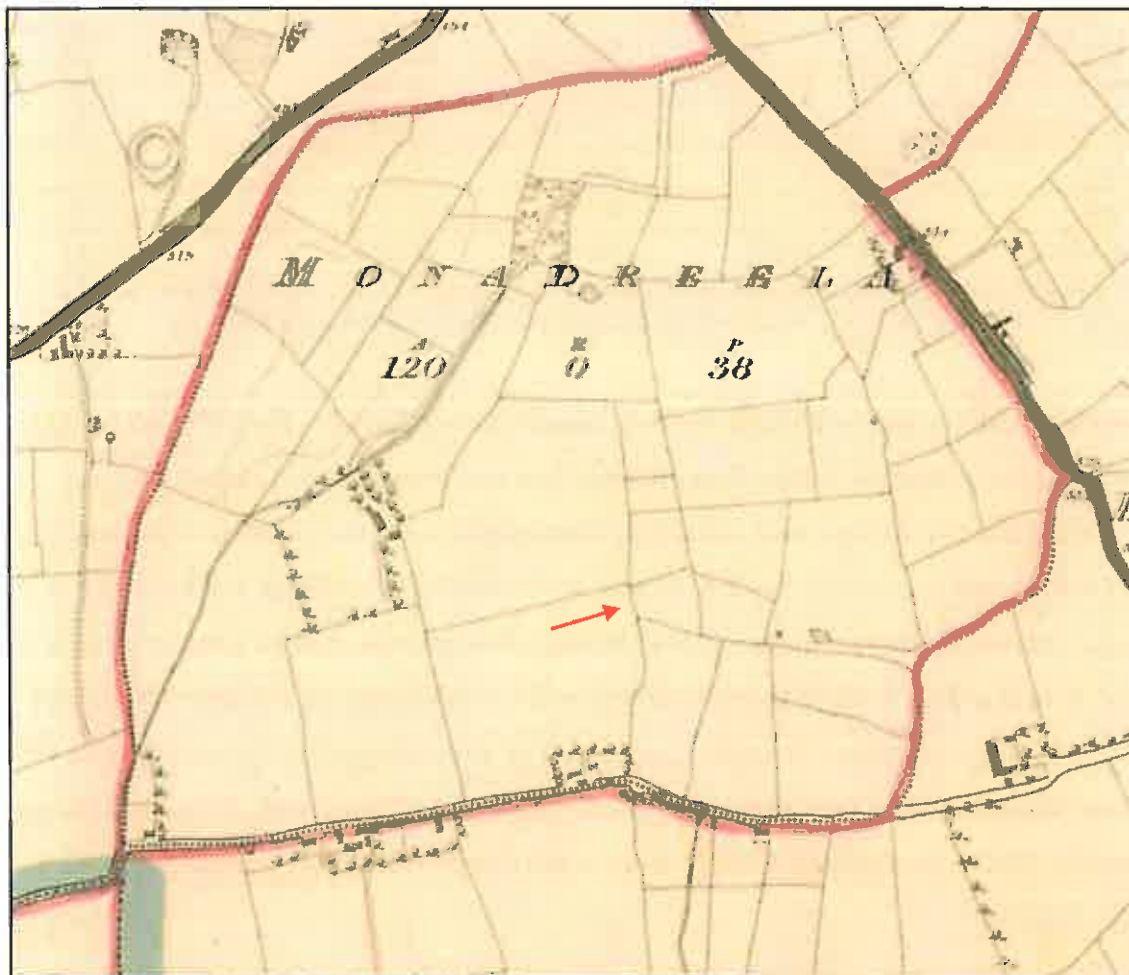


Figure iv: 1st Edition OS six-inch map of Monadreela with Site 11 indicated. Source: www.osi.ie

Primary Valuation of Tenements in St. Patrick's Rock & St. John Baptist Parishes

In the Primary Valuation of Tenements recorded in Griffith's Valuation for South Tipperary taken in August 1850 the following information is of relevance for those townlands investigated on the bypass.

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
Monadreela	120 & 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.

In Monadreela Smith-Barry, William Corboy, James Garavan [Gavin / Gavan?] and Bridget Ryan were listed as tenants: Smith-Barry himself was the Immediate Lessor and held the lands in fee. Only two houses were listed (the same number as recorded on the 1851 census); James Garavan had one acre (3 roods & 22 perches) valued at 19 shillings and buildings at 15 shillings, with a cumulative value of £1, 14 shillings. Bridget Ryan had 20 acres (1 rood & 37 perches) valued at £13, 7 shillings and buildings at £1, 18 shillings, with a cumulative value of £14, 15 shillings. No vacant houses were listed. The total acreage for Monadreela was 120 acres and 38 perches, with land valued at £68, 13 shillings, buildings at £2, 3 shillings giving a total value of £70, 16 shillings. Clearly, there was a drastic reduction in tenant numbers after the Famine.

The Griffith's Valuation map showed James Garavan's holding as No.1, with Ryan's as No. 2. The latter dwelling still survives as a ruin and was known locally within the last 50 years as 'Annie's cottage' (a young girl, Annie Ryan was listed as living in the house in the 1901 & 1911 censuses). There is no record of the school in Monadreela.

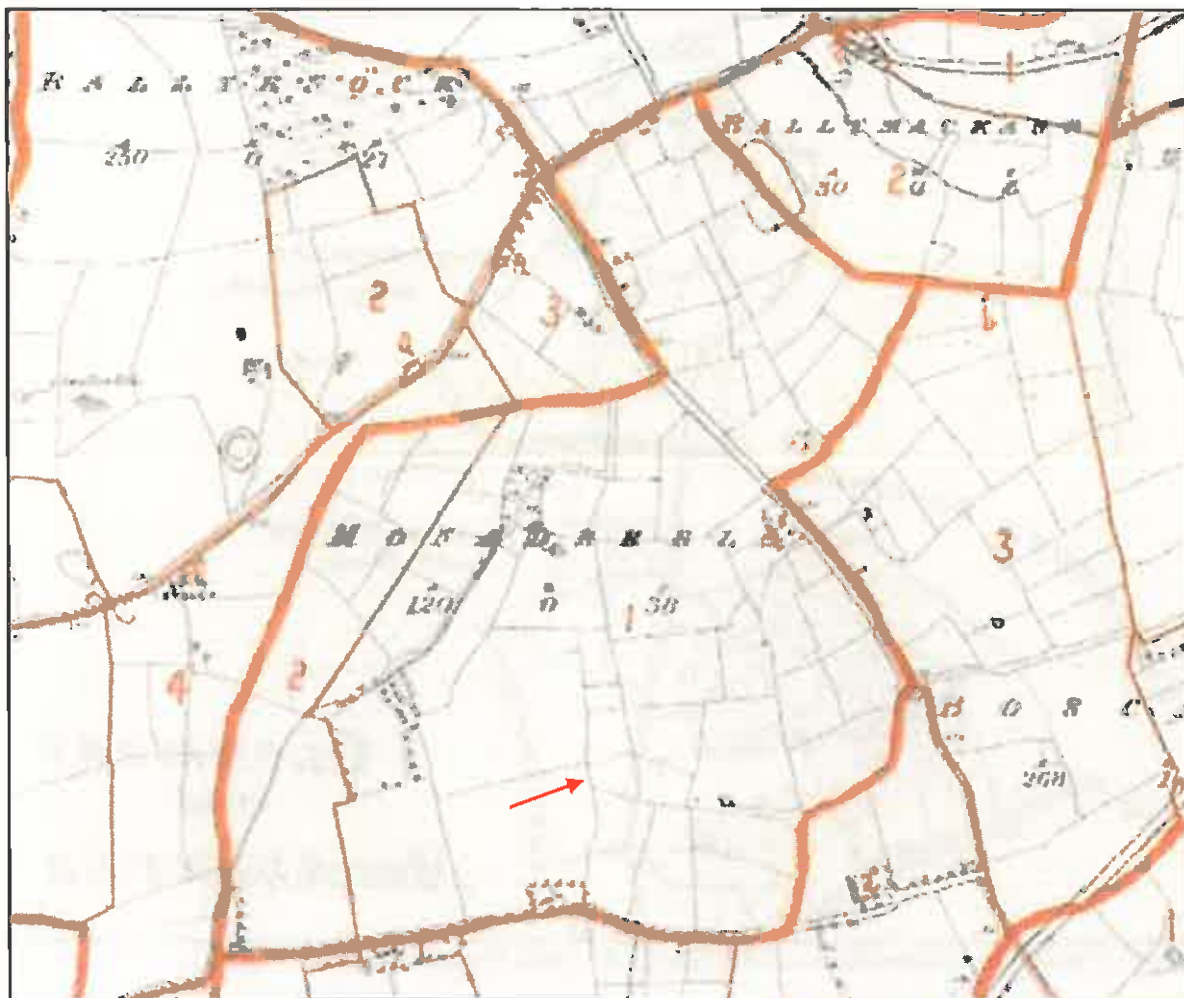


Figure v: Griffith's Valuation Map c. 1850, Site 11 indicated. Source: www.askaboutireland.ie

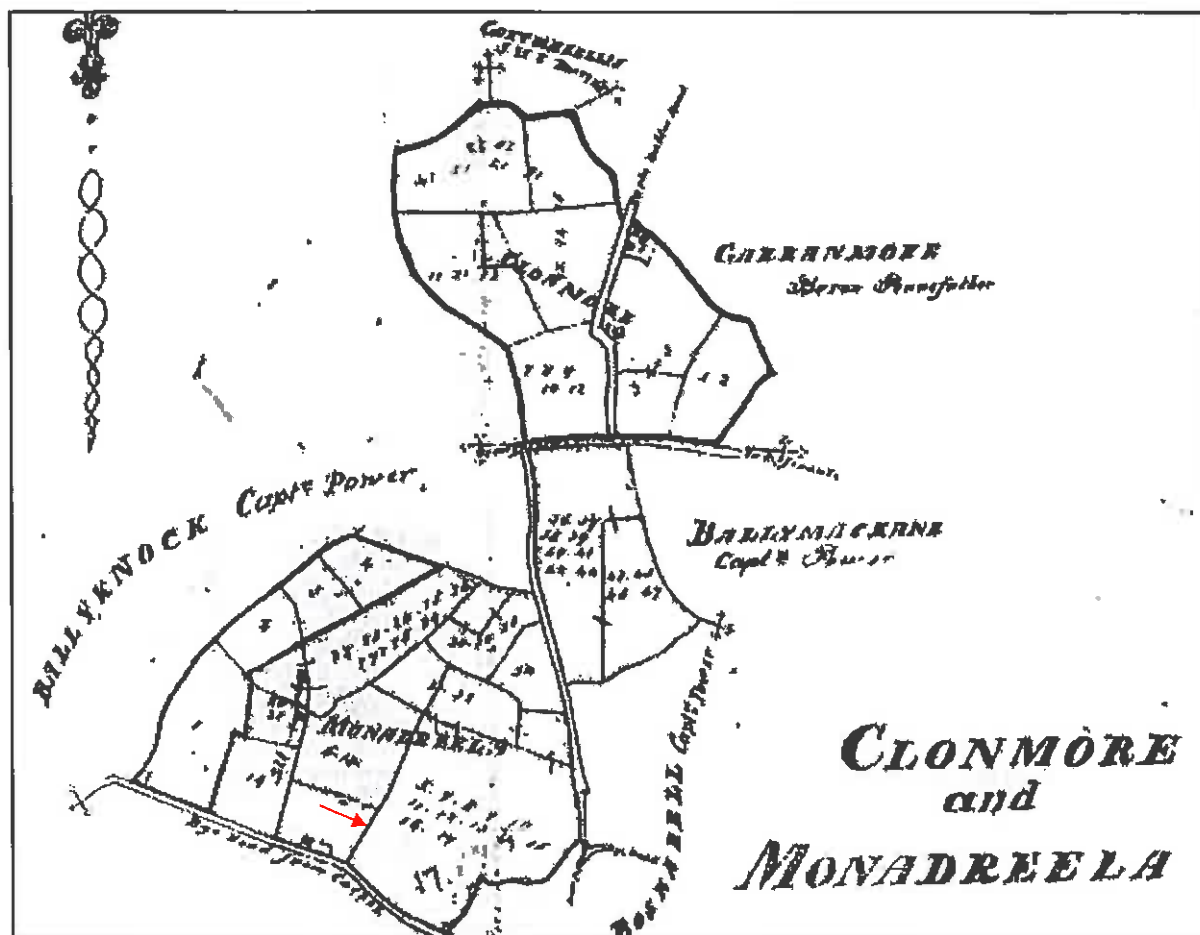


Figure vi: Smith-Barry Cashel Estate c. 1870. Source: Dr. Denis Marnane, Tipperary Town

Figure vi shows a portion of the Smith-Barry Cashel Estate map from c. 1870. In Monadreela, Mr. Patrick Phelan is the tenant of Field Nos 5–47, totalling 96 acres (3 r. & 33 p.) valued at £74, 15 shillings & 2 pence, with a rateable value of £37, 15 shillings. As Mr. Phelan does not appear as a tenant on either the Tithe Applotment Books nor on Griffiths Valuation the lands must have changed hands after the 1850s. Parts of the unsettled estates of Mathew Pennefather of Newpark, near Dualla were advertised for sale in October and November 1851 amounting to over 2,500 acres and premises in Cashel (<http://landedestates.nuigalway.ie/LandedEstates/jsp/family-show.jsp?id=2536>). The Site 14 buildings were still evident at this time but whether they were still habitual was unclear (Figure vi).

1st Edition OS 25-inch map

By the time the 25-inch map was recorded at the beginning of the 20th century only Ryan's farm remained extant within the townland (Figure vii). The Site 14 buildings no longer survive and this clearly means they were removed between c. 1870 and 1901–05, in the last three decades of the 19th century.



Figure vii: 1st Edition OS 25-inch map location of Site 11, 1901–05. Source: www.osi.ie

There is no change to any of the Monadreela field boundaries on either the 2nd or 3rd edition OS six-inch maps (see Figures ix and x).

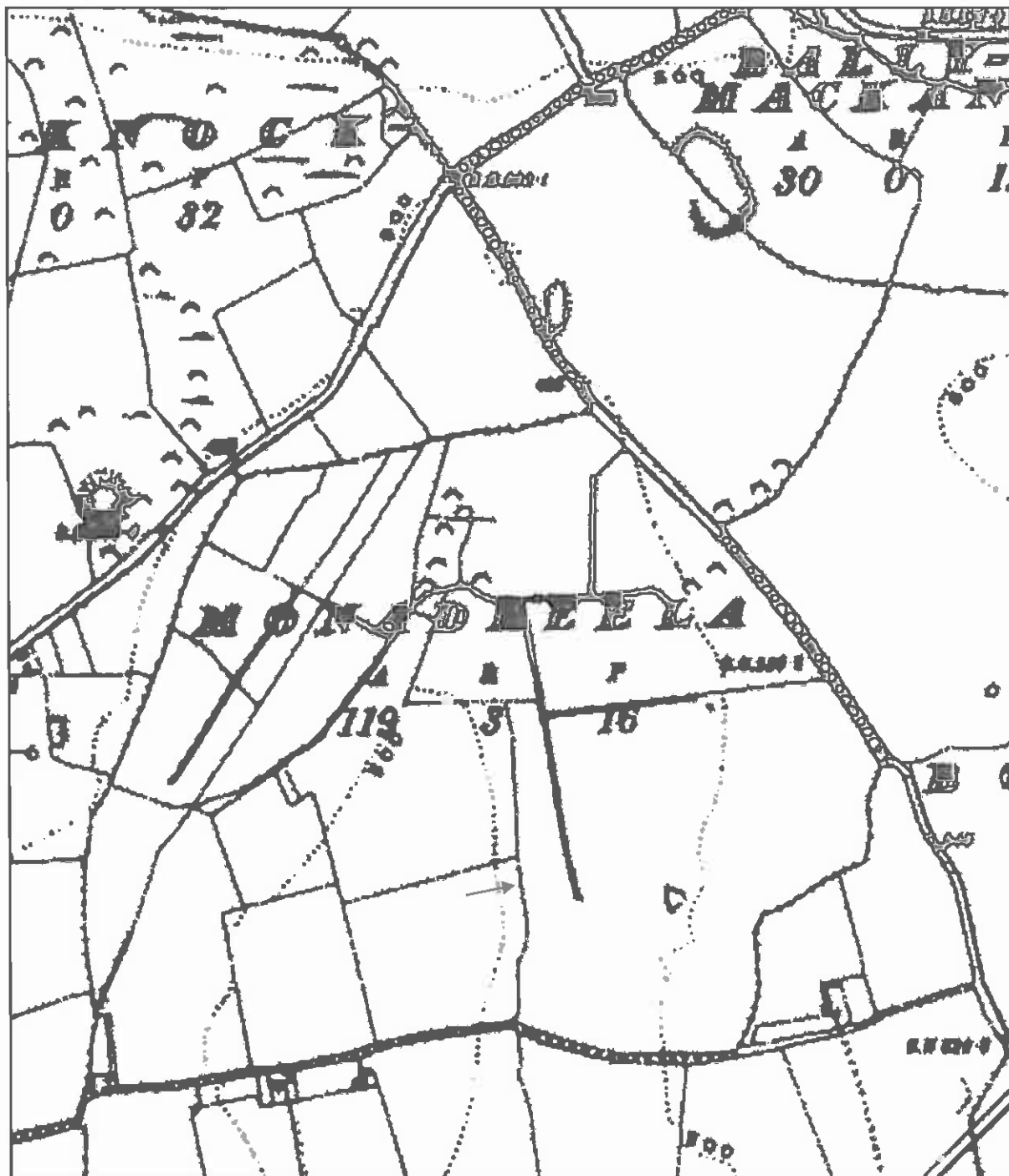


Figure viii: 2nd Edition OS six-inch map location of Site 11, surveyed 1903, published 1906. Source: www.osi.ie

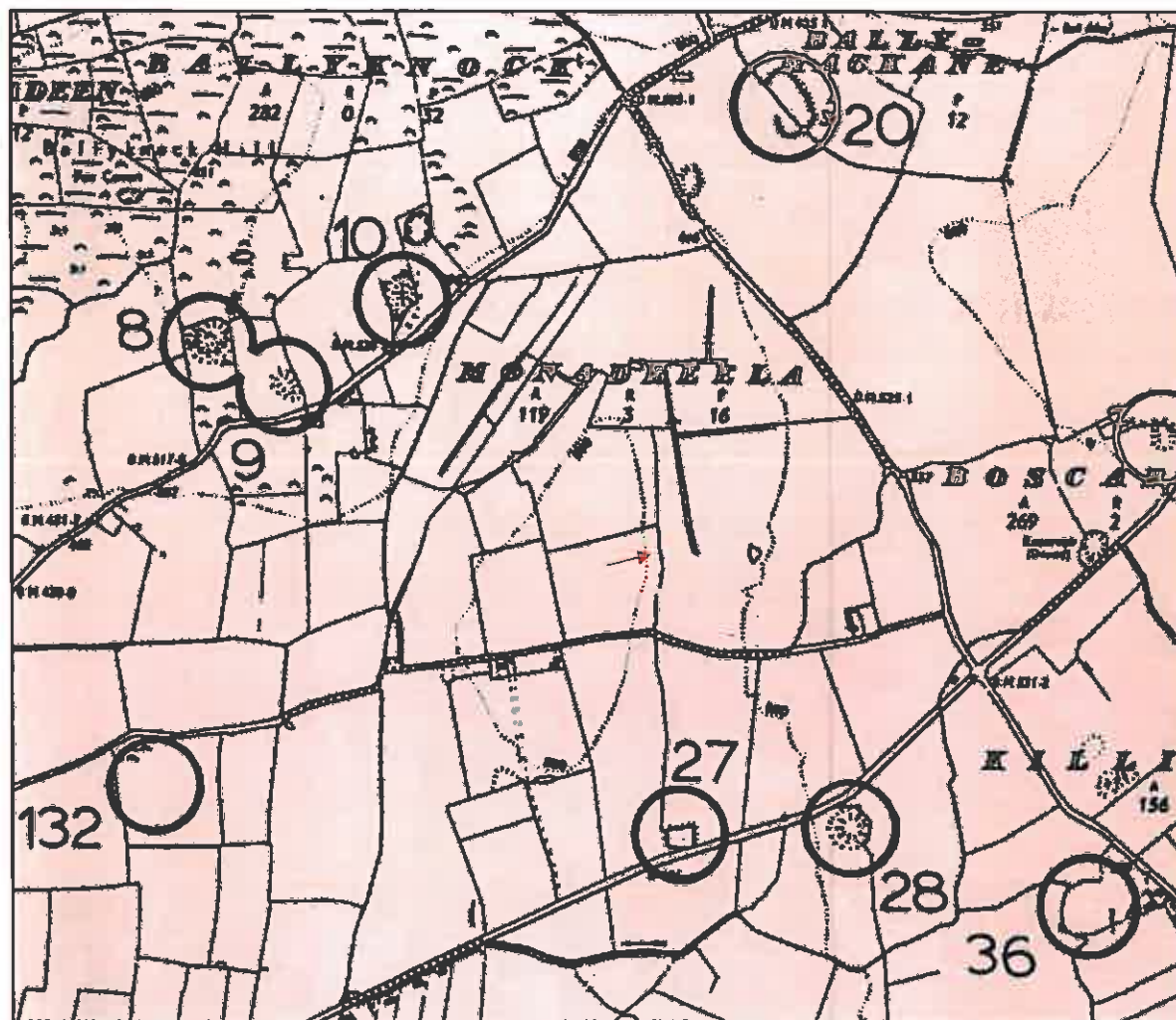


Figure ix: 3rd Edition OS six-inch map location of Site 11, 1954 (revised 1952 & 1954). Source: www.osi.ie

Vertical Aerial Information

As can be seen below significant changes within Monadreela occurred since the 1950s (Plates 1 & 2). The north-south aligned field boundary, common to sites 10–14, was removed prior to 1994. Also, the east-west aligned field boundary between sites 5 and 6 was removed, while to the west of the townland the north-south aligned field boundary running north from Croke's Lane no longer survives. The east-west aligned field boundary was partially investigated during the Site 5 excavation (03E0299). The removal of such boundaries was a common occurrence post the 1950s as a consequence of increased mechanisation of agriculture, favouring larger fields over small units (Feehan 2003, 375–77). Local oral tradition includes a reference to a burial ground in Monadreela location unknown.



Plate 1: Vertical aerial image of Monadreela townland taken in 1994; N to right (source: South Tipperary County Council)



Plate 2: Vertical aerial image of Monadreela townland taken in 2000 with pond marked; N to right
(source: Kilkenny County Council)

EXCAVATION (Figures x, 3–11 & Plates 3–48)

The sequence of investigations in Monadreela was informed by the results of the Phase 1 archaeological test excavations (Lennon 2002). It was decided in consultation with South Tipperary County Council that the areas be sub-divided for either further testing or fixed price resolution works. Testing consisted of sites 6, 8, 10, 12 and 14 while resolution, where definite archaeology had been found during Phase 1 works, were sites 5, 7, 9, 11 and 13 (Figure x). On Site 11 the area investigated was c. 2,800 m²; the ground level sloped from west to east, being 149.40 m at the centre of site. The field was under pasture prior to excavation.

On Site 11 the area investigated measured 40 m north-south by 66 m east-west between chainage 6620–6660, c. 2,640 m². The ground level sloped from west to east with a more gentle decline from north to south. The field was under pasture prior to excavation and the eastern side was prone to water-logging. The centre of the site measured 149.81 m OD (pre-excavation ground surface), with the base of some archaeological features at 149.28 m OD. Those features revealed during the Phase 1 testing in 2002 were re-located and excavated (see Appendix 1 for details).



Plate 3: Site 11 at left prior to topsoil stripping. Sites 5–9 under investigation

Topsoil

The topsoil (40) was a mid to dark brown friable sandy clay with moderate to frequent, small - medium stones, and frequent organic (root) inclusions particularly at the site east. The composition of the topsoil was uniform throughout the site, but the depth ranged from 0.15 at

site east to 0.7 m at site west, following the contour of the hillside. Monadreela ridge rising westward from the low-lying waterlogged land at east.

Subsoil

The subsoil (98) was predominantly friable orange brown clay with moderate to frequent, small sub-angular and sub-rounded limestones throughout. The underlying natural (58) west of the relict field boundary was very stony grey glacial till, and the majority of features were cut into this. Its stony nature made the base of many features uneven and small hollows/depressions occurred throughout the site. The natural at site east changed to compact grey marl in patches, consistent with the low-lying waterlogged nature of the land east of the relict field boundary. It appears this field boundary acted as the delimiting feature in the landscape defining the extents of the marginal land (see relevant section below).

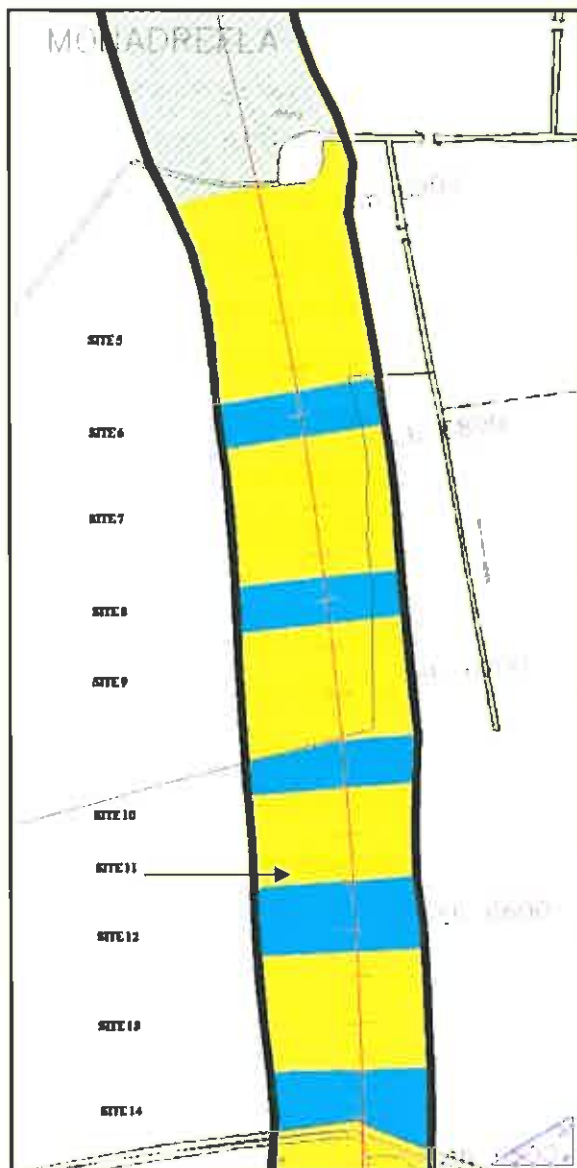


Figure x: Archaeological investigations in Monadreela in 2003, sites 5–14.

Early Neolithic activity (Figures 5 & 9)

In the south central part of the site pit [23] was located c. 8 m from nearby undated pits. It was an irregular sub-circular pit with a sharp break of slope at the top on the south side and gradual break of slope at the north side. The sides sloped irregularly with no discernible break of slope down to an irregular base. Measuring 1.06 m long north-west/south-east, 0.86 m wide and 0.25 m deep five fills/deposits were found within - (24), (25), (26), (27) and (28). The basal fill (28) friable, dark orange-brown silty clay 0.04 m deep, with occasional small gravel inclusions throughout only partially survived at one side of the pit only. This was sealed by a more extensive (0.61 m long, 0.37 m wide and 0.15 m deep) although also localised deposit of compact dark-brown charcoal rich sandy silt with occasional small angular stones throughout (27). Oak (*Quercus* sp.) charcoal from this deposit was radiocarbon dated to 3945–3789 cal. BC (UBA-13730). Possibly at the same time or soon after, the remainder of the pit was filled with 0.13 m deep friable light greyish-brown sandy silt with occasional charcoal flecking and some small angular sandstone and mudstone pebbles throughout (25). Two final deposits were then inserted into the filled-up pit – (24) and (26). As can be seen on Figure 9 it is possible both deposits may have been posts, although this was not considered during excavation (Section T-T1). Deposit (24) was a 0.16 m wide and 0.10 m deep friable orange-brown sub-circular sandy silt with occasional small angular gravels, possible oxidised clay patches and very occasional charcoal flecking throughout. Deposit (26) was a 0.24 m wide and 0.10 m deep compact light greyish-brown sub-circular sandy silt with occasional limestone and sub-angular sandstone gravel throughout. A small fragment of possible struck flint (03E0346:03) was recovered from this deposit (see Appendix 8).

When considered on its own the Early Neolithic date derived from oak charcoal could be considered unreliable; however, when viewed along with the nearby contemporary date of 3954–3773 BC (UBA-13711), also from oak charcoal, from the fill of a posthole on Site 7 (03E0300), and the slightly later Neolithic evidence from Site 9 (03E0345), both artefactual and radiocarbon-derived, the Neolithic evidence on Site 11 can be seen as a part of this early settlement on the Monadreela hillside.



Plate 4: Mid-excavation of pit [23] facing west, scales 0.2 m & 2 m



Plate 5: Post-excavation of pit [23] facing west, scales 0.2 m & 2 m

Late Neolithic / Copper Age activity (Figures 5 & 11)

Approximately 13 m west of pit [23] was another feature which was dated to the Neolithic period, except it was c. 1000 years after the activity in pit [23]. This feature consisted of a very distinctive tadpole-shaped pit in plan (Figure 5). It measured 1.77 m long north-south, 1.23 m wide and 0.14–0.24 m deep. The sides gently sloped but were steep at the east and the base was uneven due to underlying stones. At its south-east corner the pit extended for c. 0.8 m, where the sides were more vertical, before terminating in a point. The pit was filled with

four deposits (03), (04), (05) and (06). The basal deposit was 0.08 m deep compact, malleable light orange-brown sandy clay (06) with occasional small pebbles. Two circular stakeholes [129] and [130] were cut into the south-west base of the base, also filled with deposit (06), suggesting the stakes had been removed not long before deposit (06) was laid down. Stakehole [129] measuring 0.1 in diameter and 0.1 m deep was angled to the north-east, inward into the pit interior: stakehole [130] measuring 0.1 in diameter and being deeper at 0.2 m depth had been vertical when upright. Due to the alignment of the stakes and their closeness to one another it was likely they may have acted as supports: it was also likely that other stakes may have been located along the pit base but did not survive.

Activity possibly associated with the stakeholes was represented by a distinct charcoal-rich deposit (05), only found at the western side of the pit. This was friable, dark charcoal-rich silty sand with moderate small stones throughout. Oak charcoal from this deposit was radiocarbon dated to 2861–2580 cal. BC (UBA-13729). Although not clear from excavation deposit (05) may have continued into the extended, pointed part of the pit at the south-east corner. A more extensive deposit (04) was then laid throughout the pit, measuring 1.58 m long, 1.1 m wide and 0.19 m deep. This was friable, light orange-brown silty sand with moderate charcoal flecking and small stones. This was then sealed in the centre of the pit by a thinner (0.12 m deep) deposit of friable, light orange-brown silty sand with occasional charcoal flecking and small stones, in notably lesser quantities than in the main deposit (04).

The function of this pit was unknown but the deliberate extension at one corner, coupled with the evidence of at least two stakeholes, and the charcoal-rich nature of the Late Neolithic deposit could suggest some type of oven activity. The lack of carbonised cereals and the shortness of the extension/‘flue’ would preclude a cereal-drying function, and the complete absence of slag negates a furnace-type function. The extension part of the pit may have acted as a funnel, allowing air circulate within, while the upper sandier deposits appear to represent back-filling of the pit, rather than evidence of a roof collapse.



Plate 6: Mid-excavation of pit [07] with gully at left facing west, scales 0.2 m & 2 m



Plate 7: Mid-excavation of pit [07] with gully at right facing north, scales 0.2 m & 2 m

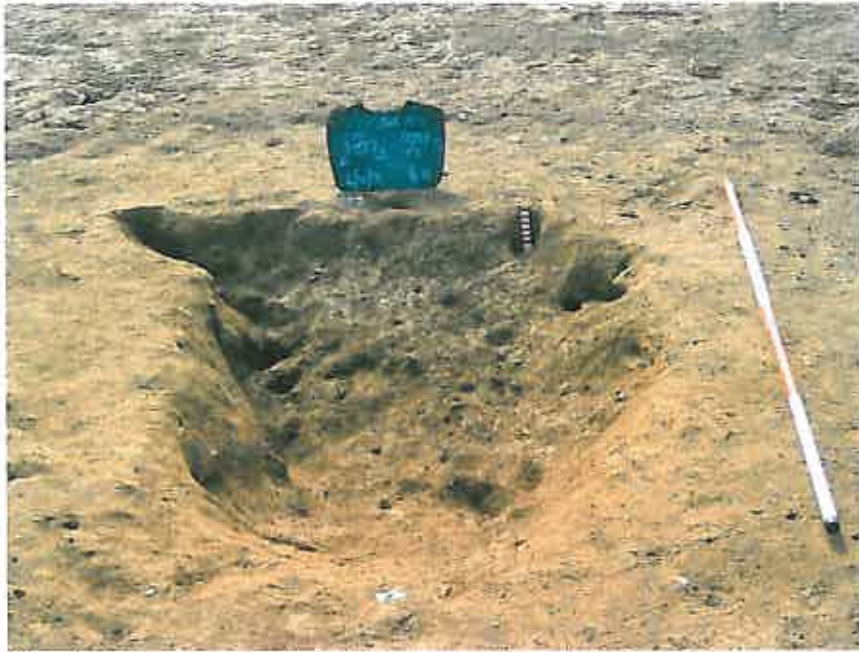


Plate 8: Post-excavation of pit [07] facing south, scales 0.2 m & 2 m

Middle/Late Bronze Age activity (Figures 5, 9 & 11)

The next dated features identified from the excavation were pit [11], located in the south-west central part of the site, and posthole [150], found within the footprint of the medieval structure. Both features were dated to the Middle/Late Bronze Age period and the radiocarbon dates returned from hazel and carbonised oat grain displayed some overlap, supporting contemporary activity in the area. As these features were found amongst clusters of undated pits and/or postholes it was clear that this Middle/Late Bronze Age activity extended for at least 32 m east-west across the southern end of the site, and had been severely impacted by the construction of the medieval settlement in the same location. This was particularly true within the medieval structure, represented by ditch [81] which enclosed a number of postholes, pits and hearths found either side of the Middle/Late Bronze Age posthole [150]. As none of these features were dated they could be associated with either the prehistoric activity, the medieval activity or, any one of the other periods of activity represented by the archaeology on the site.

Pit [11] was found amongst a group of five undated pits and one posthole at the southern end of the site. As these pits were c. 10 m from a medieval causewayed ditch it was likely any additional pits in the area were removed when that ditch was dug. Pit [11] was found beside three larger pits [13], [15] and [19]. It was circular in plan with a sharp break of slope at the top, almost vertical sides with no discernible break of slope down to a rounded base. Measuring 0.40 m in diameter and 0.35 m deep it was filled with (12), loose mottled orange/grey-brown silt with frequent charcoal flecking and moderate inclusions of small

angular pebbles throughout (Section K2-K3). Although Appendix 6 states this was a cremation pit, the tiny pieces of bone found during sample processing were unidentifiable to species, and it is impossible to confirm this was a bona fide funerary pit (see Appendix 6). However, hazel (*Corylus avellana*) charcoal from the fill was radiocarbon dated to 1420–1312 cal. BC (UBA-13731).



Plate 9: Mid-excavation of pit [11] facing north-east, scale 0.2 m

Undated features, possibly associated with pit [11] (Figures 5, 9 & 11)

The nearby undated features will be described here. Pit [13] was located beside and to the south-east of the dated pit. It was sub-circular in plan with an irregular break of slope at the top, concave sides tapering to a flattish base. Measuring 0.46 m long, 0.40 m wide and at maximum only 0.15 m deep it was much shallower in comparison to pit [11]. The fill was compact mid/light brown silty clay with occasional charcoal flecking and small angular pebbles throughout (14). Two pits were similar in terms of shape, size and number of deposits within, and an association was likely.

Approximately 1 m to the north-east pit [15] was a much more substantial feature, measuring 0.71 m in diameter and 0.36 m deep. It was circular in plan with a sharp break of slope at the top, steep to slightly concave sides with a gradual break of slope to a gently rounded base. Upon excavation two deposits were identified within the fill: a basal deposit of loose mid dark brown silty clay with occasional degraded sandstones and moderate charcoal flecking (17) which covered the entire pit, sealed by a similar silt deposit although with more frequent charcoal flecking (16), the deposit confined to the centre of the pit (Section H2-H3).

Approximately 2 m to the north pit [19] was another circular shaped pit containing two fills. The pit had a very sharp break of slope at the top, steep sides with a gradual break of slope down to a slightly concave base. Measuring 0.66 m in diameter and at maximum 0.30 m deep, it was filled with two similar type deposits (21) and (20), friable brown silty clay with occasional stones and charcoal flecking throughout (Section L-L1). The charcoal content was notably less than that observed in pit [15], as can be seen in the accompanying photographs.



Plate 10: Mid-excavation of pit [15] facing north-east, scale 0.2 m



Plate 11: Mid-excavation of pit [19] facing north-east, scale 0.2 m



Plate 12: Post-excavation of pit [19] facing north, scale 1 m

Possible Middle/Late Bronze Age activity (Figures 6 & 9)

The final feature dated to the prehistoric period was posthole [150] located inside the area defined by the medieval structure (Figure 6). If the radiocarbon evidence is reliable, and there is no reason to doubt the date, then contemporary Bronze Age features, perhaps a house, were likely removed when this structure was constructed. Posthole [150] was located at the north-western interior of the structure, close to the entrance. Posthole [150] was sub-circular in shape, its' west side sharply sloped, its east side more vertical, down to an uneven base (Section R-R1). Measuring 0.4–0.5 m in diameter north-south and 0.1–0.14 m deep it was filled with (149), loose grey-brown clay silt with occasional charcoal flecking throughout. Carbonized oat (*Avena sativa*) from this deposit was radiocarbon dated to 1391–1260 cal. BC (UBA-13732). It also has to be considered that the erection of the post disturbed underlying Bronze Age deposits from which the oat grain had survived, and was subsequently used for dating in the absence of other suitable samples (see Medieval Discussion below).



Plate 13: Mid-excavation of posthole [150] facing south, scale 0.2 m

Posthole [131] was located beside and to the west of posthole [150] while postholes [135], [137] and stakehole [127] were 3 m further east, forming the northern cluster of features inside the later, medieval structure. Although undated, many of these features resembled the Bronze Age posthole, and will be described in this section. For instance, as postholes [135] and [137] were sited inside the entrance to the medieval structure, thereby blocking the exit/entry it is likely the features pre-dated the structure. To the immediate south stakehole [154] and areas of scorched earth (78) and (79) abutted pit [133] on either side, while features [119], [121], [123], [125] and [146] formed the southern cluster of undated features inside the medieval structure. If these features were contemporary with posthole [150] they may have formed a square-shaped post-built structure measuring c. 5 m in diameter, with the posts/pits enclosing the areas of scorched earth (hearths?) and pit [133]. Undated hearth (52) and pit [152] were in the south-east corner of the structure may relate to the medieval activity of this part of the site (see Figure 6).

Undated features, possibly associated with posthole [150] (Figures 6 & 9)

Adjacent posthole [131] was also sub-circular in plan with a sharp break of slope at the top, concave sides down to a concave base (Section F-F1). Measuring 0.39 m long east-west and 0.34 m wide it was filled with 0.16 m deep sterile deposit of orange-brown sandy silt (132). As can be seen in Plate 14 postholes [150] and [131] closely resembled one another although were aligned differently.



Plate 14: Post-excitation of postholes [150] & [131] facing north, scale 0.2 m

Approximately 1.5 m east another 'pair' of postholes [135] and [137] was found, with a single stakehole [127] c. 0.5 m further east again. Posthole [135] was oval in plan with vertical sides down to a flat base (Section O-O1). Measuring 0.3 m north-south by 0.2 m and 0.16 m deep it was filled with brown-grey silt with occasional small stones (136). Posthole [137] was similar in size (0.22 m long east-west, 0.2 m wide) but was shallower at only 0.09 m deep. It was sub-oval in plan, with sharp break of slope at the top, shallow concave sides and no discernible break of slope down to a flat base. The fill (138) was compact brown-grey silt with occasional small stones. The last feature in this area was stakehole [127], located slightly south-east of the preceding postholes. It was sub-oval in plan with steeply cut edges down to a concave base. Measuring 0.2 m long north-south, 0.16 m wide and 0.06 m deep it was filled with (128), compact, orange-brown sandy silt with occasional charcoal and small rounded limestones. There was insufficient charcoal for dating purposes.



Plate 15: Post-excavation of posthole [135] facing west, scale 0.2 m

Undated features in centre of medieval structure (Figures 6 & 9)

Two spreads of scorched earth (78) and (79) were found in the centre area defined by the medieval structure. Between the spreads was a shallow pit [133], sub-oval in plan with concave sides and an irregular base. Measuring 0.32 m long north-south, 0.26 m wide and 0.08 m deep it was filled with (134), loose orange-brown sandy silt with occasional stones. Stakehole [154] was an isolated feature located beside (78) and the western side of the medieval structure. Circular in plan and measuring 0.16 m in diameter and 0.09 m deep the fill (153) was compact dark brown sandy silt.



Plate 16: Mid-excavation of stakehole [154] facing east, scale 0.2 m

Two features located south-east of the scorched areas appear to be un-associated with this cluster of possible Bronze Age activity. Feature (52) was a sub-rectangular spread of firm purplish-red sandy silt with large fragments of charcoal at the top of the deposit and occasional small burnt limestones. The spread measured 0.95 m long north-east/south-west, 0.82 m wide and 0.03 m deep. Upon excavation there was a distinct cut at the south and north ends only, while the centre of the hearth had lain directly on the stony subsoil. The hearth was a much more confined area of activity than that represented by the larger scorching (78) and (79).



Plate 17: Mid-excavation of hearth (52) facing north-west, scale 0.2 m



Plate 18: Post-excavation of hearth (52) facing south-east, scale 0.2 m

Abutting its' southern side was pit [152], sub-oval in plan with gradual break of slope at the top, shallow concave sides, no break of slope down to an irregular base (Section M-M1). The pit measured 0.58 m long north-south, 0.44 m wide and was filled with 0.09 m deep orange-brown sandy silt with occasional angular limestones (151).



Plate 19: Mid-excavation of pit [152] facing north, scale 0.2 m

Undated features, southern cluster (Figures 6 & 9)

This cluster of five features was found inside the southern side of the medieval structure, and was formed of postholes [121], [123], [146], pit [119] and pit/post [125], extending 3 m in length. None of the features produced artefacts or sufficient charcoal for radiocarbon dating and all features were sub-circular in plan apart from circular posthole [146]. Pit [119], the most easterly of the features had steeply cut sides down to an irregular base. Measuring 0.32 m long north-south, 0.22 m wide and only 0.03 m deep, it was filled with (120), compact light grey silt with occasional small stones (Section K-K1). Posthole [121] was located beside it to the south-west and had irregular steep sides down to an uneven base. Measuring 0.33 m long east-west and 0.28 m wide it was similar in size to pit [119], although substantially deeper at 0.18 m depth (Section N-N1). It was filled with (122), identical to the fill noted in pit [119]. Posthole [123] was a smaller feature to the immediate west, with irregularly sloping steep sides, uneven base with a distinct dip towards the north side, marking where the post was erected (Section U-U1). Measuring 0.27 m long north-south, 0.23 m wide and 0.18 m deep it was filled with (124), the same material as noted in the two features above.

Pit/post [125] to the south-west was the largest feature in the cluster, measuring 0.52 m long east-west, 0.37 m wide and 0.15 m deep (Section J-J1). It had a sharp break of slope at the top, steeply cut northern side with the remainder being more oblique. Filled with (126), compact dark grey silt with occasional small stones and one medium-sized limestone: the fill was not substantially different to the fills noted in the nearby features. The final feature in this cluster was circular posthole [146], measuring 0.2 m diameter north-south and 0.13 m deep. It had a sharp break of slope at the top, steeply cut sides with a gradual break of slope down to a flat base, suggesting an upright post held in position (Section S-S1). The fill (145) was greyish-brown clay silt with occasional charcoal flecking, the only deposit which contained charcoal.



Plate 20: Mid-excavation of posthole [123] & pit [125] facing west, scale 0.2 m



Plate 21: Mid-excavation of posthole [146] facing north, scale 0.2 m

Early Medieval Kiln (Figures 4, 5, 7 & 9)

This feature was located in the centre of the site, located south of a number of undated intercutting ditches (Figure 4). As adjacent pit [37] to the south was dated to the medieval period the kiln appeared to be an isolated feature. However, a similar type kiln was identified on Site 5 c. 150 m the north, and although dating at least one hundred years later both kilns represented the only Early Medieval activity recognised on the Monadreela/Boscabell hillside (see kiln [155], 03E0299 Final Report). Kiln [38] was very significant as the date returned for its usage represented a resumption of activity on the hillside in abeyance since the Early Iron Age period (sites 7, 13 and 18). It is likely that undated features on Site 11, nearby sites and/or unidentified sites elsewhere on the hillside would be contemporary with the kiln activity.

Kiln [38] was ovoid in plan on an east-west with the bowl to west measuring in total 3.1 m long, 1.6 m wide and 0.38–0.78 m deep. The base of the bowl was the deepest point. The bowl had a sharp break of slope at the top, with steep and almost vertical sides which tapered to a gradual break of slope and U-shaped base (Section W-W1). During excavation the northern side was partially over dug, as can be seen in some of the plates below: there was a slight surface lip evident at the south-east edge. The kiln was filled with eight deposits (39) and (41) – (47): the basal deposits (47), (46), (45) and (41) within the bowl represented

possible final firing episodes, being distinctive red-purplish in colour and charcoal-rich. The basal deposit (47) was 0.02 m depth of compact, mid purplish-red burnt clay with occasional to moderate charcoal inclusions and occasional small fragments of limestone. A very thin, 0.01 m deposit of light orange-brown sandy silt lens with occasional patches of burnt clay and moderate inclusions of charcoal flecking (46) had sealed the basal deposit. There was a distinct ashy component to deposit (46) and like the basal deposit it also contained occasional small fragments of limestone. Another thin, 0.04 m deep localised, circular-shaped deposit (45) partially sealed (46). It was dark yellowish-grey sandy silt with occasional particles of burnt clay, but mainly comprised of charcoal and carbonised grains. Carbonised wheat (*Triticum* sp.) was radiocarbon dated to cal. AD 394–551 (UBA-14372). An adjacent deposit confined to the western portion of the kiln comprised another compact, mid purplish-red burnt clay (41), 0.08 m in depth.



Plate 22: Mid-excavation of kiln [38] flue facing west, scale 2 m



Plate 23: Mid-excavation of kiln [38] flue facing west, scale 2 m



Plate 24: Mid-excavation of kiln [38] flue facing west, scale 2 m



Plate 25: Mid-excavation of kiln [38] facing south, scales 0.2 m & 2 m



Plate 26: Post-excavation of kiln [38] facing south, scales 0.2 m & 2 m

These archaeological deposits were completely sealed by more substantial, deeper deposits of re-deposited natural, (42), (43), (39) and (44), which likely represent the collapse of the kiln roof structure, or deliberate back-filling. Deposit (42) was a 0.54 m deep deposit of compact, light orangish-brown clayey-silt with occasional flecks of charcoal and occasional small,

angular and rounded limestone fragments. This was sealed by a 0.18 m deep deposit (43), similar to the underlying deposit (42) except being sandier in composition. The uppermost deposit (44) had completely sealed the kiln structure, as can be seen in the following two plates. These were firm mid greyish-brown sandy silt with occasional small pieces of charcoal and occasional small rounded fragments of limestone. At the east side deposit (39) was another variation of the upper fill, 0.3–0.44 m in depth and containing two fragmented horse hindlimb bones incorporated into the upper deposit when the kiln was abandoned (Appendix 7). Faunal remains in the form of butchered cattle bones were also retrieved in the backfilled deposits of the two kilns on Site 25iv to the south in Hughes’-Lot East (03E0807).

As there was no obvious flue apparent in the construction the flue may have been clay-lined above the ground surface, making the kiln more pit-like instead of the classic kiln shapes usually encountered. The early date retrieved from low down in the bowl may support the notion that this was a rudimentary kiln, with the later Site 5 kiln being a more developed example.



Plate 27: Mid-excavation of kiln [38] facing west, scale 2 m



Plate 28: Mid-excavation of kiln [38] flue facing west, scale 2 m

Medieval Structure (Figures 4, 6, 8, 9 & 11)

This structure represented the southernmost feature within the Monadreela medieval settlement. The structure was bounded on its southern side by the causewayed ditch [04]/[05] fully excavated on adjacent Site 12 (see 03E0393 Final Report). However the direct relationship between this ditch and the structure was not possible to determine as the junction area had been truncated by the north-south orientated double ditched field boundary [87]/[91]. Any discussion of the archaeological remains within the Site 11 structure should be considered with the remains found on the Site 12 excavation (see Figures 3 & 4).



Plate 29: Location of structure [81] facing east, scales 1 m & 2 m

The structure was defined on site by ditch [81], a D-shaped rectangular cut with entrance midway along the northern side. The external extent measured 10.5 m north-south by 14 m; internally the dimensions were 6 m north-south by 11.5 m east/west, the longer axis being east/west orientated. The entrance gap, 1.4 m wide was clearly defined on the north side between both rounded (west) and pointed (east) ditch terminals. For such a large structure, built on the lower end of the sloping hillside, the ditch width varied between 1.5–2.5 m wide and 0.16–0.46 m deep. At the south-west the cut had an irregular break of slope at the top, very gradual decline (3 m long) on the western side down to a gradual break of slope and a distinct vertical step. The break of slope to the base on the western side was sharp and the base irregular. The corresponding break of slope on the eastern side to the step is gradual, the side slopes gradually with no discernible break of slope down to the irregular base. The irregularity noted along the base was also observed in other features and resulted from the nature of the underlying stoney natural.

During excavation various ditch deposits were noted along its length (54), (55), (56), (82), (83), (84), (85), (86), (88) and (94) – (see Figures 8, 9 & 11 for sections of the ditch). The south-eastern ditch segment had been cut when the double ditched field boundary was constructed, with the western ditch [87] causing the most damage. Basal deposits of either compact yellow-brown sandy silt with frequent large boulders and smaller stones (54), and compact grey-brown/yellow clayey silt with occasional small stones (94) produced no dating evidence or environmental data.

Primary deposits (55) compact dark greyish-brown silty sand with frequent charcoal flecking and occasional gravels, and (88) grey-brown silty clay were noted. Five fragments of burnt clay (03E0346:06–03E0346:10) with quartzite and shale inclusions were recovered from (88) – this material was possibly residual as there was no evidence of *in situ* anywhere along the ditch. The archaeological-rich deposits either wholly or partially then sealed these earlier deposits. Deposit (86) provided direct and irrefutable evidence of a medieval date for this phase of activity within the ditch (Figure 8 Section B-B1). This was dark malleable grey-brown clayey silt containing frequent charcoal, oxidised clay and carbonised seeds. Evidence for wild taxa was recorded in the form of an unidentified vetch seed (*Vicia/Lathyrus* spp.): it also contained cereal chaff in the form of occasional carbonised oats. Woodland species were represented by ash (*Fraxinus excelsior* sp.), comprising the bulk of the sample followed by hazel, and lesser quantities of birch (*Betula* sp.) and pomaceous woods (*Maloideae* sp.), (Appendix 6).

Carbonised oat (*Avena sativa*) / (*Avena strigosa*) from deposit (86) was radiocarbon dated to cal. AD 1160–1261 (UBA-13901). This date was contemporary with the adjacent ditch segment excavated on Site 12, (deposit (03) of ditch [04]) proving that the Site 11 structure was bounded on its southern side by this larger, causewayed ditch/boundary feature (see 03E0393 Final Report). The radiocarbon date was also contemporary with the settlement evidence on sites 8 and 9 to the north, and further supported by the recovery of a sherd of Cashel type-ware pottery (03E0346:04) from (86) found in the north-east corner of the ditch, the same pottery as was identified on sites 8 and 9. The shank of an iron nail (03E0346:02) also from (86) was the only metal find from the structure, perhaps a broken nail lost off the roof structure?

Deposit (86) was sealed by (85), which in places along the ditch varied in depth from 0.1–0.25 m depth. This was friable, light mottled yellow/grey-brown clayey sand with moderate charcoal inclusions. Evidence for wild taxa was recorded in the form of an indeterminate fruit stone, and small quantities of ash. Only deposits (86) and (85) produced such wild taxa. Deposit (85) was partially sealed by compact, light yellow-brown clayey silt with occasional to moderate charcoal flecking (84). During excavation it was noted that this deposit resembled the basal deposit (94), although unlike (94) there was some environmental data retrieved from (84). This took the form of oats, bread/club wheat (*Triticum aestivo-compactum* sp.), indeterminate cereals and quantities of ash and hazel. Similarly, the next deposit in the sequence, (83) compact, dark grey-brown clayey silt with occasional charcoal flecking noted at the northern side only contained oats, ash and hazel, with the latter species predominating. Deposit (57) was localised to the northern portion of the ditch; it was light grey-brown clayey sand with frequent inclusions of stones and occasional charcoal flecking from which ash was identified.¹ The uppermost deposits generally sealing the ditch were sterile fills of sandy stony silt (56) and clayey stony silt (82), measuring 0.08–0.12 m in depth: these materials resembled a backfilling episode, marking the final abandonment usage of the ditch.

¹ The relationship of deposit (57) to the other deposits in ditch [81] was not established on site.



Plate 30: Mid-excavation of ditch [81] facing north-east, scales 0.2 m & 2 m



Plate 31: Mid-excavation of ditch [81] facing north, scales 0.2 m & 2 m



Plate 32: Mid-excavation of ditch [81] facing north-east, scales 0.2 m & 2 m



Plate 33: Post-excavation of ditch [81] & field boundary ditch [87] facing north, scale 1 m & 2 m

Medieval Pit (Figures 4, 5, 7 & 11)

Pit [37] was a single pit located 1 m south from the Early Medieval kiln [38] in the centre of the site. The pit was sub-circular in plan with a distinct and sharp break of slope at the top on all sides, steeply sloping sides and a sharp break of slope down to a flat, roughly oval-shaped base. Measuring 0.66 m long north-west/south-east, 0.54 m wide and 0.31 m deep it was filled with friable, mid orange-brown silty sand with iron-panning/staining, and with occasional stones and charcoal flecking (36). Ash and hazel were the main wood species

identified from the fill, as was the case for the deposits within ditch [81], along with smaller quantities of spindle (*Europaeus evonymus sp.*), alder (*Alnus glutinosa sp.*) and birch. The charred debris from on-site fires, specialised activities and possible construction woods would have inevitably become re-deposited across the site and entered many negative features inadvertently (Appendix 6). Willow (*Salix sp.*) charcoal was radiocarbon dated to cal. AD 1293–1396 (UBA-13733), making the pit the final dated activity on the hillside. This date also represented the only fourteenth century date returned for the nearby medieval settlement, and although it was not directly linked to the houses themselves, it does represent continued activity on the hillside at this period, attested to also in the historical information (see above section).



Plate 34: Mid-excavation of pit [37] facing south, scale 0.2 m



Plate 35: Post-excavation of pit [37] facing east, scale 0.2 m

Later Medieval Field Boundary (Figures 4, 6–8 & 11)

The former field boundary apparent on the mapping evidence and removed post-1950 was revealed. The ditches and bank formed part of an extant and extensive field boundary located close to the eastern edge of the dry ground with the land to the east being low lying and prone to seasonal flooding. This was the same feature as noted on sites 5–21 during excavation and it survived as an upstanding boundary in Boscabell townland to the south, on sites 15–19. This former boundary had existed until sometime after 1954 when it was removed to make the field into the large field that existed prior to excavation (compare Figure ix & Plate 1). The boundary was fully exposed within the excavation revealing the base of a clay and stone bank, in places resembling a metallised stone surface of rounded, sub-angular and angular limestones (92), (Section D-D1). It is possible this surface may have once been a yard associated with the nearby medieval structure, as traces of similar metalling (250) were found on Site 9 to the north (see 03E0345 Final Report). The bank was cut along its west upper side by ditch [89], a north-south orientated linear partially exposed along base of relict field boundary, filled with further clay and stones (93). It was exposed for 17 in length, measuring 0.95 m wide and 0.34 m deep. Truncating the medieval structure [81] and metallised surface (92) it may have been a drainage feature within the field boundary structure: a similar although narrower linear ditch was noted on Site 21 Boscabell (see 03E0480 Final Report).

On either side of the bank traces of parallel drainage ditches were revealed (Figure 8 Section C-C1). On the west side ditch [87] was orientated north/-south and had also truncated

the medieval structure [81]. Measuring 0.8–1.6 m wide and 0.3–0.4 m deep it was filled intermittently with clay and stone-filled deposits of varying consistency (90), (95), (96) and (97), (Figure 8 Section I2-I3).

On the east side ditch [91] was orientated north-south and was deeper and wider than corresponding ditch (87) on the west side. Measuring c. 40 m north-south, 1.5–1.7 m wide, 0.4 m deep with a distinct slope from the higher west side, the ditch was filled with peaty clay (75) which also partially lay over the metallised stones (92). A portion of ceramic drain pipe 03E0346:01 was found in the ditch. This ditch was recut along its base by field drain [76], filled with (77) - loose grey silty clay with very frequent large angular and sub-angular limestones (Section B2-B3). As a plastic drain pipe was noted at one section the drain was still functioning. As the same recut was also identified to the south on Site 13 Monadreela and Site 21 Boscabell, this verified that the drain was c. 1 km in length. This field drain had channelled rainwater along the full course of the field drain, being a significant drainage feature in the landscape. The water flowed into the east-west orientated ditch/stream that formed the townland boundary with Boscabell and George's-Land (see Site 22 Final Report). Excavations on nearby sites suggested this field boundary also acted as a routeway in medieval times on the edge of the marginal land (Hughes & Ó'Droma 2011, 28–9).



Plate 36: Mid-excavation of the field boundary with Sites 8 & 9 to rear, facing north



Plate 37: Mid-excavation of the field boundary ditches & bank facing north-east, scale 2 m



Plate 38: Mid-excavation of the field boundary ditches & bank facing north, scale 2 m

Possible Later Medieval / Post Medieval Ditches (Figures 4, 7 & 10)

In the north central part of the site a number of intercutting ditches was identified. Without clear dating evidence little could be deduced regarding their function relative to the dated activity on site, but their orientation may allow some associations to be made. The earliest ditch was [53], an irregular north-west/south-east orientated cut with a moderately steep break of slope at the top, steep concave sides with a gradual break of slope down to a flat base. Measuring c. 9 m long, 0.9 m wide and 0.25–0.3 m deep it was filled by moderately

compact orange-brown silty sand with occasional decayed stones (80), identical to the fill noted in ditch [18] only 2.5 m to the west. The southern end of the ditch was then recut and the ditch expanded into a longer, slightly curvilinear feature, renamed [114]. This ditch was roughly north-south orientated with moderately steep break of slope at the top, steep concave sides with a gradual break of slope down to a flat base (Section E2-E3). Its northern terminus curved toward the north-east, off-line from the original ditch [53]. Measuring 9 m long, 0.9 m wide and 0.25–0.3 m deep it was filled with two deposits, (116) and (115). Deposit (116) was moderately compact orange-brown silty sand with occasional decayed stones, sealed by loose dark brown silty sand with occasional charcoal and small stones. The frequency of charcoal increased towards the interface between both deposits but there were insufficient quantities for dating purposes. Ditches [53] and [114] were each subsequently cut by an east-west orientated ditch; ditch [53] cut by post medieval ditch [155] and ditch [114] cut by undated, possibly post medieval ditch [117].

Post Medieval Ditches (Figures 4, 7 & 10)

In the north central part of the site a number of intercutting ditches was identified one of which produced artefacts post medieval in nature. Ditch [155] had a sharp break of slope at the top, steeply cut sides and no discernible break of slope down to a concave base. Measuring 14 m long, 1.52 m wide and 0.53 m deep, with rounded terminals, the ditch was filled with two deposits, (156) and (157). The basal deposit (156) was moderately compact grey-brown silty clay with occasional gravel and larger stones (Section Y-Y1). Some post medieval/early modern finds including corroded iron and clay pipe stem fragments were noted during excavation but were not retained for specialist analysis by JCNA field staff. An upper, deeper deposit of loose mottled orange and grey-brown sandy silt with frequent gravel and small pebbles had completely sealed (156). The artefacts from (156) were the only evidence to phase this primary ditch activity to the post medieval period, and as ditch [155] had cut the northern end of linear ditch [53], thereby proving this ditch and its recut [114] predated or was contemporary to sometime in the post medieval period, but a more accurate phasing was impossible. These later ditches were aligned similar to nearby ditch [18] - the western side of ditch [155] was parallel to the eastern side of ditch [18] for c. 5.5 m in length while ditch [117] terminated 1.5 m south of and opposing the eastern terminal of ditch [18] (Figure 7). Although undated the short stretch of ditch [117] only 2.5 m to the south may have been a contemporary of ditch [155]? Ditch [117] had cut linear ditch [114] (see above). It had a sharp break of slope at the top, irregular concave sides and a gradual break of slope to

flat base. Measuring 6.5 m long, 0.46 m wide and 0.13 m deep it was filled with malleable, dark brownish-grey clay silt (118), very different to the fills noted in nearby ditches.

Undated ditches & pits at site north (Figures 4–11)

Ditch [10] was located in the north-western part of the site where it extended beyond the CPO uphill to the west. The final undated feature was pit [71] located 6.5 m north of the medieval structure. Ditch [10] was a linear ditch partially extending eastward into the site; as it was a more isolated feature, away from the remaining features on site it could be more associated with the pattern of ditches revealed on adjacent Site 10, to the immediate north, where ditch [203] was identified, but not investigated further (see 03E0392 Final Report). Ditch [10] was orientated north-east / south-west, had a rounded terminal at east, with regular sloping sides tapering to a rounded base. Measuring a minimum of 32 m long, 1.35 m wide and 0.35 m deep it was filled with two sandy silt deposits, a basal deposit (09) greyish-brown in colour with occasional charcoal flecking and small fragments of angular and rounded limestones. This was sealed by a deeper, 0.28 m deposit of orange-brown silt (08). Both fills resembled the natural on site apart from the charcoal inclusions, suggesting the ditch may have been dug and back-filled soon after.



Plate 39: Mid-excavation of ditch [10] facing south toward Croke's Lane (hedgeline)

Ditch [18] was another linear feature identified on site, located 6 m south from the eastern terminus of ditch [10] and 5 m north of kiln [38] (Figure 5). This arrangement of partially opposing ditches was suggestive of an offset-type gap, not truly an entranceway as there was

no evidence of postholes and the gap was 6 m wide. If associated, the ditches may have funnelled access and egress, perhaps for animals from the medieval structure area towards the main settlement on Sites 8 and 9. However, it was also possible the ditches were related to post medieval field boundaries (see below). Ditch [18] was orientated east-west and measured 18 m long, 0.7–1.5 m wide and 0.14 m deep, bulging slightly in the centre. It was filled with moderately compact orange-brown silty sand with occasional decayed stones (22). As the eastern end of ditch [18] ran parallel to post medieval ditch [155] and, was on the same orientation, it was possible that both ditches were deliberately aligned and associated.

Pit [71] represented a 1.35 m long east-west 0.7 m wide and 0.3 m deep burial of a horse/donkey (see Appendix 1 for full description). Ninety two bones represented only partial remains and the osteometric data places this individual in the category of small horse with a shoulder height of 128–136 cm (see Appendix 7 for detailed analysis). Although undated and seemingly isolated it was significant that two other features, the upper back-filled deposit of kiln [38] and pit [61] also contained horse bones.



Plate 40: Mid-excavation of horse burial (72) facing east, scale 2 m



Plate 41: Mid-excavation of horse burial (72) facing east, scale 2 m

Undated ditches & pits at site east (Figures 4–11)

A number of undated ditches and pits were located in the marginal land at the eastern side of the relict north-south orientated field boundary ditch. A pair of ditches [73] and [162] orientated north-west/south-east terminated at field boundary ditch [91] and extended c. 11 m eastward before exiting the CPO. Approximately 5 m south ditch [65] was orientated north-

south and was fully exposed within the site extents. This ditch had cut pit [68] while avoiding another pit [63]; two further pits [59] and [61] were located to the immediate north (see Figure 4).

The most distinguishing feature on the eastern part of the site was the double-ditched feature [73] and [162], spaced 1.1–1.3 m apart. These ditches clearly related to one another as both were similar in size, shape, orientation and both terminated before the double-ditched relict field boundary [87] and [91]. Ditch [73], the southerly feature had a sharp break of slope at its northern end, being more gradual on the southern side, giving a U-shaped profile and rounded base. Measuring a minimum of 10.69 m long east-west, 1.75 m wide and 0.37 m deep it was filled with friable dark brown peat with very occasional charcoal flecking (74). The northerly ditch [162] measured 10.4 m long, 1.86 m wide and 0.37 m deep and its fill, (163) was identical to that observed in ditch [73]. Neither ditch produced sufficient quantities of charcoal for radiocarbon dating. As no finds were either retrieved from the fills it was impossible to date them, although they may be associated with the medieval and/or later medieval field systems connected with the adjacent settlement. Although only a short stretch survived of post medieval ditch [155], it was aligned similar to these ditches (see ditches [18], [117] & [155] above). A number of east-west orientated field boundaries appear on the 1st Edition OS six inch map (Figure iv), and a similar pattern of double ditches was found to the north on Site 7, although there, the ditches were more widely spaced (see 03E0300 Final Report).

Pit [68] was clearly an early feature in this part of the site as it had been cut by ditch [65]. The pit was sub-rectangular in plan with sharp a break of slope at the top, convex slope on the north and south and a more vertical slope on the western side. The base was generally flat with an oval-shaped depression in the centre. Measuring 2.1 m long north-south, 1.8 m wide (minimum) and 0.48 m deep, it was filled with deposits (70) and (69). The basal deposit (70) was 0.14–0.32 m deep compact mottled grey clay with moderate charcoal flecking and frequent degraded sandstone and limestones. Concentrated around the depression in the centre of the pit were 61 animal bones of which six were diagnostic to species, representing the remains of cattle, consisting of four teeth and two fragments of a humerus from a single adult individual (Appendix 7). Occasional burnt bones may also have been mammalian but these were unidentifiable to species. Partially sealing (70) in the centre of the pit was deposit (69), compact dark greyish-brown clay with occasional degraded sandstones (Section X-X1). Considering the nature of the faunal remains, the charcoal and stony nature of the fill pit [68]

resembled a rubbish pit, possibly associated with the nearby medieval structure 8 m to the west. The eastern side of the pit was removed when ditch [65] was dug.



Plate 42: Mid-excavation of pit [68] facing south, scale 0.2 m & 1 m



Plate 43: Mid-excavation of pit [68] & ditch [65] facing west, scales 0.2 m & 2 m



Plate 44: Post-excavation of pit [68] & ditch [65] facing west, scales 2 m

Ditch [65] post-dated the final depositional episode within pit [68]. Measuring 19.8 m long north-south, 0.82 m wide and 0.25 m deep the ditch had a gradual break of slope at the top, and a regular sloping concave profile with no discernible break of slope down to a rounded base. It noticeably became narrower and thinner toward the south, kinking slightly along its length here. Two fills were noted within - a basal deposit (66) of compact dark grey sandy clay with occasional small gravel pieces and larger limestone pebbles throughout. This was sealed by a more substantial compact grey, with yellow mottling, sandy silt with frequent limestone and sandstone pebbles (67).



Plate 45: Mid-excavation of ditch [65] facing south, scales 0.2 m & 1 m

Pits [59], [61] and [63] were very irregularly-shaped features whose archaeological potential was low. Pits [59] and [63] could represent natural depressions in the underlying marl or stone sockets, filled with peaty clay (see Appendix 1 for full description & Sections I-11 & Z-Z1).



Plate 46: Mid-excavation of pit [59] facing west, scale 0.2 m

Pit [61] was kidney-shaped in plan with gradual break of slope at the top, vertical slope on the east, more gradual slopes on the other sides, down to a gradual break of slope and flat base. Measuring 0.75 m long north-east/south-west, 0.39 m wide and 0.22 m deep it was filled with (62), friable dark brown peat with very occasional charcoal flecking throughout. During excavation 35 horse bones were retrieved, from an individual less than five years of age (Appendix 7). As can be seen in the accompanying photographs the nature of the pit was suggestive of some type of deliberate deposition, similar to the other horse burial [71] c. 19 m to the west.



Plate 47: Mid-excavation of the pit [61] facing north-west, scale 0.2 m



Plate 48: Post-excavation of the pit [61] facing north-west, scale 0.2 m

DISCUSSION

The varied nature of the archaeological remains identified on Site 11 reflected the general picture of multi-phased activity noted on the Monadreela hillside. As can be seen on Figure 5, within an area measuring 25 m in diameter dates ranging from the Early Neolithic, Late Neolithic, Middle/Late Bronze Age, Late Iron Age and Medieval periods were returned from features sampled for radiocarbon dating.

NEOLITHIC DISCUSSION

The Neolithic discoveries on this site should be read in conjunction with contemporary discoveries on nearby sites – Sites 7, 8 and 9 in the field immediately to north, Site 1i Ballyknock c. 1 km further north, Sites 18 and 19 Boscabell c. 0.5 km to south, and Site 35 Windmill, c. 3 km to the south-west (see individual Final Reports).

Neolithic Material Culture

Pit [23] contained oak charcoal dated to 3945–3789 cal. BC (UBA-13730). On nearby Site 7 nine sherds representing a single Carinated Bowl vessel were identified while on Site 9 two vessels represented by nine sherds were found. Allowing for the old wood effect on the oak charcoal dated the approximate date range for these Cashel Neolithic sites would centre around 3,600 BC. These sites would have been inter-visible with the interpreted structure identified on Site 18, to the south. Further to the north in Ballyknock eight Carinated Bowl sherds, representing at least four vessels, were found from features associated with a small circular structure on Site 1i (03E0697); willow charcoal from one of these postholes was dated to 3953–3774 cal. BC (UBA-13892). The analysis of the Cashel lithic assemblage from nearby sites has also identified Early Neolithic material: on Site 7 (a flint flake which may represent an unfinished implement) and from Site 9 (a small assemblage which has platform technology, characteristics typical of the Neolithic period). To the south-west in Owen's and Bigg's-Lot three Neolithic hollow scrapers were found on Site 30iii (03E1086), and in Farranamanagh a leaf-shaped arrowhead and a hollow scraper were found on Site 41 (03E0647).

Dating the Neolithic in Cashel

Radiocarbon dates from this period, correlating with the date range for the Carinated Bowl pottery and contemporary with the Site 11 pit activity, have been obtained from features on Site 1i in Ballyknock: oak charcoal from the fill of a pit was dated to 3976–3803 cal. BC

(UBA-13893). In Monadreela contemporary dates were recovered from Site 7: oak charcoal from the fill of a posthole dated to 3954–3773 cal. BC (UBA-13711). A slightly later date in the Early Neolithic has been obtained from nearby Site 9: holly charcoal from a posthole of a small circular structure was dated to 3691–3524 cal. BC (UBA-13720). This same feature produced sherds of Carinated Bowl pottery (see above), so it is possible the same community is represented here, utilising the Monadreela/Boscabell wetland resources. The Boscabell house (on Sites 18/19) and the much smaller structure in Monadreela (on Site 9) represent tangible evidence of this communal network. On Site 35 (03E0675) in Windmill oak charcoal from the fill of a pit was dated to 3763–3638 cal. BC (UBA-13798); however no contemporary structure was identified in this townland. In general, the dates from the N8 Cashel Bypass show that Early Neolithic activity was relatively widespread in Cashel's environs (see individual Final Reports).

On the N8 road scheme south of Cashel at Caherabbey Upper oak charcoal from a posthole adjacent to a possible structure was dated to 3986–3798 cal. BC (UB-7236), (McQuade 2009, 369). In addition, Carinated Bowl pottery and flint tools were recovered both at this site, and at Caherabbey Lower, while at a site in Ballylegan, to the east, consisting of postholes and pits, further Early Neolithic pottery was found (*ibid*, 15). These locations straddle both sides of the River Suir and, in tandem with the Cashel bypass information give us a much better picture of Early Neolithic settlement in this part of Tipperary. The same species (oak) were growing, the same pottery was being used and the distance between both the River Suir sites and even the furthest north of the Cashel sites—Ballyknock—would have been a short journey to make. The role played by the River Suir as a conduit between these communities is obvious, and fording points on the river must have existed.

The most significant recent discovery of Neolithic material in Co. Tipperary was made at the gravel mound at Tullahedy, south-west of Nenagh. Here, activity on the mound centred on an enclosure, houses, c. 200 pits and numerous ceramic and stone artefacts. The main phase of activity began in the Early Neolithic period between 3670–3645 cal. BC and continued until 3510–3460 cal. BC (Cleary & Kelleher 2011, 408). The Neolithic *foci* at Cashel, along with Tullahedy and Lough Gur, Co. Limerick has increased our knowledge of the Neolithic, in terms of new sites and material culture in North Munster. In addition to Tullahedy further discoveries on the M7 Nenagh to Limerick Motorway revealed many new settlement sites—predominantly features found isolated or in clusters—from all periods within the Neolithic, discoveries in the form of artefacts and/or radiocarbon dates (*ibid*, 131–5 & Fig. 4.2).

What were such pits used for?

Whilst pits such as example [23] and others on the site appear to represent the disposal of domestic waste and indicate settlement of some kind, the nature of the pits themselves is less obvious. Much discussion in recent times has focused on their function (Garrow 2007, 10–1; Cleary 2011, 423–7). Designating functions such as ‘storage’ or ‘rubbish’ to pits makes them more understandable but a more structured deposition may be recognised in the manner of what was deposited within. In Ireland this phenomenon is seen throughout the Neolithic with greater numbers of pits recorded for the early parts of the period (Smyth 2012, 16). The scatters of Neolithic artefacts on other Cashel sites may be indicative of disturbed settlement, or of other activities specific to these locations. The location of settlements beside ponds was deliberate and it is likely the pits were used in a variety of domestic activities such as food preparation and processing.

LATE NEOLITHIC / COPPER AGE DISCUSSION

Approximately 13 m west of pit [23], pit [07] was radiocarbon dated 2861–2580 cal. BC (UBA-13729). The tadpole-shaped nature of this pit was most unusual and suggested a specific, deliberate purpose to that shape. The pit was filled with four deposits (03), (04), (05) and (06). The basal deposit was 0.08 m deep compact, malleable light orange-brown sandy clay (06) with occasional small pebbles. Two circular stakeholes [129] and [130] cut into the base at the south-west had been filled with the same basal deposit as within the pit—backfilled material most likely—suggesting the stakes had been removed not long before deposit (06) was laid down. Due to their alignment and spatiality it was likely they may have acted as supports. Activity possibly associated with the stakeholes was represented by charcoal-rich deposit (05) from which the oak charcoal was dated. Allowing for the old wood effect a more accurate date in the Late Neolithic/Copper Age may be more appropriate for the activity represented by deposit (05). Two later sealing deposits meant that deposit (05) was a primary event within the pit.

The function of this pit was unknown but the deliberate extension at one corner—coupled with the evidence of at least two stakeholes, and the charcoal-rich nature of the deposit—could suggest some type of cooking activity although there was no evidence of *in situ* burning. The lack of carbonised cereals and the shortness of the extension feature would preclude a cereal-drying function, and the complete absence of slag negates a furnace-type function. The extension part of the pit may have acted as a funnel, allowing air circulate

within, perhaps to allow food dry, while the upper sandier deposits appear to represent back-filling of the pit, rather than evidence of a roof collapse. Undated trough [09] on Site 22 George's-Land also contained two stakeholes at opposing corners at one side of that feature, although it was most likely associated with an Early Bronze Age *fulacht fia* (see 03E0503 Final Report).

Other excavations on the bypass have provided evidence of continuous Copper Age settlement activity occurring on Windmill Hill to the south-west. To the north-east of Cashel a number of Early Bronze Age sites were discovered on the M8 Cullahill to Cashel Road Project, the nearest being two sites in Borris townland (Conboy & Green 2009; Conboy, Hardy, Stevens & Green 2010). Nearer Lough Derg in north Tipperary, a small *fulacht fia* in Gortybrigane, Site 3 produced a Late Neolithic radiocarbon date of 2880–2580 cal. BC (Scotland 2011, 29). At Coolderry, Site 1 Co. Tipperary several troughs were excavated, two of which dated to the Late Neolithic/Copper Age and another to the Copper Age/Early Bronze Age, suggesting the site was used for several generations (Long & Clark 2009a, 12).

MIDDLE/LATE BRONZE AGE DISCUSSION

Two features were dated to the Middle/Late Bronze Age period: pit [11] located in the south-west central part of the site, and posthole [150], found within the footprint of the medieval structure. The radiocarbon date-range returned from hazel and carbonised oat grain respectively displayed some overlap, supporting contemporary activity in the area. As these features were found amongst clusters of undated pits and/or postholes it was clear that this prehistoric activity extended for c. 30 m east-west across the southern end of the site, and had been severely impacted by the construction of the medieval settlement in the same location.

Pit [11] was found amongst a group of undated features—five pits and one posthole—at the southern end of the site. As these pits were c. 10 m from a medieval causewayed ditch it was likely any additional pits in the area were removed when that ditch was dug. Pit [11] was found beside three larger pits [13], [15] and [19], and as it was most similar in terms of shape, size and number of fills to pit [13], an association was possible. Although Appendix 6 states this was a cremation pit, the tiny pieces of bone found during sample processing were unidentifiable to species, and it is impossible to confirm this was a bona fide funerary pit (see Appendix 6). Hazel charcoal from the fill was radiocarbon dated to 1420–1312 cal. BC (UBA-13731). Susan Lyons in her analysis writes 'Willow, alder and birch reflect more waterlogged conditions. An opening up of the local woodland would have increased soil moisture and created suitable conditions for water tolerant wood species to grow. This

clearance may have also allowed more access to local riverine environments and wetter woodland. Wood species, such as pomaceous woods, birch, hazel and spindle are also indicators of clearances in the woodland, where they would have colonised marginal scrub and hedgerows close to settlement areas' (Appendix 6 below).

Posthole [150] was located inside the area defined by the medieval structure, amongst a line of features found along its' northern side. Possibly contemporary Bronze Age features, perhaps even a house, were likely removed when this medieval structure was constructed.

Carbonized oat grain from the fill was radiocarbon dated to 1391–1260 cal. BC (UBA-13732). It has to be considered that the erection of the post disturbed underlying Bronze Age deposits from which the oat grain had survived, and was subsequently used for dating in the absence of other suitable samples. Nearby features such as postholes [131], [135], [137]; stakeholes [127], [154]; areas of scorched earth (78), (79); hearth (52); pits [133], [152] and features [119], [121], [123], [125] and [146] could have been contemporary with posthole [150]—posthole [131] was almost identical in size and shape—but equally, these features could be associated with any one of the other periods of activity represented by the archaeology on the site. Unfortunately, there was insufficient charcoal found in these deposits and the lack of artefacts also precludes a more accurate association (see Medieval Discussion below).

There is definitive Middle Bronze Age settlement activity in the area as proven by adjacent excavations: pits on Site 5 dated between the 19th to 17th centuries BC and pyrolytic activity on Site 9 dated between the 18th to 16th centuries BC. Contemporary activity is known throughout Cashel centred on-and-around Windmill Hill (Sites 30iii, 32, 35, 36ii & 38), and particularly at Site 19 in Boscabell, where a number of houses were found (see individual Final Reports). Middle Bronze Age settlement sites were identified around the River Suir on the M8 Cashel to Mitchelstown Road Project (Caherabbey Upper, Ballydrehid, Ballyegan and Cloghabreedy near Cahir, and nearer to Cashel at Dogstown and Shanballyduff (McQuade *et al.* 2009, 28). A number of Middle Bronze Age burial sites were also identified between New Inn and Cashel, within 8 km of Windmill Hill at Templenoe, Racecourse Demesne and Marlhill (*ibid*, 123). To the north-east a significant number of Middle Bronze Age sites were discovered on the M8 Cullahill to Cashel Road Project, the nearest being a site in Parkstown townland (McCullough, Breen, Hardy & Green 2010).

EARLY MEDIEVAL KILN DISCUSSION

This feature was located in the centre of the site, located south of a number of undated intercutting ditches. Carbonised wheat was radiocarbon dated to cal. AD 394–551 (UBA-14372). A similar type kiln was identified on Site 5 c. 150 m to the north, and although dating at least one hundred years later both kilns represented the only Early Medieval activity recognised on the Monadreela/Boscabell hillside (see kiln [155], Site 5 03E0299). Kiln [38] was very significant as the date returned for its usage represented a resumption of activity on the hillside in abeyance since the Early Iron Age period (sites 7, 13 and 18). It is likely that undated features on Site 11, nearby sites and/or unidentified sites elsewhere on the hillside would be contemporary with the kiln activity.

The archaeological deposits within the kiln were completely sealed by more substantial, deeper deposits of re-deposited natural, likely representing the collapse of the kiln roof, deliberate back-filling or a combination of both. Amongst one of these deposits two fragmented horse hindlimb bones were found. Butchered cattle bones were retrieved in the backfilled deposits of the two kilns on Site 25iv to the south in Hughes'-Lot East (see 03E0807 Final Report), and the deliberate dumping of animal waste into kilns has been paralleled from other excavations (Long 2009). As there was no obvious flue apparent in the construction the flue may have been clay-lined above the ground surface, making the kiln more pit-like instead of the classic kiln shapes usually encountered (*ibid*). The early date retrieved from low down in the bowl may support the notion that this was a rudimentary kiln, with the later Site 5 kiln being a more developed example.

Corn drying kilns have been in use in Ireland from at least the early historic period up to the nineteenth century. A number of basic structural elements were common to all corn drying kilns, although variations in size, morphology and complexity did occur. They were generally subsoil-cut, often into a slope or bank, with the majority of the structure below ground level. Most examples had a stone lined bowl and/or flue. All had a stokehole, where the fire was lit, a flue, which was linear, curvilinear or L-shaped and acted as a horizontal chimney, funneling the heat to the final component, the drying chamber or kiln bowl. Circular, oval, square and rectangular kiln bowl shapes, generally with the sides battered upwards, have all been encountered during the course of various excavations. Corn drying kilns were heavily reliant on the conduction of air to blow the smoke and heat from the flue into the kiln bowl and for this reason many flues were oriented towards the prevailing wind. The mechanics behind corn drying kilns was quite simple and was based on the use of convection heat to reduce the moisture levels in the grain. First the grain was placed into the

kiln bowl. To facilitate this, a shelf of horizontal rafters was erected above the floor. The shelves supported a wicker tray or hurdle. Straw was placed over the hurdle and then finally, a 0.7–0.8 m thickness of corn was arranged on top of this, with the sheaves pointed towards the centre (O’Sullivan & Downey, 2005). Some larger kilns had multiple shelves of grain stacked over each other to maximise the efficiency of the drying process.

The environmental analysis determined the kiln was dominated by wheat and barley and is likely to have become an abandoned feature following a conflagration event. This assemblage represents a snapshot of the grain destroyed during kilning activities and does not reflect earlier and later crop drying events at the site. The charred wood of hazel and willow may represent the remains of the firewood used as kiln fuel and/or the charred remains of a drying platform/structure, which had burnt down within the kiln. Hazel and willow are both pliable wood and the young shoots were used in wattling or in constructing light structures. The charred kilning debris from the crop processing would have inevitably become re-deposited around the site mixing and entering nearby features and deposits. This may account for such remains from hearth (52).

The kiln or *áith* was required by all prosperous farmers in the early medieval period (Kelly, 1997, 369). Later kiln activity derived from Hughes'-Lot East to the south: barley from the inner enclosure ditch of the bivallate enclosure on Site 25ii dated to cal. AD 599–669 (UBA-13909), while cherry-type charcoal from an associated kiln was dated AD 665–772 (UBA-13763), (see 03E0730 final report). An unlined cereal drying kiln within the interior of a pre-existing Middle/Late Bronze Age enclosure at Ballydavid, near Littleton was radiocarbon dated 422–537 cal. AD, contemporary with kiln [38]. The Ballydavid kiln was interpreted as possibly being associated with ringfort TN048-005 c. 200 m to the east of the Ballydavid enclosure (Hardy, Green & Stevens 2010, 65 & 110).

MEDIEVAL DISCUSSION

The Medieval Structure

This structure represented one of the southernmost features within the Monadreela medieval settlement. The structure, defined by ditch [81], a D-shaped rectangular cut with entrance midway along the northern side, was bounded on its southern side by the causewayed ditch [04]/[05] fully excavated on adjacent Site 12 (see 03E0393 Final Report). However the direct relationship between this ditch and the structure was not possible to determine as the junction

area had been truncated by the north-south orientated double ditched field boundary [87]/[91]. Any discussion of the archaeological remains within the Site 11 structure should be considered with the remains found on adjacent Sites 10 and 12 (O'Brien 2013c & 2013d).

Dimensions

The structure was defined on site by ditch [81], a D-shaped rectangular cut with entrance midway along the northern side. The external extent measured 10.5 m north-south by 14 m; internally the dimensions were 6 m north-south by 11.5 m east-west, the longer axis being east-west orientated. The entrance was clearly defined on the northern ditch circuit, located specifically for easy access to the rest of the settlement to the north. The southern side was located 2.5 m inside the settlement plot boundary as represented by ditch [04]/[05]. This north-east/south-west orientated short plot boundary contained a gap midway along its length which allowed access into the settlement. This is perhaps one reason why the entrance to the structure was on the north side as the area between the south wall of the structure and the plot boundary may have been considered too narrow to facilitate access from the southern side.

Internal features within the structure

The following undated features were revealed within the structure: postholes [131], [135], [137], stakeholes [127] and [154], areas of scorched earth (78) and (79), hearth (52), pits [133] and [152] and features [119], [121], [123], [125] and [146]. Some of these features could have been contemporary with the prehistoric posthole [150]—posthole [131] was almost identical in size and shape—but equally, these features could date to the Early Medieval and/or Medieval activity on site. Unfortunately, there was insufficient charcoal found in these deposits and the lack of artefacts also precludes a more accurate association. Equally, the line of undated features revealed along the southern side of the ditch—shallow pit [119], postholes [121], [123] and [146], and pit/post [125]—form a linear pattern, perhaps supports for an internal platform upon which crops were stored? The eastern side of the structure was relatively empty and there was no indication of postholes and pits along the eastern and north-eastern ditch segments. No trace of later ploughing was found the presence of which could have been used to explain the absence of features here. Unlike on other such sites—Ballitore, Co. Wicklow (Opie 2009, 173) and Moneycross Upper Co. Wexford (Schweitzer 2009, 178)—the internal features found here appear to accurately represent the actual subsoil-cut features in existence.

Ditch deposits

During excavation various ditch deposits were noted along its length (54), (55), (56), (82), (83), (84), (85), (86), (88) and (94). Basal deposits (54), and (94) produced no dating evidence or environmental data. Five fragments of burnt clay (03E0346:06–03E0346:10) with quartzite and shale inclusions were recovered from primary deposit (88). This material is considered residual as there was no evidence of *in situ* anywhere along the ditch. The archaeological-rich deposits either wholly or partially then sealed these earlier deposits.

Analysis of one such deposit, (86) provided a rich array of environmental data in addition to a medieval radiocarbon date supported by ceramic evidence. The environmental analysis identified wild taxa of an unidentified vetch seed, carbonised cereal oat chaffs, ash—comprising the bulk of the sample—followed by hazel, and lesser quantities of birch and pomaceous (pear), mostly likely discarded or re-deposited remains of nearby firing events, which entered the ditch inadvertently. The oat was most probably the cultivated/common type. The discovery of cereal chaff (awns and palae/lemma) was significant and reveals a lot of information on the crop processing activities on site. As cereal chaff is light and papery, it fragments and separates quite easily as a result of threshing and can disintegrate during the carbonisation process. The ratio of chaff to cereal grain was quite low, so the assemblage is considered to be a relatively clean grain. Another ditch deposit, (85) also contained wild taxa of an indeterminate fruit stone, and small quantities of ash. The botanical remains from the early medieval kiln was dominated by wheat, while oat was the dominant crop within ditch [81], as was the case at Site 8 (see Appendix 6, 03E0379 Final Report).

Successive ditch deposits such as (84) contained oats, bread/club wheat, indeterminate cereals and quantities of charred ash and hazel, deposit (83) with oats, ash and hazel—with the latter species predominating—and deposit (57) with ash charcoal. Deposits (57) and (83) were found at the northern side of the ditch only. The uppermost deposits (56) and (82) were sterile fills signifying the final abandonment phase of the ditch, which clearly occurred sometime after the 14th century. Similar assemblages have also been recorded from medieval cereal assemblages from Cashel town itself (Lyons 2004). It is likely that the Cashel crop assemblages derived from the Monadreela settlement and on Site 8 to the north pit [8100] was identified as a likely kiln, and this feature would have been c. 100 m from the structure (see 03E0379 Final Report, in particular Appendix 6 Tables 1 & 2). This may indicate certain areas of the settlement were used for specific purposes.

What was the structure used for?

Ignoring the prehistoric date retrieved from posthole [150] would allow a scenario such as; a raised wooden platform spanning 5 m in diameter between both lines of undated features, over the areas of scorching—fires underneath used to heat the crops, and resulting in some accidental burning—is plausible, as it would have been sufficient for storage and/or additional sleeping space within the structure, with the eastern side of the structure perhaps used for additional storage. As has been shown in the environmental analysis the high cereal content from the ditch suggests that this structure was a focus for crop-related activities, perhaps being used as a food storage or crop preparation facility. This is further supported by the low level of chaff and absence of weed seed contaminants from the assemblage, which shows that the cereals were cleaned or well processed prior to storage. Additional carbonised cereals of wheat and barley were found in the plot boundary ditch [04]/[05] on Site 12, further supporting evidence that this part of the site was used in the main for crop processing.

As the majority of the charred grain was confined to basal fill (86), and the carbonized oat, which dominated the assemblage, was in a good state of preservation, this could suggest the grains were deposited in the ditch and sealed quickly. This could be explained if the assemblage was used as packing material of pre-existing deposits, which would helprevet walls during construction (Monk 1988, 186). Equally, the regular cleaning of the interior would have meant carbonised grains were deposited along the base of the walls and become incorporated into the ditch fills. Ash and hazel were the main wood species identified from ditch [81] and were likely the main woods used in the construction of the structure and perhaps its' internal structural components. In Appendix 6 it is suggested that if this structure had burnt down, the volume of charcoal recovered should be much higher. As this was not the case the charred debris could be the result of construction methods such as a) the charring of post bases to prevent the timbers from rotting b) a way of re-sizing posts of c) the method by which the timbers were felled (see Appendix 6 below). The subsequent upper ditch fills were devoid of botanical remains and most likely represent the collapse of the walls into the structure once it was abandoned.

Although the low quantity of artefacts was unusual, considering the amount of medieval pottery and nails recovered from the main settlement (Sites 8 & 9), a similar lack of artefacts was noted on adjacent Site 11. The lack of artefacts has been paralleled on other rural medieval settlements such as Moneycross Upper Co. Wexford (Schweitzer 2009, 179). This paucity of artefacts further reinforces the theory that the southern side of the Monadreela settlement, as represented by Sites 11 and 12 was reserved predominantly for crop processing

activities, with the main living quarters located to the north, on Sites 8 and 9. Such a hypothesis would also account for the carbonised grains dumped into the nearby ditches [04], [05] and other features on Site 12, and for the lack of ceramics from this part of the site. If the structure was a granary (*grangia*) it would be paralleled with the historic evidence recording a granary at the seigniorial residence at nearby Synone, to the north (Hennessy 2004, Figure 5.6 & 111).

Dating the structure

Carbonised oat from (86) was radiocarbon dated to cal. AD 1160–1261 (UBA-13901). Significantly, this date was contemporary with the adjacent ditch segment excavated on Site 12: ditch [04] was dated to cal. AD 1057–1274 (UBA-13727), while carbonized wheat grain from the western ditch [05] was dated to cal. AD 1219–1272 (UBA-13728). This evidence proved that the Site 11 structure was bounded on its southern side by this larger, causewayed ditch/boundary feature (see 03E0393 Final Report). The radiocarbon date was also contemporary with the settlement evidence on sites 8 and 9 to the north, and further supported by a sherd of Cashel type-ware pottery (03E0346:04) found in the north-east corner of the ditch: the same pottery as was identified on sites 8 and 9 and dated from the mid-13th to 14th centuries AD. The shank of an iron nail (03E0346:02) also from (86) was the only metal find from the structure, perhaps a broken nail lost off the roof structure. It seems most likely the structure dates between the middle 11th to middle 14th centuries, with the settlement thriving through-out the 13th century.

The Monadreela rural medieval settlement has been shown to consist of a cluster of clay-walled houses situated within a series of boundary plots, defined by shallow ditches (Hughes & Ó'Droma 2011, 20–5). As the settlement was unattached to any nearby manorial centre such as Ballysheehan it seems likely it represented a cluster of free tenants, most likely under the stewardship of the Archbishop of Cashel, as Monadreela was located on his lands (see Townland History above). Perhaps occupied for a short period, the settlement clearly evolved over time. The single house of the early phase appears to have developed into several houses situated within a series of regularly planned plots. The occupants of the site appeared to have been relatively low status and engaged primarily in agricultural activity. The presence of charred grain and chaff from the structures indicates that cereal processing was taking place on the settlement. Evidence from contemporary urban excavations in Cashel indicates that cereals entering the town were relatively clean of chaff and had been partially processed elsewhere (O'Donovan 2004; Moloney 2013). It is likely that the primary producers of the

cereal, the rural peasant farmers who grew it, also winnowed it before sending it to market. The Monadreela settlement is likely to have been established and developed to meet the demand for agricultural produce in Cashel caused by the construction boom witnessed there in the 13th century (see Historical Sources above). It does not appear to have existed beyond the middle of the 14th century and the land returned to agricultural use (Hughes & Ó'Droma 2011, 28–9). This would tie-in with the final radiocarbon date retrieved from the site – willow charcoal from the fill of the seemingly isolated pit [37], dated to cal. AD 1293–1396 (UBA-13733), giving a mean date of 1344 AD, and with the historical information. This date also represented the only fourteenth century date returned for the nearby medieval settlement, and although it was not directly linked to the houses themselves, the date does represent some continued activity on the hillside at this period, attested to also in historical sources.

The Placenames Database of Ireland list a number of dates in association with Monadreela townland and, excluding those dates from the usual 17th sources, the majority of the dates fall between the middle 13th and late 14th centuries, and were associated with the *de Druhull* family, also spelt *Druil*, *de Drehull*, *Droyll*, *Droill*, *de Droill*, *Druhill*, *de Drohuill* and *Drule*. This was a local name also recorded in such sources as the Calendar of Ormond Deeds and Red Book of Ormond (see Townland Information above). The environmental evidence therefore proves the land has not changed much since medieval times, albeit with less woodland cover now. The settlement location in Monadreela may have been two-fold: to take advantage of the resources on offer from such marginal land, whilst also occupying lands for the Archbishop of Cashel to prevent it falling into the hands of local magnates such as at Ballysheehan. See Hennessy (2004) for an examination of contemporary manorial centres in Tipperary.

Other excavated examples

The Monadreela settlement existed for a number of generations and its' demise can be attributed to the vicissitudes of the early decades of the 14th century; cumulative bad harvests, the Scottish take-over of Cashel in 1317, and an upsurge in internecine warfare amongst the O'Brien's throughout mid-Tipperary (Hughes & Ó'Droma 2011, 29). Excavation on other rural medieval sites suggest such sites managed to survive longer (Barry 2000, 10). At Piperstown, Co. Louth a two-roomed east-west orientated late medieval/post-medieval house measuring 8 m long and 5.6 m wide externally was excavated in 1987. Tenuous evidence for wooden beam slots, a collapsed dry-stone wall, and an associated dry-stone

flagged drain were identified. It is suggested that the eastern portion of the structure was used for housing animals, while the western side was for human habitation (Barry 2000a, 135).

At Caherguillamore, Co. Limerick two later medieval structures on an east-west orientation were excavated in the early 1940's (Ó Riordáin & Hunt 1942, 37–63). Measuring roughly 14 m long and 6.5 m wide and, 9.82 m long and 5.56 m wide respectively both structures contained roughly central hearths; in the larger house the hearth was slightly offset from the entrance. Both houses also had internal drain-like features draining into rock-cut hollows (paved at the surface) which probably functioned as cess-pits. It is plausible that in both cases human habitation was centred around the western side of the buildings, with the eastern portion probably functioning as byres: both structures dated from the 14th to the 16th century (Gailey 1984, 20). Excavation by Rose M. Cleary of House 1 at Bourchier's Castle, Lough Gur, Co. Limerick revealed a structure similar to the structure on Site 11, in particular in relation to the location of a hearth. The foundation trench at the eastern side of this building varied between 1.5–2.2 m wide, and the overall dimensions of the structure were 14.5 m by 7.6m (Cleary 1983, 51–65).

To the north-east of Cashel a number of medieval houses were discovered on the M8 Cullahill to Cashel Road Project, the nearest being in Borris townland, Co. Tipperary. Here an excavated house bore a strong resemblance to the structure at Monadreela. The Borris house was roughly east-west orientated, measured 5.8 m by 6 m with no clearly identified evidence for an entrance. There was, however, slight evidence for room divisions based on the internal floor surfaces (Ó Droma 2008, 47, 57–8).

LATER MEDIEVAL DISCUSSION

Field Boundary

The former field boundary apparent on the mapping evidence and removed post-1950 was revealed. The ditches and bank formed part of an extant and extensive field boundary located close to the eastern edge of the dry ground with the land to the east being low lying and prone to seasonal flooding. This was the same feature as noted on sites 5–21 during excavation and it survived as an upstanding boundary in Boscabell townland to the south, on sites 15–19. This former boundary had existed until sometime after 1954 when it was removed to make the field into the large field that existed prior to excavation (compare Figure ix & Plate 1). The boundary was fully exposed within the excavation revealing the base of a clay and stone bank, in places resembling a metallised stone surface of rounded, sub-angular and angular limestones (92). It is possible this surface may have once been a yard associated with the

nearby medieval structure, as traces of similar metalling (250) were found on Site 9 to the north (see final Report 03E0345). Such yards have been found on similar sites such as Moneycross Upper Co. Wexford (Schweitzer 2009, 180 & Fig. 15.7).

Truncating the medieval structure [81] and metalled surface (92) ditch [89] may have been a drainage feature within the field boundary structure: a similar although narrower linear ditch was noted on Site 21 Boscabell (see 03E0480 Final Report). On either side of the bank traces of parallel drainage ditches [87] and [91] were revealed, and a portion of ceramic drain pipe 03E0346:01 found in one ditch fill may have been laid in the 19th century. Ditch [91] was recut along its base by field drain [76], and a plastic pipe showed the drain was still functioning. As the same recut was also identified to the south on Site 13 Monadreela and Site 21 Boscabell, this verified that the drain was c. 1 km in length. This field drain had channelled rainwater along the full course of the field drain, being a significant drainage feature in the landscape. The water flowed into the east-west orientated ditch/stream that formed the townland boundary with Boscabell and George's-Land (see Site 22 Final Report). Excavations on nearby sites suggested this field boundary also acted as a routeway in later medieval times on the edge of this marginal land (Hughes & Ó'Droma 2011, 28–9). That the field boundary truncated the medieval structure suggested the boundary post-dated the 14th century at earliest.

POST MEDIEVAL DISCUSSION

Post Medieval Ditches

In the north central part of the site ditch [53] had been recut along part of its length by ditch [114], and both had been cut by ditch [155], the fill of which produced artefacts post medieval in date. Although undated the short ditch [117] only 2.5 m to the south may have been a contemporary of ditch [155], perhaps forming a double-ditched boundary common in the region.

UNDATED FEATURES DISCUSSION

A number of undated ditches such as [10] and [18] could be more associated with the pattern of ditches revealed on adjacent Site 10, to the immediate north, where ditch [203] was identified (see 03E0392 Final Report). Equally, the arrangement of partially opposing ditches was suggestive of an 6 m wide offset-type gap, not truly an entranceway as there was no evidence of postholes. If associated, the ditches may have funnelled access and egress, perhaps for animals from the medieval structure area towards the main settlement on Sites 8

and 9. However, it was also possible the ditches were related to post medieval field boundaries. As the eastern end of ditch [18] ran parallel to post medieval ditch [155] and, was on the same orientation, it was possible that both ditches were deliberately aligned and associated. The ditch [10] fills resembled the natural on site apart from the charcoal inclusions, suggesting the ditch may have been dug and back-filled soon after.

A number of undated ditches and pits were located in the marginal land at the eastern side of the relict north-south orientated field boundary. The most distinguishing feature on the eastern part of the site was the double-ditched feature [73] and [162]. These ditches clearly related to one another as both were similar in size, shape, orientation and both terminated before the double-ditched relict field boundary [87] and [91]. Neither ditch produced sufficient quantities of charcoal for radiocarbon dating. As no finds were either retrieved from the fills it was impossible to date them, although they may be associated with the medieval and/or later medieval field systems connected with the adjacent settlement. A number of east-west orientated field boundaries appear on the 1st Edition OS six inch map (Figure iv), and a similar pattern of double ditches was found to the north on Site 7, although there, the ditches were more widely spaced (see 03E0300 Final Report).

Ditch [65] had cut sub-rectangular pit [68] while avoiding another pit [63]; two further pits [59] and [61] were located to the immediate north. Pit [68] had an oval-shaped depression in the centre and concentrated around this were 61 animal bones, of which six were identified as cattle consisting of four teeth and two fragments of a humerus from a single adult individual (see Appendix 7). Additional burnt bones may also have been mammalian but these were unidentifiable to species. Considering the nature of the faunal remains, and the charcoal and stony nature of the fill, pit [68] resembled a rubbish pit, possibly associated with the nearby medieval structure? The dating of these bones would be beneficial for the further research on the site. Pits [59], [61] and [63] were very irregularly-shaped features whose archaeological potential was low, as they could represent natural depressions in the underlying marl or stone sockets, filled with peaty clay. However, 35 horse bones were retrieved from the fill of pit [61], from an individual less than five years of age, perhaps the partial remains of a burial (see Appendix 7).

Horse/donkey burial

Pit [71] represented a burial of a horse/donkey. Ninety two bones represented only partial remains and the osteometric data places this individual in the category of small horse with a shoulder height of 1.28–1.36 m (see Appendix 7 for the full analysis). Although undated and

seemingly isolated it was significant that two other features, the upper back-filled deposit of the early medieval kiln [38] and undated pit [61] also contained horse bones.

CONCLUSION

All excavation works have finished in association with the N8 Cashel Bypass & N74 Link Road. The excavation undertaken on Site 11 (03E0346) identified no further archaeological activity and following the recording and excavation the road was built over the site. The earliest evidence on the site came from Neolithic dates retrieved from pits and, considering both samples were of oak, the likely date for this activity was c. 3,500 BC, in the Late Neolithic/Copper Age. Middle/Late Bronze Age activity consisted of a possible posthole and one pit and as one dated sample was a cereal grain this verified a contemporary cereal drying kiln in the locality, the exact location of which still eludes. It is likely undated features on site were contemporary, as occupation of the Monadreela hillside continued unabated, evidenced from adjacent excavations. No associated settlement was apparent but clearly willow, birch, hazel, spindle and pomaceous woods were the dominant wood species still being utilised in the area. This activity was probably of an exclusive domestic-character.

Although there was an apparent lacuna in activity on this part of the hillside until the Early Medieval period, adjacent excavations have shown the hillside continued to be utilised through-out the Late Bronze Age and Iron Age periods. A significant kiln discovery represented the earliest Early Medieval activity around Cashel and it is likely associated with one of the many ringforts in the locality, perhaps even with an unknown site further west upslope on the hillside.

The bulk of the excavated evidence consisted of the southern portion of the Medieval settlement itself, the features appearing to be associated with crop processing, possibly indicating a granary. Along with the radiocarbon dating the environmental evidence provided a direct link between the archaeology investigated here and the nearby activities on Sites 8–11: therefore Site 11 represented the southern extent of the medieval settlement in Monadreela, the liminal extent of that settlement was c. 140 m north-south, therefore being quite nucleated. Further activity resulted in the creation of the field boundary that extended south to the junction with George's-Land, perhaps an attempt to order the fields in a better fashion. This settlement dated from the early 13th to the middle of the 14th century, and may have belonged to the Druhil Family, before being abandoned. A link with the Boscabell moated site TI061-027 to the south is obvious and it is likely that the peasants living in

Monadreela actually constructed the moated site. No contemporary evidence was found on Sites 13 and 14 to the immediate south, so this area may have been under cultivation in this period. This would account for some of the single and double-ditched linears found throughout these fields. The fields subsequently remained in pasture until the bypass construction and the fields outside the road-take are still used for grazing cattle.

RECOMMENDATIONS

Undated pit [68] had an oval-shaped depression in the centre and concentrated around this were 61 animal bones, of which six were identified as cattle consisting of four teeth and two fragments of a humerus from a single adult individual. Additional burnt bones may also have been mammalian but these were unidentifiable to species. Considering the nature of the faunal remains, and the charcoal and stoney nature of the fill, pit [68] resembled a rubbish pit, possibly associated with the nearby medieval structure? The dating of these bones would be beneficial for the further research on the site.

The story of the rural medieval settlement in Monadreela has been published—(Hughes & Ó'Droma 2011, 17–29), and the collective picture as excavated as Sites 7–12 is adequately encapsulated within that paper. Considering the array and complexity of the archaeological discoveries along the edge of the Monadreela hillside, it is a recommendation in this report that the fields east and west of the site be subject to archaeological investigations prior to any proposed developments taking place. These fields should also be field-walked for research purposes should the land use ever revert to tillage. Should funding become available an examination of NRA LiDAR data for Cashel should be undertaken, followed up by focused geophysical surveys. Such work would be beneficial in recognising further prehistoric features associated with the evidence revealed here.

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Appendix 1 Context Register

Context No.	Type	Description
[01]	Cut	Irregular shaped stakehole with sharp break of slope at the top, irregularly sloping sides with no discernible break of slope to a concave base. Measured 0.21 m long, 0.12 m wide & 0.17 m deep. Filled with (02). The irregular nature of this feature made interpretation difficult, it may have been the result of root or animal action rather than a bona-fide feature
(02)	Fill	Fill of stakehole [01]. Compact, mid brown sandy silt with occasional charcoal flecking & sub-angular gravel inclusions throughout
(03)	Fill	Uppermost fill of pit [07]. Friable, light orange-brown silty sand with occasional charcoal flecking & small stones (average diameter 0.01–0.05 m) throughout. Measured 0.94 m long, 1.1 m & 0.12 m deep. Above (04) & (05)
(04)	Fill	Secondary fill of pit [07]. Friable, light orange-brown silty sand with moderate charcoal flecking & small stones (average diameter 0.01–0.05 m) throughout. More frequent stone & charcoal inclusions than (03). Measured 1.58 m long, 1.1 m wide & 0.19 m deep. Above (05) & (06), below (03)
(05)	Fill	Primary fill of pit [07]. Friable, dark charcoal-rich silty sand deposit located on the W side with moderate small stones (average diameter between 0.01–0.06 m) throughout. Measured 0.49 m long, 1.38 m wide & 0.09 m deep. Above (06) & below (03) & (04). Oak charcoal radiocarbon dated to 2861–2580 cal. BC (UBA-13729)
(06)	Fill	Basal fill of pit [07]. Compact, malleable light orange-brown sandy clay with occasional small pebbles throughout. Measured 1.33 m long, 1.05 m wide & 0.08 m deep. Sealed two stakeholes [129] & [130]. Below (04) & (05)
[07]	Cut	Tadpole-shaped in plan, widest at NW, narrowing at SE before terminating at a point. Sides gently sloped but steep at E, more vertical at SE corner. Base undulating due to underlying stones. A small gully extends from the SE corner at the E side for c. 0.8 m. Measured 1.77 m long, 1.23 m wide & 0.14–0.24 m deep. Filled with (03), (04), (05) & (06). Two stakeholes [129] & [130] cut into base & filled with basal deposit (06)
(08)	Fill	Primary fill of ditch [10]. Friable mid orangish-brown sandy silt with occasional charcoal flecking & small fragments of angular & rounded limestone. Similar to the natural, but differentiated on the basis of charcoal inclusions. Measured 0.28 m deep. Above (09)
(09)	Fill	Basal fill of ditch (10). Friable mid greyish-brown sandy silt with occasional charcoal flecking & small fragments of angular & rounded limestone throughout. Similar to the natural. Measured 0.07 m deep. Below (08)
[10]	Cut	Ditch, NE / SW orientated with regular sloping sides tapering to a rounded base; the rounded E end terminated within the site. Measured 32 m long, 1.35 m wide & 0.35 m deep. Filled with (08) & (09), extended beyond excavation at W
[11]	Cut	Circular pit with a sharp break of slope at the top, almost vertical sides with no discernible break of slope to a rounded base. Measured 0.4 m & 0.35 m deep. Filled with (12)
(12)	Fill	Fill of pit [11]. Loose mottled orange/grey-brown silt with frequent charcoal flecking & moderate inclusions of small angular pebbles throughout. Tiny pieces of bone found in this context during sample processing were unidentifiable to species. Hazel charcoal radiocarbon dated to 1420–1312 cal. BC (UBA-13731)
[13]	Cut	Sub-circular pit with an irregular break of slope at the top, concave sides tapering to a flatish base. The break of slope to base was quite irregular. Measured 0.46 m long, 0.4 m wide & at maximum 0.15 m deep. Filled with (14)
(14)	Fill	Fill of pit [13]. Compact mid/light brown silty clay with occasional charcoal flecking & small angular pebbles throughout
[15]	Cut	Circular pit with sharp break of slope at the top, steep to slightly concave sides with a gradual break of slope to a gently rounded base. Measured 0.71 m & 0.36 m deep. Filled with (16) & (17)

(16)	Fill	Primary fill of pit [15]. Friable light brown silt with frequent charcoal flecking & occasional small angular pebbles throughout. Very similar to (17). Measured 0.59 m in diameter & 0.22 m deep
(17)	Fill	Basal fill of pit [15]. Loose mid dark brown silty clay with occasional degraded sandstones & moderate charcoal flecking. Measured 0.71 m long & 0.14 m deep
[18]	Cut	E/W orientated ditch located in N centre of site. Measured 18 m long, 0.7–1.5 m wide & 0.14 m deep, bulging slightly in the centre, with rounded terminals at each end. Filled with (22)
[19]	Cut	Circular pit with very sharp break of slope at the top, steep sides with a gradual break of slope to a slightly concave & gently rounded base. Measured 0.66 m & at maximum 0.3 m deep. Filled with (21) & (20)
(20)	Fill	Primary fill of pit [19]. Friable light brown silt with occasional charcoal flecking & small sub-angular pebbles throughout. Measured 0.50 m wide & 0.15 m deep. Similar to basal fill (21)
(21)	Fill	Basal fill of pit [19]. Friable mid to dark brown silty clay with occasional charcoal flecking & degraded sandstones throughout. Measured 0.55 m wide & at maximum 0.16 m deep. Similar to upper fill (20)
(22)	Fill	Fill of ditch [18]. Moderately compact orange-brown silty sand with occasional decayed stones
[23]	Cut	Irregular shaped sub-circular pit with a sharp break of slope at the top on the S & gradual break of slope at the N side. The sides sloped irregularly with no discernible break of slope to an irregular base. Measured 1.06 m long, 0.86 m wide & 0.25 m deep. Filled with (24), (25), (26), (27) & (28)
(24)	Fill	Intermittent upper fill of [23]. Friable orange-brown sub-circular sandy silt with occasional small angular gravels, possible oxidised clay patches & very occasional charcoal flecking throughout. Measured 0.16 m wide & 0.10 m deep. Above (25) only
(25)	Fill	Primary fill of [23]. Friable light greyish-brown sandy silt with occasional charcoal flecking & some small angular sandstone & mudstone pebbles throughout. Measured 0.56 m long, 0.76 m wide & 0.13 m deep. Below (24) & (26), abuts (27)
(26)	Fill	Intermittent upper fill of [23]. Compact light greyish-brown sub-circular sandy silt with occasional limestone & sub-angular sandstone gravel throughout. A small fragment of possible struck flint (03E0346:03) was recovered from this deposit. Measured 0.24 m wide & 0.10 m deep. Above (25) & (27)
(27)	Fill	Primary fill of [23] at one side only. Compact dark-brown charcoal rich sandy silt with occasional small angular stones throughout. Measured 0.61 m long, 0.37 m wide & 0.15 m deep. Above (25), below (26), abuts (25). Oak charcoal radiocarbon dated to 3945–3789 cal. BC (UBA-13730)
(28)	Fill	Basal fill of [23] at one side only. Friable, dark orange-brown silty clay with occasional small gravel inclusions throughout. Measured 0.11 m long & 0.04 m deep. Below (27)
(29)	Fill	Primary fill of pit [31]. Friable, mid orange-brown sandy silt with moderate charcoal inclusions & occasional pebbles throughout. Measured 0.52 m long, 0.44 m wide & 0.06–0.1 m deep. Above (30)
(30)	Fill	Basal fill of pit [31]. Friable, light orange-brown clayey silt with infrequent charcoal flecking & small pebbles throughout. Measured 0.52 m long, 0.44 m wide & 0.04–0.1 m deep. Below (29)
[31]	Cut	Irregular shaped pit with gradual break of slope at the top on the N side, gradually sloping N side, sharp break of slope at the top on the S side. The break of slope to the base on S side was gradual, but not discernible on the N side & the base sloped from N to S. Measured 0.64 m long, 0.6 m wide & 0.14 m deep. Filled with (29) & (30)
(32)	Fill	Fill of [33]. Compact mottled orange/red-brown sandy clay with patches of oxidised clay, occasional charcoal flecking & small mudstone & sandstone pebbles throughout
[33]	Cut	Irregular E/W orientated pit with irregular sides (concave to E, sloped to W, vertical at S) & uneven base. Measured 1.4 m long, 0.26 m wide & 0.06–0.1 m deep. Filled with (32)
(34)	Fill	Fill of pit/posthole [35]. Friable mid greyish-brown silty sand with occasional pebbles throughout, otherwise homogenous & sterile. Measured 0.55 m in diameter

		& c. 0.35 m deep
[35]	Cut	Pit/posthole, filled with (34). Sharp break of slope at the top, stepped eastern side which then slopes steeply towards a rounded point at the base. Measured 0.55 m in diameter & c. 0.35 m deep. Adjacent to [50] & [137], forms part of the northern line of postholes within structure
(36)	Fill	Fill of pit [37]. Friable, mid orange-brown silty sand with occasional stones & charcoal flecking throughout, with iron-panning/staining. Willow charcoal radiocarbon dated to cal. AD 1293–1396 (UBA-13733)
[37]	Cut	Sub-circular pit with a distinct & sharp break of slope at the top on all sides, steeply sloping sides & a sharp break of slope to a flat, roughly oval-shaped base. Measured 0.66 m long, 0.54 m wide & 0.31 m deep. Filled with (36)
[38]	Cut	Ovoid in plan, E/W orientated corn drying kiln. Sharp break of slope at the top, with steep & almost vertical sides which taper very gently to a gradual break of slope & U-shaped base. Slight surface lip evident at south-east edge. Measured 3.1 m long, 1.6 m wide & 0.38–0.78 m deep. Filled with deposits (39), & (41) – (47)
(39)	Fill	Upper deposit of greyish-brown sandy silt within kiln [38], found at east side only, probably the same as (44). Measured 0.3–0.44 m deep. Contained two fragmented horse hindlimb bones
(40)	Topsoil	Moderately compact orange-brown silty clay with occasional post-medieval & modern ceramic finds, & moderate inclusions of angular & sub-angular limestone throughout. Varies in depth between 0.7 m at the higher ground at site west to approximately 0.15 m towards the lower-lying eastern part of the site
(41)	Fill	Secondary fill of corn drying kiln [38]. Compact, mid purplish-red sandy silt comprising burnt clay. Measured 1.15 m long, 0.8 m wide & 0.08 m deep. Very similar to (47). It was adjacent to (45) in the western portion of the kiln. May represent final burning episode
(42)	Fill	Secondary fill of [38]. Compact, light orangish-brown clayey-silt with occasional flecks of charcoal & occasional small, angular & rounded fragments of limestone. Interpreted as re-deposited natural. Measured 3 m long, 1.15 m wide & 0.54 m deep. Above (41). Below (43). Roof collapse?
(43)	Fill	Tertiary fill of [38]. Compact, light orangish-brown sandy silt with occasional flecks of charcoal & occasional small rounded fragments of limestone. Measured 3.1 m long, 1.05 m wide & 0.18 m deep. Above (42). Below (44). Very similar to deposit (42) except sandier. Roof collapse?
(44)	Fill	Uppermost fill of [38]. A firm mid greyish-brown sandy silt with occasional small pieces of charcoal & occasional small rounded fragments of limestone. Measured 3.1 m long, 0.9 m wide & 0.28 m deep. Interpreted as re-deposited natural. Above (43). Roof collapse?
(45)	Fill	Fill of [38]. Loose, dark yellowish-grey sandy silt, distinctly circular-shaped in plan. Occasional particles of burnt clay but mainly comprising charcoal & burnt grain inclusions throughout. Measured 0.8 m long, 0.8 m wide & 0.04 m deep. Above (46), adjacent to (41). Below (42). May represent final burning episode? Carbonised wheat radiocarbon dated to cal. AD 394–551 (UBA-14372)
(46)	Fill	Fill of [38], very shallow. A firm light orangish-brown sandy silt lens with occasional patches of burnt clay & moderate inclusions of charcoal flecking throughout. There was a distinct ashy component to this deposit also. Very occasional small fragments of limestone throughout. Measured 1.15 m long, 0.75 m wide & 0.01 m deep. Above (47). Below (41)
(47)	Fill	Basal fill of [38]. Compact, mid purplish-red sandy silt comprising burnt clay. Occasional to moderate charcoal inclusions & occasional small fragments of limestone throughout. Measured 1.15 m long, 0.8 m wide & 0.02 m deep. Very similar to deposit (41)
[48]	Cut	Circular pit with sharp break of slope at the top, steeply sloping sides & no discernible break of slope a flat base which slopes slightly from east to west. Measured 0.4 m & 0.19 m deep. Filled with (49). Cut by [50] on SW side
(49)	Fill	Fill of [48]. Friable dark blackish-brown silty clay with frequent burnt sandstones, frequent lumps of charcoal & occasional roots throughout. Resembles pryolithic-type material
[50]	Cut	Circular posthole, with sharp break of slope at the top, vertical sides with a sharp break of slope to a flat base. Measured 0.35 m in diameter & c. 0.25 m deep. Filled

		with (51). Cuts SW side of pit [48]
(51)	Fill	Fill of posthole [50]. Friable mid orange-brown silty clay with very occasional rounded pebbles throughout
(52)	Deposit	A sub-rectangular spread of firm purplish-red sandy silt with large fragments of charcoal at the top of the deposit & occasional small fragments of burnt limestones. Measured 0.95 m long, 0.82 m wide & 0.03 m deep. Enclosed by ditch [81]. Two patches of scorched earth (78) & (79) were noted W of this hearth & pit [152] was to immediate S
[53]	Cut	Irregular NW/SE orientated ditch with moderately steep break of slope at the top, steep concave sides with a gradual break of slope to a flat base. Measured 13 m long, 0.9 m wide & 0.25–0.3 m deep. Filled by (80); cut by ditches [117] & [155]; see ditch [114]
(54)	Fill	Basal fill of ditch [81]. Compact yellow-brown sandy silt with frequent large boulders & smaller stones which are predominately limestone. Below (55) & (56)
(55)	Fill	Primary fill of ditch [81]. Compact dark greyish-brown silty sand with frequent charcoal flecking & occasional gravel pieces. Measured 2 m long, 2.19 wide & 0.10 m deep. Above (54) & below (56)
(56)	Fill	Upper fill of ditch [81]. Compact light greyish-brown sandy silt with occasional orange mottling, gravels & larger pebbles throughout. Measured 2 m long, 1.64 m wide & 0.12 m deep. Above (54) & (55)
(57)	Fill	Localised fill of ditch [81]. Light grey-brown clayey sand with frequent inclusions of stones (average diameter of 0.1 m) concentrated towards the central and northern portion of the ditch. Occasional charcoal flecking throughout. The deposit petered out from north to south. Maximum depth of 0.13 m
(58)	Deposit	The underlying natural west of the relict field boundary was very stoney grey glacial till, and the majority of features were cut into this. Its stoney nature made the base of many features uneven & small hollows/depressions occurred through out the site. This changed to compact grey marl at site east, consistent with the low-lying waterlogged nature of the land on this side of the relict field boundary
[59]	Pit	Sub-circular pit cut into marl at site east, gradually sloping sides down to an uneven base. Measured 0.6 x 0.44 m & 0.08–0.1 m deep. Filled with (60)
(60)	Fill	Fill of pit [59]. Compact dark brown peat with a single fleck of charcoal, otherwise archaeologically sterile & homogenous throughout
[61]	Cut	Kidney-shaped pit in plan, NE/SW orientated pit with gradual break of slope at the top, vertical slope on the east & more gradual slopes on the other sides, gradual break of slope to a flat base. Measured 0.75 m long, 0.39 m wide & 0.22 m deep. Filled with (62)
(62)	Fill	Fill of pit [61]. Friable dark brown peat with very occasional charcoal flecking throughout. Contained 35 horse bones from an individual less than five years of age
[63]	Cut	Sub-oval in plan, E/W orientated pit. Gradual break of slope at the top, steeply sloping western & gradually sloping on all other sides with an irregular base sloping to the east. Measured 0.77 m long, 0.4 m wide & 0.16 m deep. Possibly represents a natural depression or dislodged stone hole. Filled with (64)
(64)	Fill	Fill of [63]. A dark brown clayey peat with very occasional small stones at the interface with the underlying marl. Very occasional charcoal flecking found on the eastern side of the deposit
[65]	Cut	Ditch, N/S orientated with gradual break of slope at the top, regular sloping concave profile with no discernible break of slope to a rounded base. Measured 19.8 m long, 0.82 m wide & 0.25 m deep, becoming narrower & thinner at S end. Filled with (66) & (67). Truncates [68] at its E side
(66)	Fill	Basal fill of ditch [65]. A compact dark grey sandy clay with occasional small gravel pieces & larger limestone pebbles throughout. Measured 0.49 m wide & 0.12 m deep. Below (67)
(67)	Fill	Primary fill of ditch [65]. A compact grey, with yellow mottling, sandy silt with frequent limestone & sandstone pebbles throughout. Measured 0.63 m wide & 0.13 m deep. Above (66)
[68]	Cut	Sub-rectangular N/S orientated pit with sharp break of slope at the top, convex slope on the north & south & a more vertical slope on the western side. Gradual break of slope from the sides to the base. Generally flat with an oval-shaped depression in the centre. Measured 2.1 m long, 1.8 m wide & 0.48 m deep. Filled

		with (70) & (69). E side truncated by ditch [65] so the pit would originally have been wider
(69)	Fill	Primary fill of pit [68]. A compact dark greyish-brown clay with occasional degraded sandstones & otherwise homogenous throughout. Measured 1.35 m wide & 0.08–0.18 m deep. Partially sealed (70)
(70)	Fill	Basal fill of pit [68]. A compact mottled grey clay with moderate charcoal flecking & frequent degraded sandstone & limestone fragments throughout. Occasional burnt & unburnt animal bones concentrated around the depression in the centre of the pit. Measured 1.80 m wide & 0.14–0.32 m deep
[71]	Cut	Sub-rectangular E/W orientated pit with irregular break of slope at the top, slightly tapering sides with no discernible break of slope to an uneven base. The base is deeper at the western side than the E. Measured 1.35 m long, 0.7 m wide & 0.3 m deep. Filled with (72)
(72)	Fill	Fill of pit [71]. Horse/donkey burial found within the pit
[73]	Cut	Ditch, E/W orientated with a sharp break of slope at the northern & gradual break on the southern side, U-shaped profile. No discernible break of slope to a gently rounded base. Measured 10.69 m long, 1.75 m wide & 0.37 m deep. Extends parallel & S of [162] & beyond the excavation at E
(74)	Fill	Fill of ditch [73]. Friable dark brown peat with very occasional charcoal flecking throughout, otherwise homogenous & archaeologically sterile
(75)	Fill	Peaty clay lying between & partially over stones (92) & within ditch [91]
[76]	Cut	Field drain cut into base of field boundary ditch [91]. Dimensions 1.42 m wide at the top, the silty clay matrix is 0.35 m deep above the main stone fill which is 0.56 m deep at maximum & 0.46 m wide. Filled with (77)
(77)	Fill	Fill of field drain [76]. Loose grey silty clay with very frequent large angular & sub-angular limestones throughout. Plastic drain pipe noted at one section
(78)	Spread	Area of scorched earth beside & west of pit [133], found within medieval structure [81]. Undated, possibly associated with structural elements to N & S. Measured 2.3 m NE/SW
(79)	Spread	Area of scorched earth beside & east of pit [133], found within medieval structure [81]. Undated, possibly associated with structural elements to N & S. Measured 2.5 m E/W x 1.2 m N/S
(80)	Fill	Fill of ditch [53]. Moderately compact orange-brown silty sand with occasional decayed stones
(81)	Ditch	D-shaped rectangular structure with entrance at N. The external extent measured 10.5 m N/S x 14 m E/W; internally 6 m N/S x 11.5 m E/W, longer E/W axis. Entrance measured 1.4 m wide where the terminals ended in either rounded (W) or pointed (E) ends. Ditch width varied between 1.5–2.5 m wide & 0.16–0.46 m deep. At SW it had an irregular break of slope at the top, very gradual decline (3 m long) on the western side to a gradual break of slope & a distinct vertical step. The break of slope to the base on the western side is sharp & the base is irregular. The corresponding break of slope on the eastern side to the step is gradual, the side slopes gradually with no discernible break of slope to the irregular base. Filled by various deposits along its length: At S & E filled with deposits (82), (83), (84), (85), (86), (88), (94). At W & N the ditch was filled with deposits (54), (55) & (56). The ditch is interpreted as the foundation trench for a medieval structure. Ditch sealed by deposit (165), E side truncated by field boundary ditch [87]/[76]
(82)	Fill	Uppermost fill of ditch [81]. Compact, mid yellow-brown clayey silt with occasional stone (average diameter 0.01 m) inclusions throughout. Measured 0.70 m long, 0.10 m wide & 0.08 m deep. Noted at the N side of ditch [81] only. Above (83)
(83)	Fill	Localised fill of ditch [81]. Compact, dark grey-brown clayey silt with occasional charcoal flecking throughout. Measured 0.85 m long & 0.05 m deep. Noted at the N side of ditch [81] only. Below (82) & above (84)
(84)	Fill	Fill of ditch [81]. Compact, light yellow-brown clayey silt with occasional to moderate charcoal flecking throughout. Measured 1.7 m long & 0.25 m deep. Below (83), above (85). Resembles (94) which was noted as the primary deposit in other box sections excavated through [81]
(85)	Fill	Secondary fill on S side of ditch [81]. Friable, light mottled yellow/grey-brown

		clayey sand with moderate charcoal inclusions throughout, measuring 0.1–0.25 m in depth. Below (84) & above (86). The interface between (84) & (85) was sharp & at an approximate 60° angle
(86)	Fill	Primary fill on S side of ditch [81]. A dark malleable grey-brown clayey silt with frequent charcoal, oxidised clay, burnt seeds & a single sherd of Cashel type-ware ceramic (03E0346:04) was found at NE corner and the shank of an iron nail (03E0346:02). Carbonised oat radiocarbon dated to cal. AD 1160–1261 (UBA-13901)
[87]	Cut	W side of N/S orientated relict field boundary, shallower & thinner than corresponding ditch on E side. Extended N/S through the site, 0.8–1.6 m wide & 0.3–0.4 m deep. Filled intermittently with (90), (95), (96) & (97)
(88)	Fill	Fill of ditch [81]. Grey-brown silty clay. A total of five fragments of burnt clay (03E0346:06–03E0346:10 with quartzite & shale inclusions) were recovered from this deposit
[89]	Cut	N/S ditch partially exposed along base of relict field boundary, filled with (93). Exposed for 17 in length, measuring 0.95 m wide & 0.34 m deep. Truncates ditch [87] & stones (92)
(90)	Fill	Fill of ditch [87]. Peaty clay with occasional small stones. Measured 0.95 m wide & 0.34 m deep. Above (97), below (93)
[91]	Cut	Ditch on E side of relict field boundary, wider & deeper than corresponding ditch on W side. Extended N/S through the site, 1.5–1.7 m wide & 0.4 m deep. Distinct slope from higher W side. Contained a portion of clay water pipe 03E0346:01. Filled with (75). Recut at its base by field drain [76]
(92)	Deposit	Metalled stone surface partially exposed along base of field boundary [87]/[91] whose ditches cut it. Rounded, sub-angular & angular limestones partially sealed by clay (75). Yard surface E of structure?
(93)	Deposit	Relict field boundary bank lying between ditches [89] & [91]
(94)	Fill	Another primary fill on S side of ditch [81]. Compact grey-brown/yellow clayey silt with occasional small stones throughout. Below (88)
(95)	Fill	Basal fill of ditch [87]. Silty yellow-brown clay with occasional large sub-angular stones throughout. Measured 0.7 m wide & at maximum 0.08 m deep. Below (96).
(96)	Fill	Secondary fill of ditch [87]. Grey-brown silty clay, occasional small stones. Measured 1.54 m wide & at maximum 0.3 m deep. Above (95) & below (97) & (90). Cut by [91]
(97)	Fill	Fill of ditch [87]. Charcoal rich lens within a silty clay matrix. Measured 1.02 m wide & at maximum 0.12 m deep. Above (96), below (90)
(98)	Deposit	The subsoil was predominantly friable orange brown clay with moderate to frequent, small sub-angular & sub-rounded limestones throughout
99–113		Not used
[114]	Cut	Recut of ditch [53]. N/S orientated ditch with moderately steep break of slope at the top, steep concave sides with a gradual break of slope to a flat base. Both terminals curve to SE & NE. Measured 9 m long, 0.9 m wide & 0.25–0.3 m deep. Filled with (116) & (115); cut by ditch [117]
(115)	Fill	Upper fill of ditch [114]. Loose dark brown silty sand with occasional charcoal & small stone (average diameter 0.05 m) inclusions throughout. The frequency of charcoal increases towards the interface between both deposits. Above (116)
(116)	Fill	Basal fill of ditch [114]. Moderately compact orange-brown silty sand with occasional decayed stone (average diameter 0.02–0.03 m) inclusions throughout. Below (115)
[117]	Cut	E/W orientated ditch with sharp break of slope at the top, irregular concave sides & a gradual break of slope to flat base. Increases in depth at E side. Measured 6.5 m long, 0.46 m wide & 0.13 m deep. Filled with (118)
(118)	Fill	Fill of ditch [117]. Malleable, dark brownish-grey clay silt, homogenous throughout
[119]	Cut	Sub-circular shallow pit with steeply cut edges down to irregular base. Measured 0.32 m long, 0.22 m wide & 0.03 m deep. Filled with (120). Part of southern group of features located within area enclosed by ditch [81]
(120)	Fill	Fill of pit [119]. Compact light grey silt with occasional small stones throughout
[121]	Cut	Sub-circular posthole with irregular steep sides & no discernible break of slope to

		an uneven base. Measured 0.33 m long, 0.28 m wide & 0.18 m deep. Filled with (122). Part of southern group of features located within area enclosed by ditch [81]
(122)	Fill	Fill of posthole [121]. Compact light grey clay silt with occasional small stones (c. 10 % of the deposit) throughout
[123]	Cut	Sub-circular posthole with irregularly sloping steep sides, no discernible break of slope to an uneven base with a distinct dip towards N side. Measured 0.27 m long, 0.23 m wide & 0.18 m deep. Filled with (124). Part of southern group of features located within area enclosed by ditch [81]
(124)	Fill	Fill of posthole [123]. Compact light grey silt with occasional stones throughout
[125]	Cut	Sub-circular pit/post with a sharp break of slope at the top, steeply cut northern side with the remainder being cut slightly more obliquely to an irregular base. Measured 0.52 m long, 0.37 m wide & 0.15 m deep. Filled with (126). Part of southern group of features located within area enclosed by ditch [81]
(126)	Fill	Fill of pit/post [125]. Compact dark grey silt with occasional small stones throughout
[127]	Cut	Sub-oval stakehole with steeply cut edges down to concave base. Measured 0.2 m long, 0.16 m wide & 0.06 m deep. Filled with (128). Part of northern group of features located within area enclosed by ditch [81]
(128)	Fill	Fill of stakehole [127]. Compact, orange-brown sandy silt with occasional charcoal & small rounded limestones throughout
[129]	Cut	Circular stakehole found in SW side of pit [07], filled & sealed by (06). Angled sides to NE, measured c. 0.1 m in diameter & c. 0.1 m deep
[130]	Cut	Circular stakehole found in SW side of pit [07], filled & sealed by (06). Vertical sides, measured c. 0.1 m in diameter & c. 0.2 m deep
[131]	Cut	Sub-circular posthole with a sharp break of slope at the top, concave sides & no discernible break of slope to a concave base. Measured 0.39 m long, 0.34 m wide & 0.16 m deep. Filled with (132). Possibly associated with posthole [150] to E. Part of northern group of features located within area enclosed by ditch [81]
(132)	Fill	Fill of posthole [131]. Loose orange brown sandy silt (at a ratio of 10–90 % respectively), homogenous throughout
[133]	Cut	Sub-oval shallow pit with concave sides & an irregular base. Measured 0.32 m long, 0.26 m wide & 0.08 m deep. Filled with (134). Within the structure & between patches of scorched earth (78) & (79)
(134)	Fill	Fill of pit [133]. Loose orange-brown sandy silt (at a ratio of 20–80 % respectively) with occasional stones, some degraded
[135]	Cut	Oval posthole with vertical sides down to a flat base. Measured 0.3 x 0.2 m & 0.16 m deep. Filled with (136). Part of northern group of features located within area enclosed by ditch [81]
(136)	Fill	Fill of posthole [135]. Brown/grey silt with occasional small stones
[137]	Cut	Sub-oval posthole, with sharp break of slope at the top, shallow concave sides & no discernible break of slope to flat base. Measured 0.22 m long, 0.2 m wide & approximately 0.09 m deep. Filled with (138). Part of northern group of features located within area enclosed by ditch [81]
(138)	Fill	Fill of posthole [137]. Compact brown/grey silt with occasional small stones (comprising c. 20 % of the deposit) throughout
139–144		Not used
(145)	Fill	Fill of circular posthole [146]. Loose greyish-brown clay silt with occasional charcoal flecking throughout
[146]	Cut	Circular posthole with sharp break of slope at the top, steeply cut sides with a gradual break of slope to a flat base. Measured 0.2 m diameter & 0.13 m deep. Filled with (145). Part of southern group of features located within area enclosed by ditch [81]
147–148		Not used
(149)	Fill	Fill of posthole [150]. Loose grey-brown clay silt with occasional charcoal flecking throughout. Contained carbonized oat grain radiocarbon dated to 1391–1260 cal. BC (UBA-13732)

[150]	Cut	Posthole sub-circular in shape, W side sharply sloped, E side vertical down to an uneven base. Measured 0.4–0.5 m in diameter & 0.1–0.14 m deep. Filled with (149). Part of northern group of features located within area enclosed by ditch [81]
(151)	Fill	Fill of pit [152]. Loose orange-brown sandy silt (at a ratio of c. 20–80 % respectively) with occasional angular limestones throughout
[152]	Cut	Sub-oval pit with gradual break of slope at the top, shallow concave sides & no discernible break of slope to an irregular base. Measured 0.58 m long, 0.44 m wide & 0.09 m deep. Filled with (151)
(153)	Fill	Fill of stakehole [154]. Compact, dark brown sandy silt (at a ratio of c. 20–80 % respectively), sterile & homogenous throughout
[154]	Cut	Circular stakehole with gradual break of slopes at the top, vertical northern side & more concave sides on all other sides; no discernible break of slope to a rounded base. Measured 0.16 m in diameter & 0.09 m deep. Filled with (153). Located at the W side of the structure beside (78)
[155]	Cut	E/W orientated ditch with sharp break of slope at the top, steeply cut sides with no discernible break of slope to a concave base. Measured 14 m long, 1.52 m wide & 0.53 m deep. Filled with (156) & (157). Cuts ditch [53]
(156)	Fill	Basal fill of ditch [155]. Moderately compact grey-brown silty clay with occasional gravel & larger stones throughout. Measured 14 m long, 1.03 m wide & 0.2 m deep. Below (157). Some modern finds (including corroded iron & clay pipe stem fragments) were noted during excavation but not retained for specialist analysis
(157)	Fill	Primary fill of ditch [155]. Loose mottled orange & grey-brown sandy silt with frequent gravel & small pebbles throughout. Measured 14 m long, 1.51 m wide & 0.32 m deep. Above (156)
158–161		Not used
[162]	Cut	E/W orientated ditch with a sharp break of slope at the northern & gradual break on the southern side, U-shaped profile with a more gradual slope from N-S. No discernible break of slope to a gently rounded base. Measured 10.4 m long, 1.86 m wide & 0.37 m deep. Extends parallel & N of [73]. Extends beyond excavation at E
(163)	Fill	Fill of ditch [162]. Friable dark brown peat with very occasional charcoal flecking throughout, otherwise homogenous & archaeologically sterile
164		Not used
(165)	Deposit	Re-deposited subsoil above archaeological features in the south-eastern part of the site, & in particular around the postulated house. The depth of this deposit was not recorded during the course of the excavation

Appendix 2 Finds Register

Find No.	Context No.	Description
03E0346:01	(09)	Clay water pipe, early modern drainage
03E0346:02	(86)	Iron nail shank
03E0346:03	(26)	Possible piece of coarse granular flint may have been struck
03E0346:04	(86)	Body sherd of Cashel-type ware pottery
03E0346:05	(40)	Handle of Cashel-type ware pottery
03E0346:06	(88) / 88.1 ²	Burnt clay containing quartzite and shale inclusions
03E0346:07	(88) / 88.3	Burnt clay containing quartzite and shale inclusions
03E0346:08	(88) / 88.4	Burnt clay containing quartzite and shale inclusions
03E0346:09	(88) / 88.5	Burnt clay containing quartzite and shale inclusions
03E0346:10	(88) / 88.2	Burnt clay containing quartzite and shale inclusions

² Denotes additional specialist number designated by Dr. Eoin Grogan.

Appendix 3 Drawing Register

Sheet No.	Scale	Description
1	1:10	East-facing section of [119]
1	1:10	East-facing section of [123]
1	1:10	West-facing section of [121]
1	1:10	West-facing section of [125]
1	1:10	South-east facing section of [137]
1	1:10	East-facing section of [135]
1	1:10	West-facing section of [131]
1	1:10	East-facing section of [133]
1	1:10	West-facing section of [141]
1	1:10	West-facing section of [154]
1	1:10	South-west facing section of [146]
1	1:10	South facing section of [152]
1	1:10	South-west facing section of [148]
1	1:10	North facing section of [150]
1	1:10	East-facing section of [100] & [81]
1	1:10	South-east facing section of [81] & [104]
1	1:20	South-west facing section of [81], [87], [89], [91] & [111]
2	1:10	North facing section of [117]
2	1:10	South-west facing section of [114]
3	1:20	Post-excavation plan of kiln [38]
3	1:10	South facing section of [48] & [50]
3	1:10	East facing section of [53]
3	1:10	South-east facing section of [61]
3	1:10	East facing section of [58]
3	1:10	East facing section of [59]
4	1:20	East facing section of [107]
4	1:10	East facing section of [110]
4	1:10	East facing section of [123]
5	1:20	East facing section of [155]
5	1:10	South-west facing section of [158]
5	1:10	East facing section of [38]
5	1:10	North facing section of [65]
5	1:10	East facing section of [63]
6	1:10	West facing section of [81]
6	1:20	East facing section of [81]
6	1:10	West facing section of [53]
6	1:20	South-west facing section of [87], [89] & [91]
7	1:10	East facing section of [68]
7	1:10	South-west facing section of [74] & [76]
7	1:10	North facing section of [78]
8	1:50	Mid-excavation plan of ditch [81] of structure
9	1:50	Post-excavation plan of ditch [81], field boundaries [87] & [89]
10	1:20	East facing section of [107]
10	1:10	Section of [81] & [104]
10	1:10	Section of [81], [87], [89] & [111]
10	1:10	West facing section of [81]
10	1:20	East facing section of [53] / [81]
10	1:20	South-west facing section of [81] / [89] & [91]
10	1:10	West facing section of [53] / [81]
10	1:10	East facing section of [81] & [100]
11	1:50	Mid-excavation plan of ditch [81] of structure, annotated
12	1:10	South-west facing section of [115] & [118]
12	1:10	South facing section of [106]
12	1:10	South-west facing section of [119]

12	1:10	South-west facing section of [131]
12	1:10	North facing section of [133]
12	1:10	South facing section of [89] & [91]
12	1:10	South-west facing section of [111] & [114]
12	1:10	North-west facing section of [137]
12	1:10	East facing section of [38]

Appendix 4 Sample Register

The following environmental samples were analysed. They mostly consisted of 1.5 litres of soil in volume.

Sample No.	Context	Description
4	03	Sample from Neolithic pit [07]
5	04	Sample from Neolithic pit [07]
6	05	Sample from Neolithic pit [07]
7	06	Sample from Neolithic pit [07]
8	24	Sample from Neolithic pit [23]
9	25	Sample from Neolithic pit [23]
10	26	Sample from Neolithic pit [23]
11	27	Sample from Neolithic pit [23]
12	28	Sample from Neolithic pit [23]
13	29	Sample from undated pit [31]
14	30	Sample from undated pit [31]
15	12	Sample from Middle Bronze Age pit [11]
17	32	Sample from undated pit [33]
18	36	Sample from Medieval pit [37]
23	149	Sample from Middle Bronze Age posthole [150]
48	42	Sample from Early Medieval kiln [38]
49	43	Sample from Early Medieval kiln [38]
50	44	Sample from Early Medieval kiln [38]
62	45	Sample from Early Medieval kiln [38]
63	46	Sample from Early Medieval kiln [38]
65	47	Sample from Early Medieval kiln [38]
88	52	Sample from undated pit [33]
90	57	Sample from undated pit [31]
94	83	Sample from Medieval foundation trench [81]
95	84	Sample from Medieval foundation trench [81]
96	85	Sample from Medieval foundation trench [81]
97	86	Sample from Medieval foundation trench [81]
98	86	Sample from Medieval foundation trench [81]
99	86	Sample from Medieval foundation trench [81]
100	86	Sample from Medieval foundation trench [81]
101	86	Sample from Medieval foundation trench [81]
102	84	Sample from Medieval foundation trench [81]
103	84	Sample from Medieval foundation trench [81]
104	86	Sample from Medieval foundation trench [81]
109	83	Sample from Medieval foundation trench [81]

Appendix 5 Photography Register

There are 180 digital photographs from the excavation have been retained in the site archives.

Appendix 6

Environmental Report

Scheme – N8 Cashel Bypass & N74 Link Road

Site Name- Site 11 Monadreela

Excavation number – 03E0346

County – Tipperary

Job code – ENV/083

Author- Susan Lyons

Date – 20/11/10³

Plant Macrofossil Remains & Charcoal

Report

³ This specialist report was updated in 2013 to reflect new information regarding contexts, finds and radiocarbon dates. A copy of the original report has been retained in the site archives.

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1 INTRODUCTION

This report discusses the plant macrofossil remains and charcoal remains recorded from the soil samples associated with the archaeological excavations at Site 11 Monadreela (03E0346). 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.

For the purpose of this report, Part A will focus on the plant remains analysis while Part B will discuss the wood and charcoal identifications. They will later form part of an overall interpretation of environmental remains for the site in the concluding remarks. 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*).

2 BACKGROUND

Thirty five flint samples were analysed from excavations associated with prehistoric and medieval activity recorded at Site 11, Monadreela, Co. Tipperary. Site 11 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 03E0346. Site 11 contained a medieval corn drying kiln and D-shaped enclosure with associated features probably representing a medieval house, together with numerous anomalous pits, post-holes, field drains and furrows of post-medieval date (Hughes, 2010)

The following features were selected for archaeobotanical analysis:

- Pit C7 (C3, C4, C5, C6)
- Pit C11 (C12)
- Pit C23 (C24, C25, C26 C27, C28)
- Pit C31 (C29, C30)

- Pit C37 (C36)
- Posthole C150 (C149)
- Hearth/pit C33 (C32)
- Kiln C38 (C42, C43, C44, C45, C46, C47)
- Foundation trench C81 (C57, C83, C84, C85, C86)

Seven radiocarbon dates were obtained for the site:

Context	Context description	C14 (2 σ calibration range)	UBA	Period	Material dated
(27), [23]	Fill of pit	3945–3789 BC	13730	Neolithic	Oak charcoal
(05), [07]	Fill of pit	2861–2580 BC	13729	Neolithic	Oak charcoal
(12), [11]	Fill of pit	1420–1312 BC	13731	Middle Bronze Age	Hazel charcoal
(149), [150]	Fill of posthole	1391–1260 BC	13732	Middle Bronze Age	Carbonized oat grain
(45), [38]	Mid fill of kiln	AD 394–551	14372	Early Medieval	Carbonized wheat grain
(86), [81]	Fill of house foundation	AD 1160–1261	13901	Late Medieval	Carbonized oat grain
(36), [37]	Fill of pit	AD 1293–1396	13733	Late Medieval	Willow charcoal

3 PART A: PLANT REMAINS IDENTIFICATION AND ANALYSIS

3.1 Methodology

All samples were ⁴processed by Eachtra Archaeological Projects Ltd (Eachtra Archaeological Projects Ltd, 2009).

3.1.1 Sample processing (after Eachtra Archaeological Projects Ltd)

⁴ 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)

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. In the case of very large samples, a representative number of plant remains were identified. This sub-sample was a random selection of ⁵500 counts. 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), *New Flora of the British Isles 2nd Edition* (Stace, C, 1997) and *Digital Seed Atlas of the Netherlands* (Cappers, R.T.J., R.M. Bekker and J.E.A. Jans, 2006).

3.2 Results

The plant remains recorded from Site 11 are presented in **Table 1**. A percentage of the plant remains recorded from the site is shown in **Figure 1**.

The plant remains retrieved from these samples included predominantly cereal grain, with lesser occurrences of wild species and cereal chaff. All botanical material were charred and were in a good state of preservation.

⁵ Standardised by the Irish Archaeobotanical Discussion Group

Carbonized cereal remains – Carbonized cereal grains were recorded from deposits associated with Middle Bronze Age posthole **C150**, from early medieval kiln **C38** and foundation trench **C81**, and from undated hearth/pit **C33**. No carbonized cereal grains were retrieved from Neolithic pits **C07** and **C23**. The assemblage was dominated by oat (*Avena* sp.), accounted for 69% of the identified assemblage and was recorded in high quantities from trench **C81**, most notable from basal fill **C86**. Many of the oat grains are most probably the cultivated/common oat type (*Avena sativa*) due to the absence of a basal scar (suckermouth) (Stanton, 1955, 103) and the larger size of the caryopsis (grain). A number of different oat species, such as small/bristle/black oat (*Avena strigosa*) may also be present within **C86**, based on the size of the caryopsis (grain). In the absence of identifiable chaff elements, such as glume bases, palae and lemma and awns, it is difficult to make any definitive identification in this case.

Wheat (*Triticum* sp.), most likely bread/club wheat (*T. aestivum/compactum*) made up 22% of the identified assemblage. A notable number of wheat grains were recorded from kiln **C38** - **C46**. Similarly, barley (*Hordeum vulgare*), which made up 7% of the assemblage, was also recorded in high quantities from kiln **C38** - **C46**.

Carbonized cereal grains which were badly abraded appear in the table as indeterminate cereal grain (cereal indet.). These grains are difficult to identify to species level and can become vesicular and eroded as a result of charring at high temperatures, the burning of damp grain or that this material had degraded due to re-deposition and/or exposure. None of the cereal remains identified displayed evidence for germination and therefore, the current assemblage is unlikely to have been dried for the purpose of malting.

The fragmented remains of oat chaff (awns and palae/lemma) were recorded from kiln **C38** - (**C46**) and foundation trench **C81** - **C86**. Since cereal chaff by its very nature is light and papery, it fragments and separates quite easily as a result of threshing and can disintegrate during the carbonisation process. It is difficult to quantify chaff fragments as the exact intact elements are unknown and represent a multitude of cereal remains fragments. As a result, chaff components are recorded using the abundance key. The ratio of chaff to cereal grain was quite low, so the assemblages from **C38** and **C81** are considered to be a relatively clean grain.

Carbonized wild taxa – The only evidence for wild taxa was recorded from trench **C81** - **C85** and **C86**, where an unidentified vetch seed (*Vicia/Lathyrus* spp.) and a fragment of an indeterminate fruitstone were recorded.

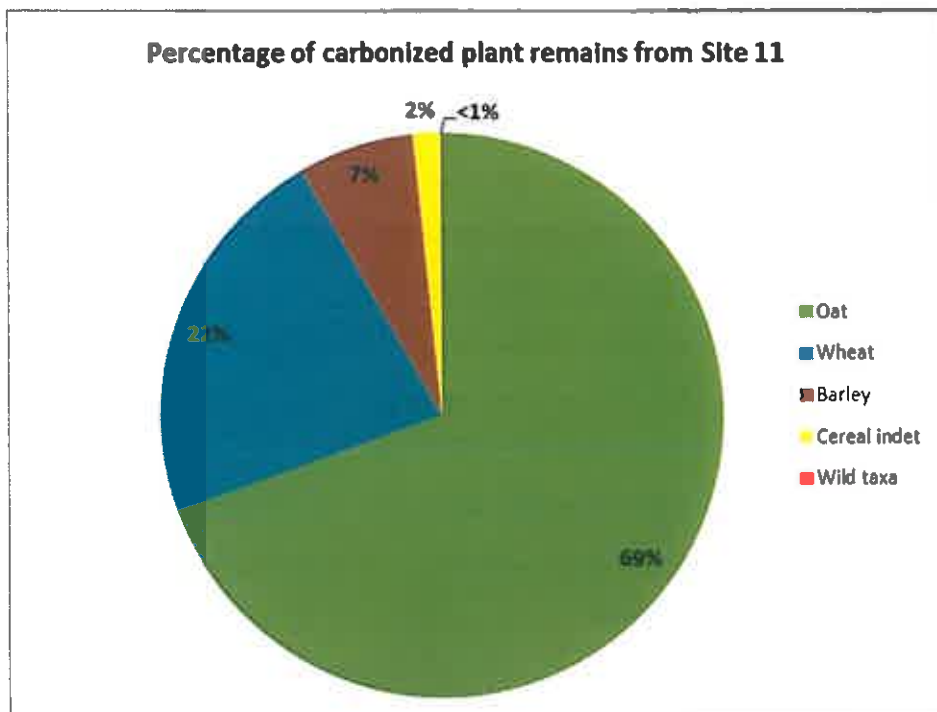


Figure 1

Charcoal – Fragmented charcoal was recovered in high to low concentrations from the majority of the samples. The results of the charcoal identifications are presented in Part B of this report.

3.3 Discussion

3.3.1 Carbonization of plant remains

Charred plant remains are those which have been heated to more than about 200° C, but where there is not enough oxygen to complete the burning process. Instead, the organic components are converted to a more carbon-rich resilient material or to carbon itself rather than to ash (Broadman & Jones, 1990).

Carbonized cereal remains recorded from archaeological sites are interpreted as the residual remains or charred debris from crop drying events. Some remains are found in the same place that they were charred (hearths, fires, kilns, ovens, burnt stores). More are found thinly spread and scattered across a wider area entering deposits such as occupational layers, pits and potholes for example. Over time, this material can move and be re-distributed due to disturbances such as soil movement, extreme climatic conditions, root penetration or worm/animal action.

The carbonization process obviously affects different species and plant components in different ways, where finer, lighter material can be destroyed more easily than larger elements. It must therefore be noted that the charred plant remains recovered from archaeological features can as much reflect the results of the carbonization process as how and what plant remains were used on a site (van der Veen, 1989, 305).

3.3.2 *The carbonized plant remains from Site 11, Monadreela*

The botanical material recorded from Site 11 primarily contained evidence for medieval arable farming in the form of cereal remains (grain and chaff), which were centred on corn drying associated with kiln **C38** and crop-related activities surrounding foundation ditch **C81**. The cereal assemblage from Site 11 was made up of predominantly oat (cultivated), with lower incidences of wheat (bread/club) and barley (hulled). Barley and wheat are both crops that have been cultivated from the prehistoric period to the present day. Carbonised oat was retrieved from the Middle Bronze Age dated posthole **C150**. This evidence suggests a kiln existed nearby, perhaps further west upslope on the hillside. Oat has been recorded from later prehistoric deposits in Ireland (Johnson 2007, 70).

Oat, in its cultivated form, becomes more common during the early historic period (Monk, 1985/86, 33; Johnson, 2007, 70). These cereals would have been cultivated and consumed by all social classes during the medieval period and into modern times, with oat also being possibly used as animal fodder. Oat became the most commonly grown crop type during the late medieval and post-medieval period, particularly outside the environs of the Pale (Clarke, 1991, 173; Evans, 1957, 8; Lucas, 1960). Oat grows well in the humid, wet Irish climate and will tolerate poorer soils, where other crop types may fail to thrive. For this reason, it would have become very economical to grow, especially since it was widely used in baking and in the production of ale (Clarke, 1991, 173; Sexton, 1998, 79).

The presence of oat, wheat and barley collectively from Site 11 supports the medieval and later medieval dates obtained for some of these features. Interestingly, the early medieval dated kiln **C38** was dominated by wheat, while oat was the dominant crop within the later medieval dated foundation trench **C81**, which was associated with the D-shaped ditch. Similar assemblages have also been recorded from nearby Site 8 (Lyons, 2010a) and Site 9 (Lyons, 2010b) as well as from medieval cereal assemblages from the nearby urban centre of Cashel, Co. Tipperary (Lyons, 2004).

Crop drying would have been an integral part of the crop processing practice and was undertaken for a number of reasons, such as drying prior to threshing; de-husking and removing awns and hulls; to harden the grain for grinding; kill germinating grain after

malting and improve the storage quality of the grain (killing pests and driving off excess moisture) (Scott, 1951; Monk, 1983).

Although periodic cleaning of the kilns would have produced high quantities of carbonized grain, kiln **C38** is likely to represent the remains of a conflagration or burning event within the kiln, where the grain being kilned has collapsed down into the bowl. The fact that the charred grain was left *in situ* implies that the kiln was not cleaned out and possibly even abandoned after the fire. It is difficult to ascertain whether the remains reflect one or more burning episodes. Wheat is the dominant crop recorded and as such may have been the last grain type dried before the final burning event. It is difficult to establish whether this crop was the crop of choice being cultivated in the area and may just reflect the cereal type being kilned at the site at a particular time. This material was also quite well preserved, which could be attributed to the kiln being sealed quite quickly after it was abandoned or leveled. The lower values for barley and oat, which were more eroded, may reflect the residual remains of earlier kilnings, which remained in the feature.

The high cereal content recorded from the later medieval foundation trench **C81**, represents charred food processing debris from local crop drying, perhaps activities that were being carried out within the structure itself. An interesting observation is how the majority of the charred grain was confined to basal fill **C86** Figure 2. The carbonized oat, which dominated the assemblage, was in a good state of preservation, which suggests that they were deposited within the base of the foundation trench and sealed quickly. This could be explained if the assemblage was used as packing material of pre-existing deposits, which would help revet walls during the construction period (Monk, 1988, 186).

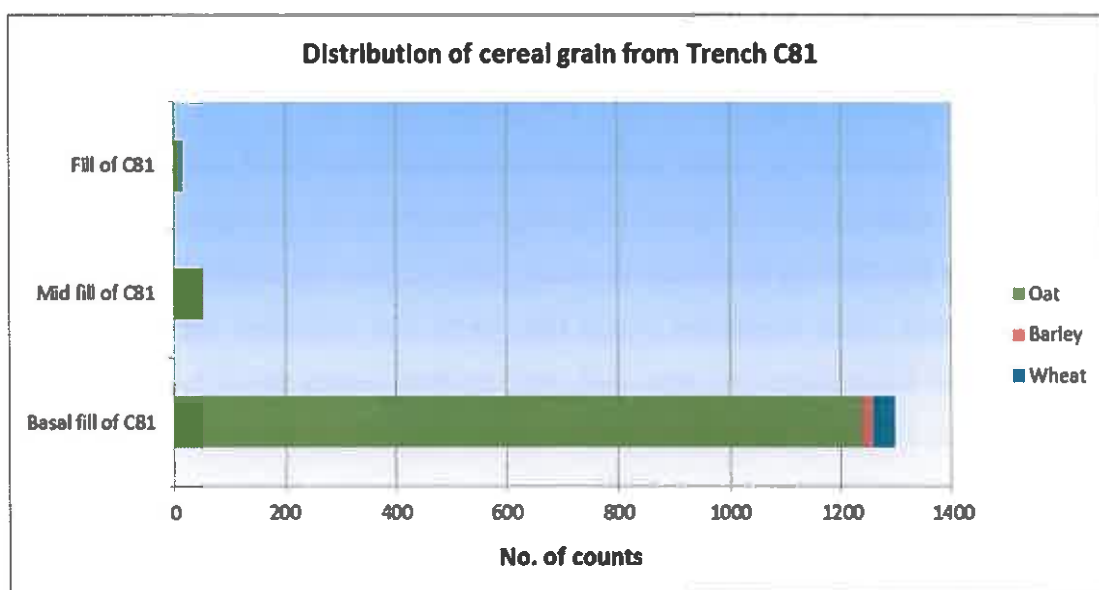


Figure 2

This material would be more eroded if it was being trampled and re-deposited across the floor surface. Since the assemblage was predominantly oat, this could represent a single deposition of kiln debris within **C81**. It is also possible that these charred remains entered structural deposits as part of a destruction event, if an earlier phase of the structure was destroyed by fire. This high cereal content from **C81** suggests that this structure was a focus for crop-related activities, perhaps being used as a food storage or crop preparation facility. This is further supported by the low level of chaff and absence of weed seed contaminants from the assemblage, which shows that the cereals were cleaned or well processed prior to storage.

The charred kilning debris from these crop processing activities would have inevitably become re-deposited around the site mixing and entering nearby features and deposits. This may account for such remains from hearth/pit **C33**. It must be remembered however that this assemblage represents just a snapshot of the grain destroyed during kilning activities and does not reflect earlier and later crop drying events at the site, so all interpretations are based only on the plants that have survived.

The vetch species recorded are common to arable fields and disturbed areas and likely to have become charred inadvertently with the gathered crop or formed part of the fuel within the kiln. The fruitstone would have been collected from local woodland or hedgerows may have been brought to the site with gathered wood and burnt as fuel.

4 PART B: CHARCOAL IDENTIFICATION AND ANALYSIS

Thirty-five flint samples from the following features were selected for charcoal analysis:

- Pit C7 (C3, C4, C5, C6)
- Pit C11 (C12)
- Pit C23 (C24, C25, C26 C27, C28)
- Pit C31 (C29, C30)
- Pit C37 (C36)
- Posthole C150 (C149)
- Hearth/pit C33 (C32)
- Kiln C38 (C42, C43, C44, C45, C46, C47)
- Foundation trench C81 (C57, C83, C84, C85, C86)

4.1 Methodology

4.1.1 *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.

4.1.2 *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).

4.2 Results

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

Eight species totalling 472 identifications were recorded from the charcoal samples associated with Site 11, Monadreela. The assemblage was dominated by oak (*Quercus* sp.),

followed by hazel (*Corylus avellana*) and ash (*Fraxinus excelsior*). Much lesser occurrences of birch (*Betula* sp.), pomaecous woods (*Maloideae* spp.), willow (*Salix* sp.) and spindle (*Evonymus europaeus*) and were also recorded Fig 3.

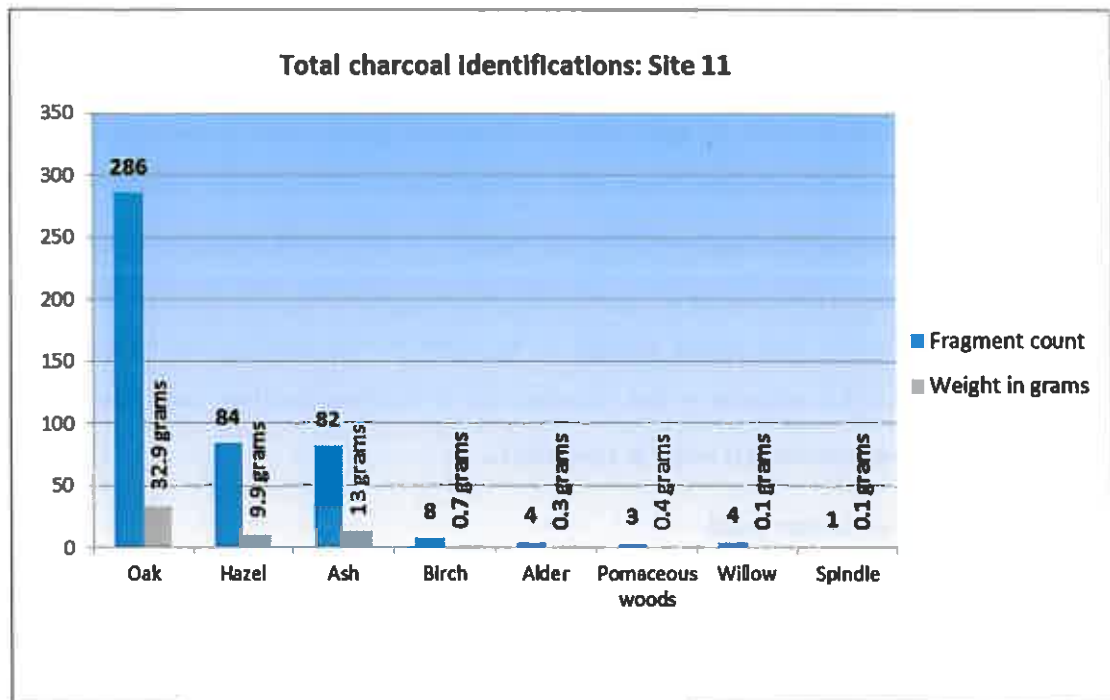


Fig. 3

4.3 Discussion

4.3.1 Background and origin of wood species

Quercus sp. (oak)

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 and 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 (Culter and Gale, 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 and Gale, 2000).

***Corylus avellana* (hazel)**

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).

***Fraxinus excelsior* (ash)**

Ash thrives well on nutrient-rich soils but is also a common woodland species and grows in mixed woodland with oak on damp, slightly acidic soils (Culter and Gale, 2000). Pollen analysis indicates that ash became more common in the pollen record from the Neolithic period onwards (Mitchell, 1953/4). This could be as a result of more clearance due to agricultural practices at the time, where ash was able to germinate and grow more vigorously as secondary woodland and in marginal areas and hedges (Kelly, 1976).

***Betula* spp. (birches)**

Birch was one of the first trees to arrive to Ireland after the end of the last glaciation. It grows as trees or shrubs with a preference for light and thrives on non-calcareous soils. It is often associated with heathland and successional oak woods, but can rapidly form secondary woodland in cleared areas and on abandoned peat cuttings. Birch species are generally short-lived, although some examples have known to reach ages of up to 70 and 80 years. Through most of its woodland history, birch played a minor role since its timber was too weak for structural purposes and rots easily outdoors and therefore not greatly valued. Birch wood however, makes a hot but short-lived fuel and produces high quality charcoal (Lines cited in Gale & Culter, 2000). It is best suited in the manufacturing of fine objects, such as furniture, bowls and tool handles. Birch bark has also been used in making shoes and roofs.

***Maloideae* spp. (pomaceous woods)**

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.

***Salix* spp. (willows).**

There are a number of different species of willow which cannot be differentiated through wood anatomy. They grow rapidly, and can be easily propagated from cuttings. General comments only about the genus can be made, as there are different varieties of it. They are not naturally a woodland species, although shrubby growth may occur under light woodland cover. All willows appear to favour wet conditions, and it may be a pioneer species on wet soils. The use of willow depends on the species concerned, for some grow as shrubs and others as trees, and a species may be particularly suited to some purpose. In general, the flexibility of willow shoots has led to coppicing or pollarding to produce the raw materials for baskets, frames, hurdling etc. (Orme & Coles, 1985). The main Irish native willows are grey willow (*Salix cinerea*), goat willow (*Salix caprea*) and eared willow (*Salix aurita*).

***Evonymus europaeus* (spindle)**

Spindle tree is a small tree or shrub which grows in marginal woodland areas or scrubland. The wood is used for making spindles, pegs and makes for a suitable charcoal (Culter and Gale, 2000, 107).

4.3.2 Distribution of charcoal remains from Site 11, Monadreela

The primary objective of the charcoal identification analysis is to identify the wood species which would represent the collected woods used as fuel and construction works at the site and may go some way to interpreting the local woodland that grew in the vicinity of the site and possible changes to that woodland over time.

The main premise for charcoal analysis is the hypothesis that wood used as firewood will be collected from as close to a site as possible and as such can help to reflect the local wooded environment in the area. It is also likely that abandoned structural timbers or wood brought to the site for uses in construction works or other activities are also reused as firewood.

The wood species recorded from the Site 11 charcoal assemblage are all native Irish species, with the exception perhaps of pear (*Pyrus* sp.) in the Maloideae group of wood species, and can be found growing on a range of different habitats.

The number of identifiable charcoal fragments recovered from the samples at Site 11 was confined to a number of pits and deposits, which included two Neolithic dated pits **C07** and **C23**, a Bronze Age dated pit **C11**, an early medieval corn drying kiln **C38** and a later medieval pit **C37** and foundation trench **C81**. The distribution of wood species identified from features recorded at Site 11 is presented in **Fig 4**.

Prehistoric features

Oak was the dominant species recorded from the Neolithic pits **C07** and **C23** and from the Bronze Age dated pit **C11**, along with ash. **C7** and **C23**, which also contained birch, hazel, ash and alder, were devoid of any obvious *in situ* burning, which suggests that the charcoal recorded was perhaps re-deposited charred debris from another source. Such features, if open are likely to have been dumping grounds for fuel debris and this may account for the low incidences of mixed wood species recorded. This would account for the smaller quantities of charcoal, such as spindle, alder, birch and alder from posthole **C150**.

Medieval features

The medieval dated features contained a noticeably different composition of wood species, where hazel and ash dominated. The hazel and willow charcoal from early medieval kiln **C38** may represent the remains of the firewood used as kiln fuel or the charred remains of a drying platform or structure, which had burnt down within the kiln, or indeed a mix of both. Hazel and willow are both pliable wood and the young shoots were used in wattling or in constructing light structures.

Ash and hazel were the main woods identified from foundation trench **C81** and pit **C37**, which dated to the later medieval period. These are likely to be the main woods that were used in the construction of the medieval structure **C81**. If this structure had burnt down, the volume of charcoal recovered should be much higher. Instead, this charred debris could be

the result of construction methods such as a) the charring of post bases to prevent the timbers from rotting b) a way of re-sizing posts of c) the method by which the timbers were felled. Birch and pomaceous woods were also recorded from C81 and are mostly likely discarded or re-deposited remains of nearby firing events which entered this trench inadvertently.

The charred debris from on-site fires, specialised activities and possible construction woods would have inevitably become re-deposited across the site and entered many negative features inadvertently. This would account for the smaller quantities of charcoal, such as spindle, alder, birch and alder from later medieval pit C37 and undated hearth/pit C33.

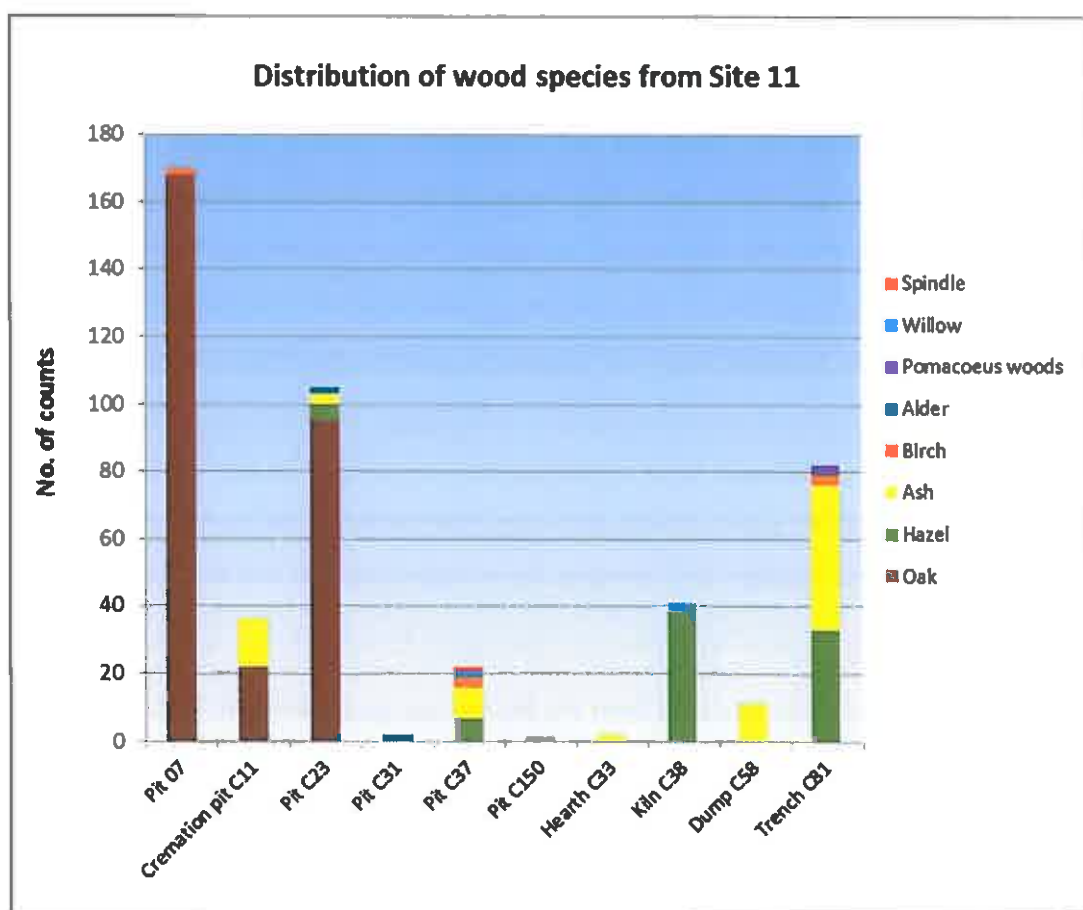


Fig. 4 (see text for updated context information)

Local woodland

The charcoal analysis from Site 11 has revealed that there was a possible shift in the use of woods at the site from the prehistoric through to the medieval period. Oak may have been in plentiful supply around the site during the Neolithic and Bronze Age period, along with hazel and ash, which are common species to oak woodland (Cutler and Gale, 2000). The

values for hazel and ash increase during the medieval and into the later medieval periods, while oak is almost absent.

While the low occurrence of oak could be localised and attributed to a selection bias at Site 11, it is worth noting that the values for oak also decreased from Iron Age dated sites excavated along the Gas Pipeline to the West (O'Donnell, 2007, 50) the Mitchelstown Bypass (O'Donnell, 2009, 246) and at Curraheen, Co. Cork (Lyons, 2010c). A simple shift in the use of how oak was used at Site 11 could also be one explanation for its absence at the site during the medieval period. More samples would need to be analysed however and the comparative analysis of the charcoal from this scheme will help to highlight such trends in the local woodland.

Willow, alder and birch reflect more waterlogged conditions. An opening up of the local woodland would have increased soil moisture and created suitable conditions for water tolerant wood species to grow. This clearance may have also allowed more access to local riverine environments and wetter woodland. Wood species, such as pomaceous woods, birch, hazel and spindle are also indicators of clearances in the woodland, where they would have colonised marginal scrub and hedgerows close to settlement areas.

5 Conclusions

The analysis of the plant remains and wood charcoal from Site 11, Monadreela provided the opportunity to highlight and interpret the archaeobotanical and charcoal material recorded at the site.

Carbonised oat was retrieved from the Bronze Age posthole **C150**. Early medieval kiln **[C38]** and later medieval foundation trench **[C81]** contained the main cereal assemblages recorded from the site. Kiln **[C38]** was dominated by wheat and barley and is likely to have become an abandoned feature following a conflagration event. Trench **[C81]** was dominated by oat and interpreted as a food storage or crop preparation facility.

The charcoal analysis revealed that oak were the prominent species burnt at the site during the Neolithic and Bronze Age periods. While the values for ash and hazel increase during the medieval period, oak declines. Hazel and possible willow, are likely to have been used in specialised activities, such as corn drying kilns, while hazel and ash were used in construction works during the later medieval period. The lower values for birch, willow, pomaceous

woods, alder and spindle are likely to represent the other wood species which would have been brought to the site and burnt to supplement the main fuel stock.

6 Recommendations

1. There is no further identification work required on these samples from Site 11, Monadreela. 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 flotation samples associated with Site 11, Monadreela 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 11, Monadreele (03E0346)

Key: + = rare, ++ = occasional, +++ = common and ++++ = abundant

Feature	Pits/posthole												Pit	Hearth/pit	Ellin	Trench																				
Context number Fill number Sample number Volume of sample	7		23		31		37		150		38		81																							
	3	4	5	6	24	25	26	27	28	29	30	36	149	12	32	52	42	43	44	45	46	47	57	83	84	85	86									
	4	5	6	7	8	9	10	11	12	13	14	18	23	15	17	88	48	49	50	62	63	65	90	94	109	95	102	103	96	97	98	99	100	101	104	
	7g	27.8g	76.7g	3.1g	2.1g	3.9g	4.1g	12.2g	1.3g	1.1g	1.3g	1.1g	0.7g	6.1g	2g	1.9g	0.1g	0.1g	1.2g	1.9g	33.2g	33.2g	0.1g	1.5g	5.5g	6.5g	8g	8g	8g	8g	8g	8g	8g	8g	8g	12.2g
	Latin name																																			
CEREALS: CARBONISED																																				
Triticum aestivo-compactum	bread/crub wheat	5																																		
Triticum sp.	wheat	74 375																																		
Hordeum sp.	barley	384 108 1																																		
Secale cereale	rye																																			
Avena sp.	oat	52 10 500 500 445 78 217																																		
Cereal indet	indeterminate	+++ +																																		

Table 2. Composition of plant remains from Site 11, Monadreeila (03E0346)

Flot volume (grams)	Context description	Wood Species Identifications	No. of fragments	Charcoal weights (grams)	Comments
7 grams	Fill of pit C07	Quercus sp. (oak)	33	3 grams	
27.8 grams		Quercus sp. (oak)	48	5.2 grams	
76.6 grams		Betula sp. (birch)	2	0.3 grams	
3.1 grams		Quercus sp. (oak)	50	8.3 grams	Fast growth
6.1 grams	Fill of pit C11	Quercus sp. (oak)	37	2.7 grams	
		Quercus sp. (oak)	22	2.2 grams	
2.1 grams	Fill of pit C23	Fraxinus excelsior (ash)	14	1 gram	
		Quercus sp. (oak)	4	0.3 grams	
		Corylus avellana (hazel)	2	0.2 grams	
		Fraxinus excelsior (ash)	1	0.1 grams	
3.9 grams	Fill of pit C23	Quercus sp. (oak)	18	2.1 grams	
4.1 grams	Upper fill of pit C23	Quercus sp. (oak)	21	2 grams	
		Corylus avellana (hazel)	2	0.2 grams	
12.2 grams	Basal fill of pit C23	Alnus glutinosa (alder)	2	0.2 grams	
		Quercus sp. (oak)	50	6.7 grams	
1.3 grams	Fill of pit C23	Fraxinus excelsior (ash)	2	0.3 grams	
		Quercus sp. (oak)	2	0.2 grams	
		Corylus avellana (hazel)	1	0.1 grams	No charcoal
1.1 grams	Upper fill of pit C31	-			
1.3 grams	Basal fill of pit C31	Alnus glutinosa/Corylus avellana (alder/hazel)	2	0.1 grams	Very minute fragments
0.3 grams	Oxidised clay fill of pit or hearth C33	Fraxinus excelsior (ash)	2	0.3 grams	
		Fraxinus excelsior (ash)	9	0.6 grams	
3.1 grams	Fill of pit C37	Corylus avellana (hazel)	7	0.7 grams	
		Betula sp. (birch)	3	0.2 grams	
		Salix sp. (willow)	2	0.1 grams	
		Europaeus evonymus (spindle)	1	0.1 grams	

0.7 grams	Fill of posthole C150	Quercus sp. (oak)	1	0.2 grams	
0.1 grams	Fill of corn drying kiln C38	Salix sp. (willow)	2	0.1 grams	Very minute fragments
1.2 grams		Corylus avellana (hazel)	7	0.5 grams	
1.9 grams		-			Archaeologically sterile
1.7 grams		Corylus avellana (hazel)	11	0.6 grams	
33.2 grams	Basal fill of corn drying kiln C38	Corylus avellana (hazel)	19	3.2 grams	
0.1 grams	Fill of corn drying kiln C38	Corylus avellana (hazel)	2	0.1 grams	Very minute fragments
1.9 grams	Fill of pit or hearth C33	-			No charcoal
5.5 grams	Fill of foundation trench C81	Fraxinus excelsior (ash)	11	1.2 grams	No charcoal
1.5 grams	Middle fill of foundation trench C81	-			
6.5 grams	Middle fill of foundation trench C81	Corylus avellana (hazel)	20	1.4 gram	
0.3 grams	Fill of foundation trench C81	Fraxinus excelsior (ash)	5	0.4 grams	No charcoal
0.6 grams	Fill of foundation trench C81	Fraxinus excelsior (ash)	3	0.3 grams	
0.8 grams	Fill of foundation trench C81	Corylus avellana (hazel)	1	0.1 grams	
0.3 grams	Fill of foundation trench C81	Fraxinus excelsior (ash)	5	0.5 grams	
29.9 grams	Basal fill of foundation trench C81	Fraxinus excelsior (ash)	2	0.2 grams	
1.5 grams	Basal fill of foundation trench C81	Fraxinus excelsior (ash)	3	0.3 grams	
2.3 grams	Basal fill of foundation trench C81	Betula sp. (birch)	3	0.2 grams	
	Basal fill of foundation trench C81	Corylus avellana (hazel)	2	0.2 grams	
	Basal fill of foundation trench C81	Fraxinus excelsior (ash)	4	0.5 grams	
	Basal fill of foundation trench C81	Fraxinus excelsior (ash)	5	0.3 grams	
	Basal fill of foundation trench C81	Fraxinus excelsior (ash)	13	6.7 grams	
51.3 grams	Basal fill of foundation trench C81	Corylus avellana (hazel)	7	2.3 grams	
3.6 grams	Basal fill of foundation trench C81	Malvaceae spp. (pomoaceous woods)	3	0.4 grams	
12.2 grams	Basal fill of foundation trench C81	-			No charcoal
	Basal fill of foundation trench C81	Corylus avellana (hazel)	3	0.3 grams	
	Basal fill of foundation trench C81	Fraxinus excelsior (ash)	3	0.3 grams	

Appendix 7 Faunal Report

By

Margaret McCarthy⁶

INTRODUCTION

Faunal material was found at over twenty different sites during excavations along the route of the N8 Cashel Bypass and the N74 Link Road dating variously from the prehistoric to the post-medieval periods. The volume of recovered animal bones varied considerably between the sites with relatively large quantities of bones being recovered from a ringfort in Hughes' Lot East (Site 25ii), from a multiperiod site (Site 25iv) also in Hughes' Lot East, from a large settlement site in Owens' & Biggs' Lot and from a site in Farranamanagh (Site 41). Animal bones were found in relatively small amounts from sites excavated in the townlands of Ballyknock, Monadreela, Boscabell, George's-Land, Cooper's Lot and Windmill. The excavations revealed evidence of a series of structures and deposits dating principally to the Early Medieval and Late Medieval periods. Relatively large samples of prehistoric animal bone were also recovered from five fulachta fiadh in Owens' & Biggs'-Lot. The animal remains were hand collected and consist almost entirely of mammal bone. A few bird bones were recovered in the samples but not in sufficient quantities to comment on the fowling activities of the occupants of the various sites involved. The total absence of fish bones is not surprising given the inland location of the excavated sites. Many of the recovered bone assemblages are extremely small and the data do little more than indicate the exploitation of certain species. While these samples are too small to reach secure conclusions on diet and economy, the results have nevertheless provided additional information on animal exploitation in this area of South Tipperary during the various periods represented.

METHODS

All fragments were identified to species, or as nearly as possible, using the modern comparative collections of mammals, birds and fish in the Department of Archaeology, University College Cork. Data were recorded onto the Archaeological Services Unit's faunal sheets, which include categories for butchery, ageing and sexing as well as species and element identification. Identifications were taken to species where possible while those fragments for which specific identification could not be made were classed in terms of size and morphological character. The material recorded as 'large

⁶ This specialist report was updated in 2013 to reflect new information regarding contexts, finds and radiocarbon dates. A copy of the original report has been retained in the site archives.

mammal (LM)' in the tables for instance is likely to belong to cattle but was too small to eliminate the possibility of horse and red deer. Similarly, specimens that in all probability were sheep but which may have also originated from goat, pig or large dog were recorded as 'medium mammal (MM)'. The separation of ovicaprid material relied on comparison with reference material and to the discussion in Boessneck (1969). Very few definite elements of goat were recognised and those postcranial bones which allow for discrimination between the two species were all identified to sheep. Ageing data were determined using procedures outlined by Silver (1971) for long bones and Grant (1975) for mandibles. The relative proportion of the different species was assessed using the fragments total only as the samples were considered too small to estimate the minimum number of individuals present.

CONDITION

Bone preservation at those sites which produced reasonably large collections of bone was generally recorded as good with very little evidence for pre and post-depositional alteration. The bones from surface features at all sites were noticeably weathered which suggests that a certain degree of mixing had taken place and eroded brittle fragments, perhaps from earlier phases of occupation, were found together with well-preserved bone. Fragmentation rates throughout were noticeably high resulting in large numbers of bones that could only be classified as large and medium mammal remains. High fragmentation levels at some sites are attributed to butchering and food preparation techniques while the poor conditions of preservation at other sites appear to have led to increased fragmentation. Despite the low counts for dog in all of the samples, gnawing was observed on 7% of the specimens indicating that a certain amount of food waste was scavenged prior to deposition into the various features. The proportion of burnt bone was low indicating that the preferred cooking method at all sites seems to have been by boiling as very few of the bones exhibited signs of charring associated with roasting. A few specimens from the deposits were charred and blackened and this type of damage may have occurred while certain joints of meat were spit roasted over a large open fireplace. The extremely calcined nature of other fragments suggests that bones were occasionally cast into the fire as a means of waste disposal and remained there for a sufficient time to take on the white cracked appearance of heat-shattered bone.

ANALYSIS

Animal bones were recovered from 22 excavated archaeological sites along the route of the road network and the results of the faunal analysis are described below by each individual excavation.

Site 11: 03E0346**Monadreeela**

Animal bones were recovered in small amounts from a variety of features at this site, mostly associated with late medieval settlement in Monadreeela townland. A small quantity of bone was also recovered from the fill (C70) of pit (C68), fill (C62) of pit (C61) and fill (C62) of pit (C61). Pit (C71) contained a horse burial. The dated bone-producing features included the fill (C39) of an early medieval corn-drying kiln (C38), and two fills (C83, C84) of a foundation trench for a medieval rectangular structure (C81).

The total sample of 198 bones was examined, resulting in the identification to species and element for 138 bones while the remainder of the assemblage is classified as 'large mammal' and as 'medium mammal' fragments. Almost all of the skeletal elements are in a brittle and eroded condition due to the poor preservation qualities of the soil. The fill (C70) of pit (C68) contained 61 bones of which just six are diagnostic to species and all of these represent the remains of cattle with identified bones consisting of four teeth and two fragments of a humerus from a single adult individual. Two fragmented horse hindlimb bones were recovered from the uppermost fill (C39) of the corn-drying kiln (C38). The fill (C62) of undated pit (C61) yielded 35 horse bones from an individual less than five years of age. The partial remains of another horse skeleton were found in pit (C71) in the southern part of the settlement and the osteometric data places this individual in the category of small horse with a shoulder height of between 128 and 136cm.

Table 1: Species distribution by individual context.

	Horse	Cow	LM*	MM*	Total
C39	2		2		4
C62	35				35
C70		6	55		61
C72	92				92
C81		2			2
C83		1			1
C84				1	1
TOTAL	129	9	57	1	198

LM* Large mammal MM* Medium mammal

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Appendix 8 Monadreela Lithics Report

By Professor Emeritus Peter C. Woodman

ANALYSIS OF LITHIC ASSEMBLAGES FROM THE CASHEL BYPASS

A selection of 73 lithic artefacts (including two stone axes) and additional lithics in the form of debitage, was recovered from the excavations on the Cashel Bypass. These came from 20 of the excavations carried out during 2003. The assemblage was examined in 2006 and updated, where appropriate to include debitage identified during sieving of soil retents in 2010.

The Cashel Bypass has been strategically located within the Suir valley and in a gap between mountain ranges. The underlying bedrock geology consists of a series of Tournasian and Visean deposits from the carboniferous. Many of these are shales and mudstones rather than limestone. The area also lies within what was traditionally called the Midlandian end Moraine although now, numerous authors would claim that the limits of the Ice sheets of the Last Glacial Maximum extended off the south coast of Ireland. The route of the bypass does not follow the flood plain of the Suir itself, but rather crosses a series of glacial deposits, first to the east and then to the north. Not surprisingly the area, having been heavily cultivated retains few traces of lowland bogs but until recently the Cashel area was dotted with a number of small ponds, many of which have dried out or disappeared. The line of the bypass takes it through areas of primarily relatively low lying land that is often just above 100 m OD.

Condition and raw material

In general, the assemblage from each site was quite small with only one site producing more than 10 pieces while 10 sites each produced less than five artefacts (these figures exclude debitage identified during sieving of retents). The material was overwhelmingly flint with only six struck pieces of chert identified. The one piece of quartz submitted is likely to be from a naturally fractured pebble. Many of the pieces were in a very weathered and/or patinated condition as some were found in secondary contexts and/or in the topsoil.

Table I

TYPES OF RAW MATERIAL

Chert	6
Flint	49
Quartz	1
Natural pieces	17

The flint would seem to have a range of different sources (see below for fuller discussion) while the chert pieces were so rare that it is only possible to note that they ranged from a very fine grained glossy material through to a coarser grained matt form. The natural un-worked pieces of stone took the two forms usual in assemblages from this area. These were damaged, often tabular or nodular pieces of chert and limestone while the other raw material is a metamorphosed fine grained rock that can resemble flint but which is not worked. This latter type of stone is often referred to colloquially as “fool’s flint”.

Some groups of material would appear to have been found in their original context. The most notable is the struck flint flake (03E0345:07) found along with 11 sherds of Early Neolithic Carinated Bowl pottery from the foundation trench of a circular house, securely dated to the Neolithic period from Site 9 Monadreela; a burnt convex end scraper (03E0418:04) and sherds of Beaker pottery from a pit on Site 34 Windmill dated to 2013–1828 cal. BC (UBA-13786); and flint flakes and a stone axe (03E0378:20) found in association with Beaker pottery and securely dated to the Copper Age, 2457–2204 cal. BC (UBA-13903), from Site 13 Monadreela. It is noticeable that with the exception of one large backed knife from Site 41 and a rather anomalous retouch piece made from a larger flake from Site 7, most of the pieces were either quite small flakes, usually less than 30 mm in maximum length even when intact, while no large blades had survived complete.

From the southern part of the island in general there are few diagnostic implements and it is not uncommon for these artefacts to be found in secondary contexts. Unfortunately with few “Type Fossils” and assemblages of a limited size, where few technological attributes can be identified, it can be difficult to ascribe a particular age to individual pieces or on many occasions, to specific sites.

A significant number of samples were retained for sieving. Besides the expected range of ecofacts that were recovered, a large number of stone items were also retained. In the main these were small pieces of cherty materials, however it was difficult to assess whether these were portions of struck artefacts and only a few showed any signs of attributes that would lead one to believe that they were portions of humanly produced tools. Only those that have clear evidence of being produced through knapping have been included. However the remainder have been retained for future re-examination. Besides the chert items, a number of flint flakes were recovered. Not surprisingly, these were often tiny pieces of debitage that were usually less than 5 mm across. Sieved material has an added advantage in that it provides an opportunity to check whether small microliths have been missed. In situations where there is no strong expectation that they might occur they can be missed, therefore access to sieved residue provides a very useful final check for their presence. In this case no microliths were recovered from the residues. As the sieved material is a product of a different process of collection from that used on the excavations information about this material will normally be appended to the end of the list of artefacts for each site.

Small assemblages would seem to be typical of a large stretch of the southern midlands of Ireland and similar paucities of artefacts have been noted on many new NRA developments. It is tempting to explain away this scarcity as an unfortunate by product of the manner in which excavation has to be carried out, especially, the frequent rapid removal of topsoil. However, the fact that an extensive excavation at Curraghatoor, Co. Tipperary (Doody 2007) only produced four struck flint flakes is a clear indication that for the Bronze Age in particular there are very low densities of stone tools.

Description of the artefacts

Individual pieces are described and maximum length and width recorded irrespective of whether the piece is complete or not. Where possible the maximum length is taken at right angles to the point of percussion

Site 5 Monadreela 03E0299

03E0299:01

Small fractured portion of a fine grained glossy black chert flake or blade maximum

Length 8 mm maximum, width 6 mm

03E0299:02

This is a broken portion of a large chert blade. The distal tip and a larger portion of proximal end are missing. Two shallow notches have been created in the right lateral edge.

Length 35 mm maximum, width 17 mm

03E0299:03

This is a proximal half of a small black chert blade with signs of platform preparation.

Length 20 mm maximum, width 10 mm

03E0299:04

This tabular, fractured piece of limestone shows some signs of damage rather than retouch. It is probably entirely natural

Comment: This is the only site to produce a majority of pieces in chert. Although it cannot be stated with certainty the two blades would be most at home in a Mesolithic context

Site 7 Monadreela 03E0300

03E0300:01

This is a surface find of a portion of a large creamy beige flint flake. Its' final shape has been determined by irregular, flat though not necessarily invasive retouch. The third edge is created by a flat edge on which there are two long facets. It has obviously been reduced from a much larger flake and may be a failed and therefore abandoned attempt to create a specific but unknown implement.

Length 46 mm maximum, width 28 mm max

Comment: The presence of early Neolithic pottery would suggest that this piece is likely to be Neolithic in date. It does not appear to be Mesolithic nor would it be typical on a Bronze Age site. It would seem as if a large flake tool that had been broken was reworked.

Site 8 Monadreela 03E0379

03E0379:03

This is a cortical flake that has probably been struck from a remaniée pebble of flint. It is in a fresh unpatinated condition. It retains the remnants of some flake steep peripheral scars which have created a straight functional scraping edge.

Length 30 mm maximum, width 21mm

Comment: Cortical flakes are, in terms of periods, undiagnostic though in this case it seems to have been from a remaniée pebble. As there is a greater tendency to use these pebbles in the Bronze Age it seems likely that this site contains at least some traces of Bronze Age occupation.

Site 9 Monadreela 03E0345

03E0345:07

This is the fractured distal end of a large blue grey blade or flake of flint that would have originally been substantially larger.

Length 2.9 mm maximum, width 27 mm

03E0345:09

This is a small weathered nodular piece of black chert. It retains some small flake scars that might have a human origin but is more likely to have been a product of nature.

Length 226mm; width 17.1 mm

03E0345:21

This small piece of glossy black chert may have been a portion of a flake.

Length 6 mm maximum, width 4.5 mm

03E0345:46

A patinated light brown but relatively fresh flint flake whose distal end and part of the lateral edges are missing. The striking platform is cortex covered. The remaining right lateral edge retains evidence of slight peripheral retouch.

Length 36 mm maximum, width 35 mm

03E0345:04

Natural chunk of chert retrieved from sieved material.

Comment: The presence of two larger flakes would suggest a platform technology that was present to a greater extent in the Neolithic.

Site 11 Monadreela 03E0346

03E0346:03

This possible piece of coarse granular flint may have been struck.

Sieved Material

While large quantities of tiny fragments of predominantly chert were recovered from sieved material, none could be stated with certainty to be struck

Site 13 Monadreela 03E0378

03E0378:12

This is a small fresh laminar blade of flint.

Length 21 mm maximum, width 13 mm

03E0378:13

A heavily burnt mid portion of a flint blade was recovered as a surface find. It retains some steep retouch on its left lateral edge.

Length 27 mm maximum, width 17 mm maximum

03E0378:18

This unretouched flint flake shows signs of burning.

Length 26 mm maximum, width 26 mm maximum

03E0378:19

This is a heavily burnt portion of a secondary cortical flake whose cortex shows signs of heavy damage.

Length 21 mm maximum, width 22 mm

03E0378:20

This is a small almost perfect polished stone axe. Its present almost squat outline may be slightly exacerbated by the fact that a small portion of its butt is missing. The broken surface has either been heavily used or suffered from an attempted reworking. The cutting edge is in such good condition that it is almost certain that the axe was not, as commonly happened, used as a wedge at a later date. Aside from the damaged butt end the axe has been polished overall, with the lateral edges being created by flat facets. Both upper and lower surfaces are relatively flat.

Length 62 mm maximum, width 42 mm

03E0378:23

This is a small, very fresh flint blade of slightly irregular shape. The distal tip is missing.

Length 33 mm maximum, width 15 mm maximum

03E0378:24

This is a small fresh flake fragment that may have been struck from a small bi-polar core.

Length 25 mm maximum, width 14 mm

03E0378:26

This is a very small flake that may have been produced during secondary retouch.

Length 9 mm maximum, width 7 mm maximum

03E0378:28

This is a small flake of flint.

Length 11 mm maximum, width 12 mm maximum

03E0378:208

Small flake of flint that could be described as debitage (less than 20 mm in maximum length).

Length 20 mm; width 15 mm; thickness 6.9 mm

03E0378:209

Small flake of flint that could be described as debitage (less than 20mm in maximum length).

Length 20 mm; width 15 mm; thickness 0.7 mm

03E0378:210

Small flake of flint that could be described as debitage (less than 20 mm in maximum length).

Length 33.9 mm; width 37.8 mm; thickness 6.9 mm

Sieved material

From context (83) pit [85], four small flakes of flint (03E0378:208, 03E0378:209, 03E0378:210 & 03E0378:227) that could also be described as debitage (less than 20 mm in maximum length). All are in fresh condition with one slightly burnt and one retaining a small area of beach chattered cortex 03E0378:227. In addition, 53 small pieces of debitage many of which were burnt.

Comment: The lithic assemblage from this site is in general quite undiagnostic. Most pieces have come from pits or as in one case, a post hole. It is of interest that there is a Polished stone axe associated with Beaker pottery and while small square axes can be found in the Mesolithic and the Neolithic period, in this case the resemblance of the shape of the axe to early copper axes may not be coincidental 03E0378:13 (surface find) could either be Mesolithic or Neolithic in date.

The Significance of the assemblages

Raw materials

In general within what could be described as the eastern part of North Munster and adjacent parts of Leinster, many of the assemblages are dominated by flint rather than chert or other raw materials. Only one site on the Cashel bypass, i.e. Site 5 Monadreela contained a majority of chert artefacts and this case it was three pieces out of four. Therefore it is quite usual to find, within the assemblages from this region, that flint is the dominant raw material. In general this would seem to be the case irrespective of period and is apparent at Ballybrado which lies further south, on the River Suir (Finlay and Woodman 2001, 189) and which seems to contain an early Mesolithic element. This is also the case at Kilcummer Lower, overlooking the River Blackwater, Co. Cork (Anderson 1993) and Killuragh Cave Co. Limerick (Woodman 2003). The same pattern can be seen in many Neolithic and later assemblages e.g. Curraghatoor and Chancellorsland (Doody 2007 &

2008). Often closer to the Shannon a higher percentage of chert can occur; e.g. at Hermitage, Co. Limerick chert was more common and it could be the dominant material on many sites from across the Shannon river in County Clare (Collins & Coyne 2003, 27).

The flint material found on sites in the Cashel bypass is likely to be either erratics or the small remaniée pebbles that are so prevalent in the area. Some material may have been brought from the coast about 60 km to the south but there is little evidence that flint was imported from the north of Ireland. The two pieces that may have been imported from are the large backed knife from Site 30iii (03E1086:47) and the large irregularly retouch fragment Site 7 (03E0300:01). The hollow scrapers would have required well chosen nodules or largish pieces of flint that may not have been immediately available in the area. This may have also been the case with the two large blade fragments from Site 41 (03E0674:08 & 03E0674:61). Most of the chert appears to be rather small almost opportunistic flakes with only the blade fragments Site 5 (03E0299:02 & 03E0299:03) and obviously the chert arrowhead Site 41 (03E0674:23) is likely to have been imported. As noted by Woodman and Scannell (1993) a high proportion of the arrowheads found in Munster are made from chert.

Therefore the limited lithics assemblage is made up of the use of some local quite impoverished sources combined with a limited use of good quality flint brought in from outside the immediate area.

The chronological sequence

The Mesolithic: Mesolithic artefacts within this part of North Munster are quite rare indeed Co. Tipperary would be one of the counties with the least number of recorded find spots noted in the Mesolithic Data Base. It fits easily within the bottom quartile of the Data Base. As much Mesolithic material tends to come from the centre of river valleys, lakes and coastline it is not surprising that few Mesolithic artefacts were recovered. While Site 41 Farranamanagh lies adjacent to the headwaters of several streams flowing into the River Suir, the bypass route does not cross any rivers. Finds of Mesolithic artefacts in this type of landscape occur but usually they are stray finds which are often Later Mesolithic.

As noted above, local raw materials would not have been of a sufficient quality or quantity to allow extensive local production therefore some pieces were probably brought in from coastal areas outside the Cashel region. In the Mesolithic it is possible that many pieces brought into the area would have been curated and not easily abandoned, thus finds especially diagnostic tool types will be rare. Perhaps the most interesting yet enigmatic pieces are (03E0674:08 & 03E0674:61) which were removed from the same linear feature of later date at Site 41 Farranamanagh. These are two blade fragments of which one (03E0674:08) is slightly retouched. They have all the appearance of being portions of large blades that would be unusual in both the later and earlier Mesolithic. While they could belong within the Early Mesolithic, one possible explanation is that they come from a phase at the very beginning of the later Mesolithic, certainly

before 6000 cal BC. The transversely retouched blade is particularly difficult to parallel in except that it gives the impression of being very early. {On Site 39 Farranamanagh, to the south-east oak charcoal from fill (217) of pit [216] was radiocarbon dated to 6372–6098 BC (UBA-14360)}.

There would also appear to have been traces of early Mesolithic settlement at Site 36i. This is an area where most of the lithics were recovered from topsoil or the soil dumps from the original clearing of the road line. The fact that three reasonably high quality blade cores (**03E0675:05**, **03E0675:49** & **03E0675:52**) were recovered in circumstances that would not suit the recovery of lithics suggests that an early Mesolithic site might have existed at one time in the past. It is likely that blade fragments would not be noted while it is improbable that microliths would have been noted.

The one probable later Mesolithic artefact is the flint knife (**03E1086:47**) from Site 30iii (Area 2). As noted earlier this is a particularly fine and unusually well retouched piece. This piece could probably date to the latter part of the Later Mesolithic. {Approximately 100 m from this find spot elm charcoal from fill (8017) of gully [8018] was radiocarbon dated to 6206–5999 BC (UBA-13940)}.

Only three other potential Mesolithic items were recovered. These were the proximal portion of a small chert blade, Site 5 Monadreela (**03E0299:03**) that might belong to the Mesolithic while (**03E0299:02**) is apportion of a larger blade that is also struck from a chert nodule. A surface find from Site 13 Monadreela (**03E0378:13**) was an extremely heavily weathered burnt blade fragment. Its steep peripheral retouch was more reminiscent of what might be expected to be found in a Mesolithic context but this latter piece could also date to the Neolithic.

In summary, the Mesolithic is represented by a scatter of stray finds usually occurring out of context. There seems to be a slight concentration to the south and south-west of Cashel. It is of interest that two of the sites that have produced potential Mesolithic artefacts overlooked ponds or small lakes that would have existed in the earlier half of the Holocene. These are Site 41 Farranamanagh which overlooks Lough Nahinch and Site 5 Monadreela which lay adjacent to a marshy area associated with a pond.

The Neolithic

There was one Neolithic rectangular house excavated on the Cashel bypass scheme, Site 19 Boscabell (**03E0426**). There are few sites with early Neolithic stone tool assemblages. In fact, the one large bifacial form / leaf shaped arrowhead from Site 41 Farranamanagh (**03E0674:23**) is one of the few artefacts which might belong to the earliest phases of the Neolithic. In general, it is the presence of hollow scrapers and their blanks that are the most obvious Neolithic presence. The hollow scraper would appear to develop some time after the beginning of the Neolithic though probably by 3500 cal. BC. The most obvious presence is at Site 30iii (Area 1) where three hollow scrapers were found in close proximity. These (**03E1086:48**, **03E1086:49** & **03E1086:60**) were in the

vicinity of a small structure. They may be part of a small cache of hollow scrapers that had been brought there for a particular purpose (Woodman et al 2006). One other hollow scraper blank was found as a stray. This was a topsoil find at Site 41 (03E0674:01). Hollow scrapers were traditionally regarded as a northern phenomenon but thanks to numerous recent excavations in Munster they are beginning to occur with a greater frequency. Examples have been found at Killuragh Cave Co. Limerick (Woodman 2003). It would seem that their absence was due to the lack of excavations of the appropriate sites.

No other diagnostic Neolithic artefacts such plano-convex knives, invasively retouched pieces etc were recovered from the Cashel bypass. However the platform technology from a small assemblage from Site 9 Monadreela would be more typical of the Neolithic period.

Other implements that were recovered are less diagnostic and difficult to attribute to a particular period. Therefore of the four scrapers only two can be clearly associated with a particular period and in both cases this could be confirmed by associations. These were the small domed scraper from Site 39 Farranamanagh (03E0757:22) is typical of those often found on sites with beaker assemblages as happened in this case. Other more fragmentary and irregular examples such as Site 36i Windmill (03E0675:48) are more likely to be Bronze Age.

This area is noted for the presence of bi-polar cores made on remaniée pebbles though in this case few good examples exist. One particular good example was recovered from Site 36ii Windmill this is (03E0676:66) while (03E0676:40) from the same site is a flake also struck from a remaniée. The other good example of a flake from one of these pebbles is Site 8 Monadreela (03E0379:03) while lithic (03E0746:35) from Site 25iii Hughes'-Lot East is from a site with Later Bronze Age pottery. The bi-polar technology is known to continue into the later part of the Bronze Age e.g. at Fota Island in Co. Cork (Woodman 1994). It is possible that these remaniée pebbles were recovered more frequently when more agricultural land was opened. In fact, they were first noted by O Kelly (1963) when searching a ploughed field adjacent to Garryduff ringfort.

Although they are not always that common, the lack of diagnostic tools such as barbed and tanged and hollow based arrowheads, as well as slug knives, etc is quite striking. Woodman and Scannell (1993) noted that stray finds of arrowheads in many parts of Munster were quite rare. This scarcity of the more diagnostic tool types would seem to be being replicated in the various NRA projects. Obviously, with the smaller quantities of stone tools that are recovered from Bronze age settlement sites, the Bronze age presence is not always very obvious, but it is evident from the pottery that there is a significant Bronze age presence in the area.

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Summary Table of potentially diagnostic elements**Mesolithic**

Site 5 Monadreela - Possible Early Mesolithic?

Site 30iii Owen's And Bigg's-Lot - Probable Later Mesolithic backed knife

Site 36i (Area 2) Windmill - Probable Early Mesolithic blade cores

Site 41 Farranamanagh - Probable Earlier Mesolithic blade and retouched blade fragment

Earlier Neolithic

Site 7 Monadreela - Large reworked and retouched flake fragment

Site 9 Monadreela - Typical platform core technology associated with the Neolithic

Site 30iii (Area 1) Owen's And Bigg's-Lot - Three hollow scrapers

Site 41 Farranamanagh - Unfinished leaf shaped arrowhead and hollow scraper blank

Beaker and Bronze Age

Site 34 Windmill - Invasively retouched convex end scraper with burial

Site 39 Farranamanagh - Typical small beaker period domed scraper

Site 8 Monadreela - Cortical flake from remaniée pebble

Site 13 Monadreela - Possible bi-polar technology

Site 25iii Hughes'-Lot East - Possible bi-polar technology

Site 36ii Windmill - Bi-polar core present

Site 38ii Deerpark/ Farranamanagh - Cortical flake from remaniée pebble

Appendix 9**Medieval Pottery Report****The medieval pottery from****Site 11: Monadreela, Cashel, Co. Tipperary (03E0346)****Clare McCutcheon MA MIAI**

Two sherds of medieval pottery were presented for study. A handle sherd (05) was recovered from the surface clearance (40) and the second sherd (04) was recovered from the primary fill (86) of a ditch (81).

The sherds are identified as a handle fragment and part of the body of a medieval jug, locally-made and styled Cashel-type, wheel-thrown, glazed and typical of the mid-13th to early 14th centuries. The handle is the portion projecting from the body and was undecorated. The glaze is green while the clay is slightly gritty firing to pale grey with pink surfaces. The body sherd, also slightly gritty in texture, fired with a dark grey section with a pink interior surface and worn green glaze on the exterior.

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)).

Registration No	Context No	Item	Simple Name	Full Name	Material	Dimensions
03E0346:04	86	:04	Pottery	Cashel-type ware	Ceramic	Body
03E0346:05	40	:05	Pottery	Cashel-type ware	Ceramic	Handle

Table 1: Medieval pottery details



App. 9.1: Cashel-type ware 03E0346:04



App. 9.2: Cashel-type ware 03E0346:04, profile showing inclusions

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Appendix 10 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.⁷

Site 11, Monadreela, Cashel, Co. Tipperary.

A long iron nail shank was the only metal item recovered from Site 11. It was found in C86 from the medieval trench C81.

03E0346:02

Nail shank. Iron. Originally round section, tapers only at point. Head missing. L 60mm; T 9mm. Context 86. Trench C81.

⁷ This specialist report was updated in 2013 to reflect new information regarding contexts, finds and radiocarbon dates. A copy of the original report has been retained in the site archives.

Appendix 11

Radiocarbon Dates

UBANo	Sample ID	^{14}C Age	\pm	AMS $\delta^{13}\text{C}$	F14C	\pm
UBA-13702	5 S21 5063	3428	32	-25.0	0.6527	0.0026
UBA-13729	11 S6 1105	4116	22	-20.0	0.5990	0.0016
UBA-13730	11 S11 1127	5049	22	-27.3	0.5334	0.0015
UBA-13731	11 S15 1112	3093	20	-28.0	0.6804	0.0017
UBA-13732	11 S23 11149	3042	20	-24.4	0.6848	0.0017
UBA-13735	13 S29 13072	2573	24	-23.6	0.7259	0.0022
UBA-13736	13 S37 1394	3906	37	-24.1	0.6150	0.0028
UBA-13737	13 S39 1387	3880	29	-24.0	0.6170	0.0022
UBA-13739	17 S9 17064	3364	34	-28.0	0.6578	0.0028
UBA-13740	18 S20 18107	2446	27	-23.9	0.7375	0.0025
UBA-13745	20 S3 20024	1497	18	-27.4	0.8300	0.0019
UBA-13747	20 S9 20055	2019	26	-24.7	0.7778	0.0026
UBA-13748	20 S27 20129	1048	25	-25.1	0.8776	0.0027
UBA-13749	20 S13 20155	1992	31	-24.5	0.7804	0.0030

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Radiocarbon Date Certificate

Laboratory Identification: UBA-13729
Date of Measurement: 2010-06-09
Site: N8Cashel Bypass Site11 03E0346
Sample ID: 11 S6 1105
Material Dated: charcoal
Pretreatment: AAA
Submitted by: Graham Hull TVAS

¹⁴C Date: 4116±22

AMS δ¹³C: -20.0

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Radiocarbon Date Certificate

Laboratory Identification: UBA-13730
Date of Measurement: 2010-06-09
Site: N8Cashel Bypass Site11 03E0346
Sample ID: 11 S11 1127
Material Dated: charcoal
Pretreatment: AAA
Submitted by: Graham Hull TVAS

¹⁴C Date: 5049±22

AMS δ¹³C: -27.3

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Radiocarbon Date Certificate

Laboratory Identification: UBA-13731
Date of Measurement: 2010-06-09
Site: N8Cashel Bypass Site11 03E0346
Sample ID: 11 S15 1112
Material Dated: charcoal
Pretreatment: AAA
Submitted by: Graham Hull TVAS

¹⁴C Date: 3093±20

AMS δ¹³C: -28.0

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Radiocarbon Date Certificate

Laboratory Identification: UBA-13732
Date of Measurement: 2010-06-09
Site: N8Cashel Bypass Site11 03E0346
Sample ID: 11 S23 11149
Material Dated: charred seed or nutshell
Pretreatment: Acid Only
Submitted by: Graham Hull TVAS

¹⁴C Date: 3042±20

AMS δ¹³C: -24.4

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 - cl4res.csv

5 S21 5063

UBA-13702

Radiocarbon Age BP 3428 +/- 32

Calibration data set: intcal09.14c

% area enclosed cal AD age ranges

Reimer et al. 2009

relative area under
probability distribution

68.3 (1 sigma) cal BC 1857- 1855
1771- 1686

0.012

0.988

95.4 (2 sigma) cal BC 1876- 1841
1823- 1796
1781- 1636

0.111

0.051

0.838

11 S6 1105

UBA-13729

Radiocarbon Age BP 4116 +/- 22

Calibration data set: intcal09.14c

% area enclosed cal AD age ranges

Reimer et al. 2009

relative area under
probability distribution

68.3 (1 sigma) cal BC 2850- 2813
2742- 2728

0.309

0.106

2695- 2685

0.070

2680- 2623

0.514

95.4 (2 sigma) cal BC 2861- 2808
2756- 2719
2704- 2580

0.269

0.144

0.588

11 S11 112

UBA-13730

Radiocarbon Age BP 5049 +/- 22

Calibration data set: intcal09.14c

% area enclosed cal AD age ranges

Reimer et al. 2009

relative area under
probability distribution

68.3 (1 sigma) cal BC 3937- 3861
3811- 3797

0.833

0.167

95.4 (2 sigma) cal BC 3945- 3789

1.000

11 S15 111

UBA-13731

Radiocarbon Age BP 3093 +/- 20

Calibration data set: intcal09.14c

% area enclosed cal AD age ranges

Reimer et al. 2009

relative area under
probability distribution

68.3 (1 sigma) cal BC 1411- 1376
1338- 1320

0.683

0.317

95.4 (2 sigma) cal BC 1420- 1312

1.000

11 S23 111

UBA-13732

Radiocarbon Age BP 3042 +/- 20

Calibration data set: intcal09.14c

% area enclosed cal AD age ranges

Reimer et al. 2009

relative area under
probability distribution

68.3 (1 sigma) cal BC 1375- 1339
1320- 1290

0.489

0.390

1280- 1270

0.122

95.4 (2 sigma) cal BC 1391- 1260

1.000

13 S29 130

UBA-13735

Radiocarbon Age BP 2573 +/- 24

Calibration data set: intcal09.14c

% area enclosed cal AD age ranges

Reimer et al. 2009

relative area under
probability distribution

68.3 (1 sigma) cal BC 796- 771

1.000

95.4 (2 sigma)	cal BC 806- 754	0.895
	685- 668	0.088
	610- 598	0.017
13 S37 139		
UBA-13736		
Radiocarbon Age BP 3906 +/- 37		
Calibration data set: intcal09.14c		
% area enclosed	cal AD age ranges	# Reimer et al. 2009 relative area under probability distribution
68.3 (1 sigma)	cal BC 2467- 2391	0.649
	2385- 2345	0.351
95.4 (2 sigma)	cal BC 2484- 2286	0.994
	2247- 2236	0.006
13 S39 138		
UBA-13737		
Radiocarbon Age BP 3880 +/- 29		
Calibration data set: intcal09.14c		
% area enclosed	cal AD age ranges	# Reimer et al. 2009 relative area under probability distribution
68.3 (1 sigma)	cal BC 2456- 2418	0.326
	2408- 2374	0.289
	2368- 2336	0.257
	2323- 2308	0.128
95.4 (2 sigma)	cal BC 2467- 2286	0.989
	2247- 2242	0.007
	2239- 2236	0.004
17 S9 1706		
UBA-13739		
Radiocarbon Age BP 3364 +/- 34		
Calibration data set: intcal09.14c		
% area enclosed	cal AD age ranges	# Reimer et al. 2009 relative area under probability distribution
68.3 (1 sigma)	cal BC 1729- 1720	0.079
	1691- 1616	0.921
95.4 (2 sigma)	cal BC 1742- 1605	0.891
	1586- 1535	0.109
18 S20 181		
UBA-13740		
Radiocarbon Age BP 2446 +/- 27		
Calibration data set: intcal09.14c		
% area enclosed	cal AD age ranges	# Reimer et al. 2009 relative area under probability distribution
68.3 (1 sigma)	cal BC 734- 690	0.280
	662- 650	0.071
	545- 484	0.380
	465- 416	0.269
95.4 (2 sigma)	cal BC 752- 686	0.257
	667- 636	0.090
	622- 613	0.012
	595- 409	0.640
20 S3 2002		
UBA-13745		
Radiocarbon Age BP 1497 +/- 18		
Calibration data set: intcal09.14c		
% area enclosed	cal AD age ranges	# Reimer et al. 2009 relative area under probability distribution
68.3 (1 sigma)	cal AD 557- 595	1.000
95.4 (2 sigma)	cal AD 541- 609	1.000
20 S9 2005		
UBA-13747		
Radiocarbon Age BP 2019 +/- 26		
Calibration data set: intcal09.14c		
% area enclosed	cal AD age ranges	# Reimer et al. 2009 relative area under probability distribution
68.3 (1 sigma)	cal BC 46- cal AD 7	0.927
	cal AD 11- 17	0.073
95.4 (2 sigma)	cal BC 92- 67	0.061
	62- cal AD 54	0.939

20 S27 201

UBA-13748

Radiocarbon Age BP 1048 +/- 25

Calibration data set: intcal09.14c

area enclosed cal AD age ranges

68.3 (1 sigma) cal AD 986- 1018

95.4 (2 sigma) cal AD 899- 919

963- 1026

Reimer et al. 2009

relative area under
probability distribution

1.000

0.072

0.928

20 S13 201

UBA-13749

Radiocarbon Age BP 1992 +/- 31

Calibration data set: intcal09.14c

area enclosed cal AD age ranges

68.3 (1 sigma) cal BC 38- 9

3- cal AD 29

cal AD 38- 51

95.4 (2 sigma) cal BC 51- cal AD 75

Reimer et al. 2009

relative area under
probability distribution

0.331

0.495

0.174

1.000

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:

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where ^2 = quantity squared.

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NOTE: Cal ages and ranges are rounded to the nearest year which
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round results to the nearest 10 yr for samples with standard
deviation in the radiocarbon age greater than 50 yr.

UBANo	Sample ID	^{14}C Age	\pm	AMS $\delta^{13}\text{C}$	F14C	\pm
UBA-13710	7 S4 7005	2498	23	-25.7	0.7327	0.0021
UBA-13719	8 S20 8109	759	25	-24.0	0.9098	0.0028
UBA-13720	9 S6 9046	4822	32	-27.0	0.5486	0.0022
UBA-13722	9 S12 9009	807	21	-25.0	0.9044	0.0023
UBA-13726	9 S39 9258	730	21	-22.7	0.9132	0.0024
UBA-13728	12 S3 12212	785	20	-22.9	0.9070	0.0023
UBA-13733	11 S18 11036	622	19	-22.0	0.9254	0.0022

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TVAS (Ireland) Ltd
Ahish
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-13733
Date of Measurement: 2010-05-20
Site: N8Cashel Bypass Site11 03E0346
Sample ID: 11 S18 11036
Material Dated: charcoal
Pretreatment: AAA
Submitted by: Graham Hull TVAS

¹⁴C Date: 622±19

AMS δ¹³C: -22.0

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 - cl4res.csv

7 S4 7005

UBA-13710

Radiocarbon Age BP 2498 +/- 23

Calibration data set: intcal09.14c

% area enclosed cal AD age ranges

68.3 (1 sigma) cal BC 761- 743

689- 682

671- 664

647- 550

95.4 (2 sigma) cal BC 772- 700

696- 538

Reimer et al. 2009

relative area under
probability distribution

0.131

0.053

0.054

0.762

0.231

0.769

8 S20 8109

UBA-13719

Radiocarbon Age BP 759 +/- 25

Calibration data set: intcal09.14c

% area enclosed cal AD age ranges

68.3 (1 sigma) cal AD 1244- 1245

1252- 1279

95.4 (2 sigma) cal AD 1223- 1281

Reimer et al. 2009

relative area under
probability distribution

0.033

0.967

1.000

9 S6 9046

UBA-13720

Radiocarbon Age BP 4822 +/- 32

Calibration data set: intcal09.14c

% area enclosed cal AD age ranges

68.3 (1 sigma) cal BC 3650- 3631

3577- 3574

3563- 3536

95.4 (2 sigma) cal BC 3691- 3690

3660- 3624

3602- 3524

Reimer et al. 2009

relative area under
probability distribution

0.437

0.034

0.528

0.002

0.377

0.620

9 S12 9009

UBA-13722

Radiocarbon Age BP 807 +/- 21

Calibration data set: intcal09.14c

% area enclosed cal AD age ranges

68.3 (1 sigma) cal AD 1220- 1254

95.4 (2 sigma) cal AD 1189- 1197

1207- 1270

Reimer et al. 2009

relative area under
probability distribution

1.000

0.016

0.984

9 S39 9258

UBA-13726

Radiocarbon Age BP 730 +/- 21

Calibration data set: intcal09.14c

% area enclosed cal AD age ranges

68.3 (1 sigma) cal AD 1269- 1282

95.4 (2 sigma) cal AD 1258- 1291

Reimer et al. 2009

relative area under
probability distribution

1.000

1.000

12 S3 1221

UBA-13728

Radiocarbon Age BP 785 +/- 20

Calibration data set: intcal09.14c

% area enclosed cal AD age ranges

68.3 (1 sigma) cal AD 1225- 1234

1238- 1264

95.4 (2 sigma) cal AD 1219- 1272

Reimer et al. 2009

relative area under
probability distribution

0.266

0.734

1.000

11 S18 110

UBA-13733

Radiocarbon Age BP 622 +/- 19

Calibration data set: intcal09.14c

area enclosed cal AD age ranges

Reimer et al. 2009

relative area under
probability distribution

68.3 (1 sigma)	cal AD 1300- 1320	0.423
	1350- 1369	0.377
	1381- 1391	0.200
95.4 (2 sigma)	cal AD 1293- 1329	0.394
	1340- 1396	0.606

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:

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deviation in the radiocarbon age greater than 50 yr.

UBANo	Sample ID	^{14}C Age	\pm	AMS $\delta^{13}\text{C}$	F14C	\pm
UBA-13895	10	856	28	-27.5	0.8989	0.0031
UBA-13901	52	836	28	-26.6	0.9012	0.0031

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VAT No. IE6360113C



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Queens University Belfast
42 Fitzwilliam Street
Belfast BT9 6AX
Northern Ireland

Radiocarbon Date Certificate

Laboratory Identification: UBA-13901
Date of Measurement: 2010-09-17
Site: Site 11
Sample ID: 52
Material Dated: charred seed or nutshell
Pretreatment: Acid Only
Submitted by: Graham Hull TVAS

¹⁴C Date: 836±28

AMS δ¹³C: -26.6

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 - cl4res.csv

10

UBA-13895

Radiocarbon Age BP 856 +/- 28

Calibration data set: intcal09.14c

% area enclosed cal AD age ranges

Reimer et al. 2009

relative area under
probability distribution

68.3 (1 sigma) cal AD 1164- 1217

1.000

95.4 (2 sigma) cal AD 1052- 1080

0.069

1128- 1133

0.006

1152- 1257

0.924

52

UBA-13901

Radiocarbon Age BP 836 +/- 28

Calibration data set: intcal09.14c

% area enclosed cal AD age ranges

Reimer et al. 2009

relative area under
probability distribution

68.3 (1 sigma) cal AD 1172- 1227

0.914

1233- 1239

0.061

1248- 1251

0.024

95.4 (2 sigma) cal AD 1160- 1261

1.000

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:

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deviation in the radiocarbon age greater than 50 yr.

UBANo	Sample ID	^{14}C Age	\pm	AMS $\delta^{13}\text{C}$	F14C	\pm
UBA-14355	19	3773	34	-26.5	0.6252	0.0026
UBA-14359	34	1173	25	-24.7	0.8642	0.0027
UBA-14362	18	3869	31	-25.9	0.6178	0.0024
UBA-14363	26	3988	30	-24.2	0.6087	0.0023
UBA-14372	40	1594	37	-23.8	0.8201	0.0038

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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-14372
Date of Measurement: 2010-09-30
Site: Site 11
Sample ID: 40
Material Dated: charred seed or nutshell
Pretreatment: Acid Only
Submitted by: Graham Hull TVAS

¹⁴C Date: 1594±37

AMS $\delta^{13}\text{C}$: -23.8

Information about radiocarbon calibration

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CALIB REV6.0.0

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*To be used in conjunction with:

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

Annotated results (text) - -

Export file - cl4res.csv

19

UBA-14355

Radiocarbon Age BP 3773 +/- 34

Calibration data set: intcal09.14c

% area enclosed cal AD age ranges

68.3 (1 sigma) cal BC 2278- 2251
2229- 2221
2210- 2140

95.4 (2 sigma) cal BC 2295- 2126
2090- 2044

Reimer et al. 2009

relative area under
probability distribution

0.228

0.053

0.719

0.919

0.081

34

UBA-14359

Radiocarbon Age BP 1173 +/- 25

Calibration data set: intcal09.14c

% area enclosed cal AD age ranges

68.3 (1 sigma) cal AD 782- 789
810- 848
854- 891

95.4 (2 sigma) cal AD 776- 899
919- 948

Reimer et al. 2009

relative area under
probability distribution

0.088

0.429

0.483

0.906

0.094

18

UBA-14362

Radiocarbon Age BP 3869 +/- 31

Calibration data set: intcal09.14c

% area enclosed cal AD age ranges

68.3 (1 sigma) cal BC 2456- 2418
2407- 2376
2366- 2365
2351- 2292

95.4 (2 sigma) cal BC 2465- 2279
2250- 2230
2220- 2210

Reimer et al. 2009

relative area under
probability distribution

0.271

0.242

0.006

0.481

0.934

0.049

0.017

26

UBA-14363

Radiocarbon Age BP 3988 +/- 30

Calibration data set: intcal09.14c

% area enclosed cal AD age ranges

68.3 (1 sigma) cal BC 2565- 2532
2528- 2525
2496- 2472

95.4 (2 sigma) cal BC 2574- 2466

Reimer et al. 2009

relative area under
probability distribution

0.567

0.040

0.394

1.000

40

UBA-14372

Radiocarbon Age BP 1594 +/- 37

Calibration data set: intcal09.14c

% area enclosed cal AD age ranges

68.3 (1 sigma) cal AD 423- 465
482- 533

95.4 (2 sigma) cal AD 394- 551

Reimer et al. 2009

relative area under
probability distribution

0.413

0.587

1.000

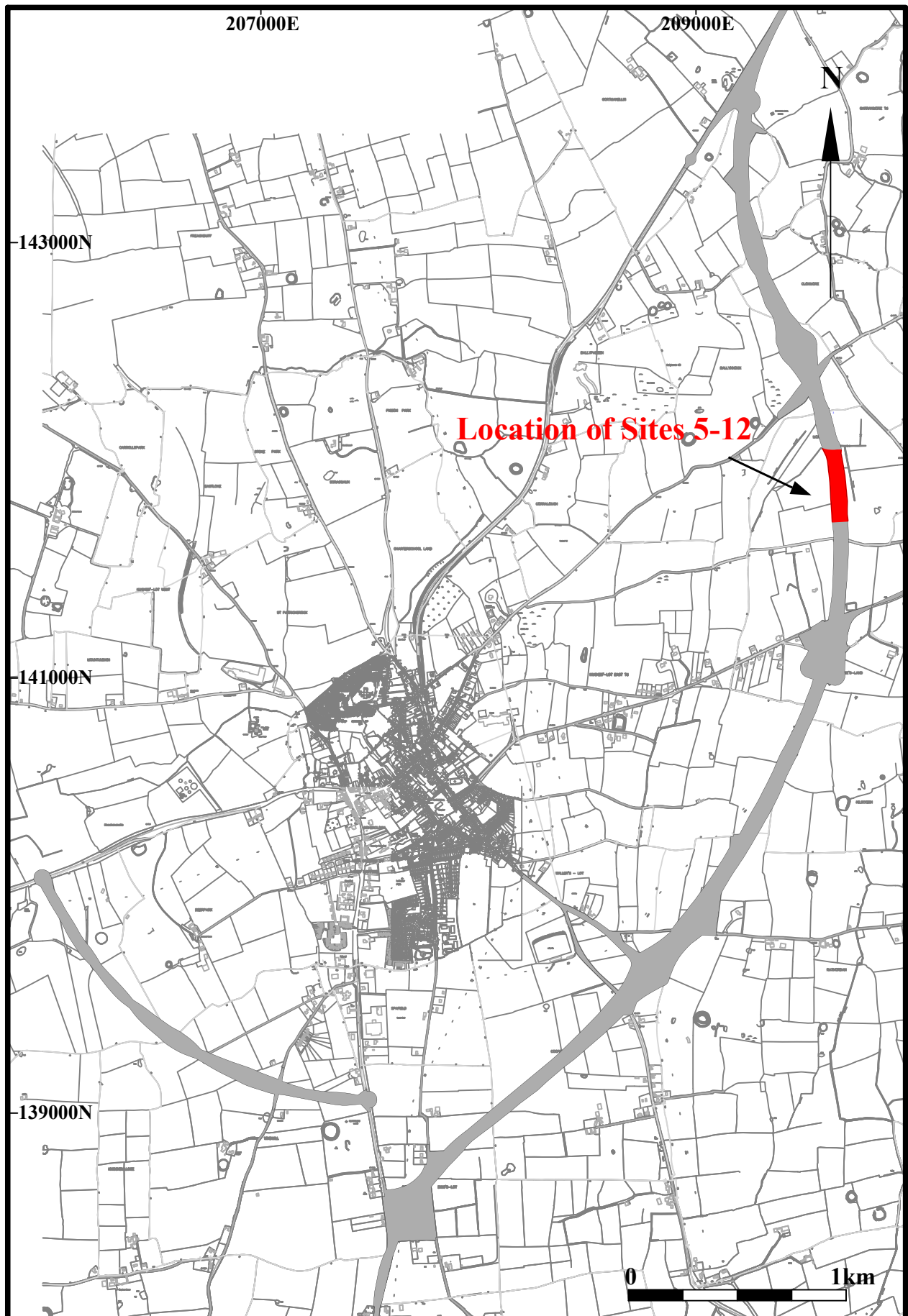
References for calibration datasets:

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.

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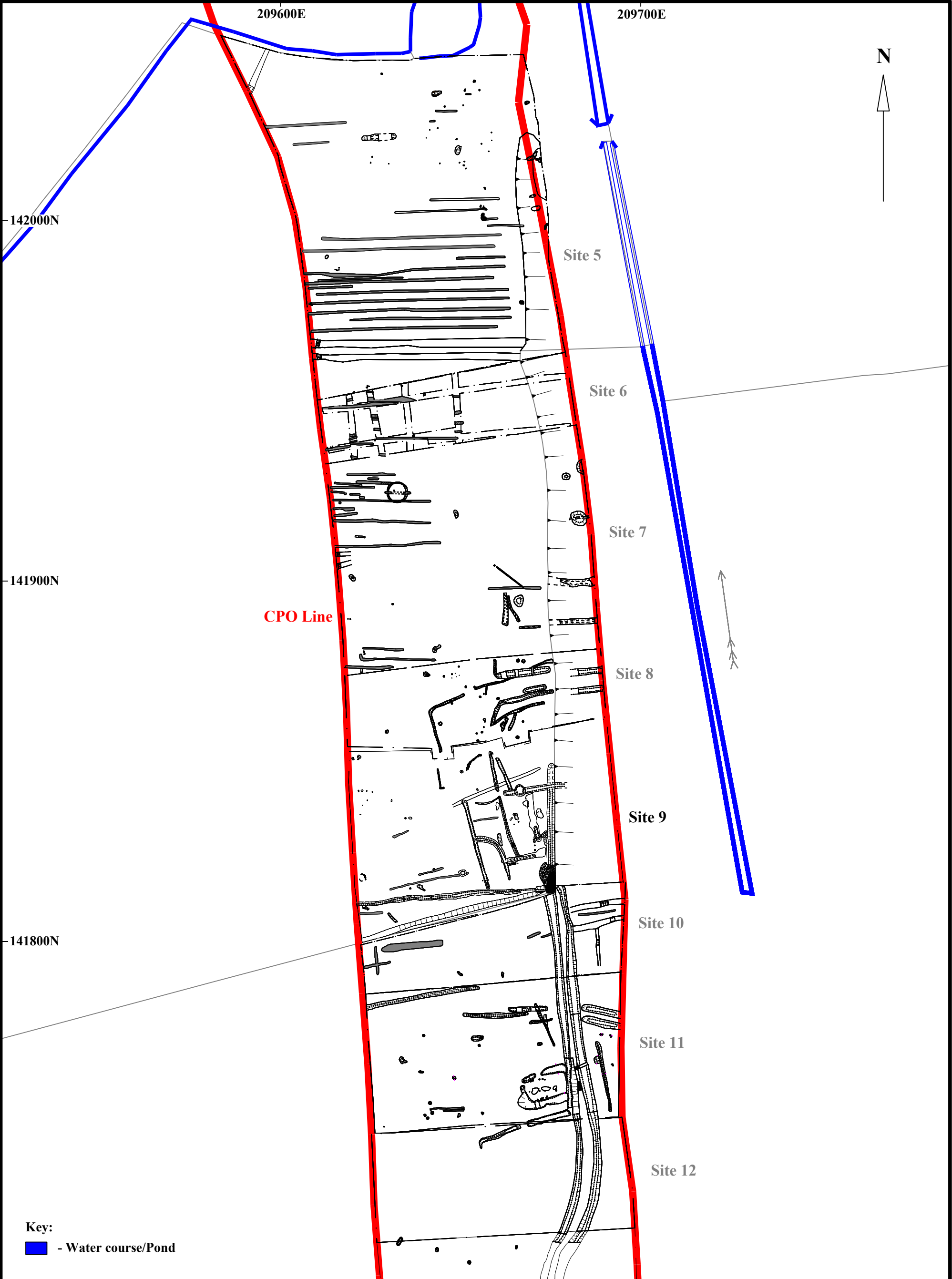


**N8 Cashel Bypass & N74 Link Road,
Co. Tipperary**

Figure 2: Location of Sites 5-12

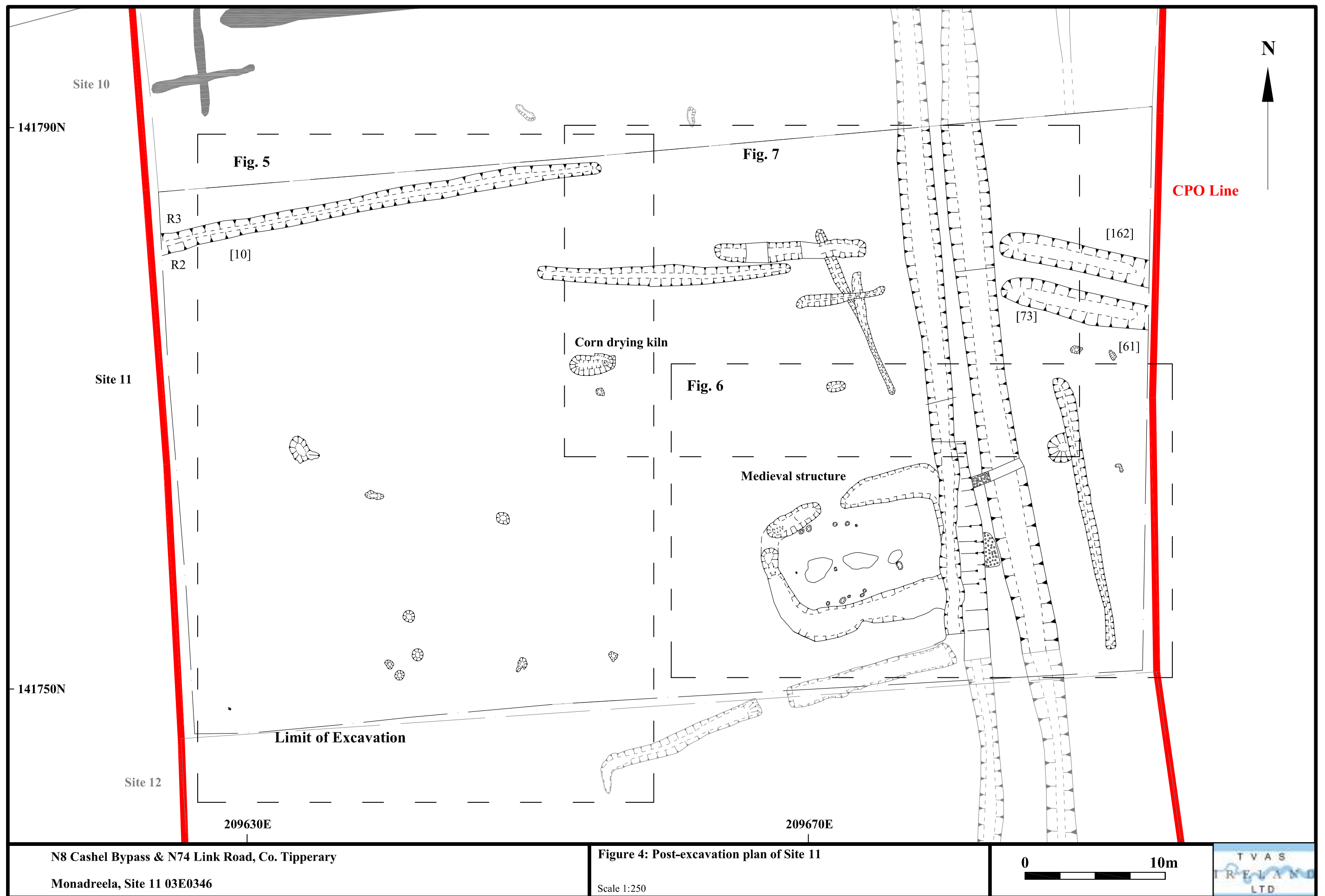
Scale 1:25000
Based on Ordnance Survey Ireland digital mapping
Copyright OSI & Govt. of Ireland OSI Licence: AR0049410

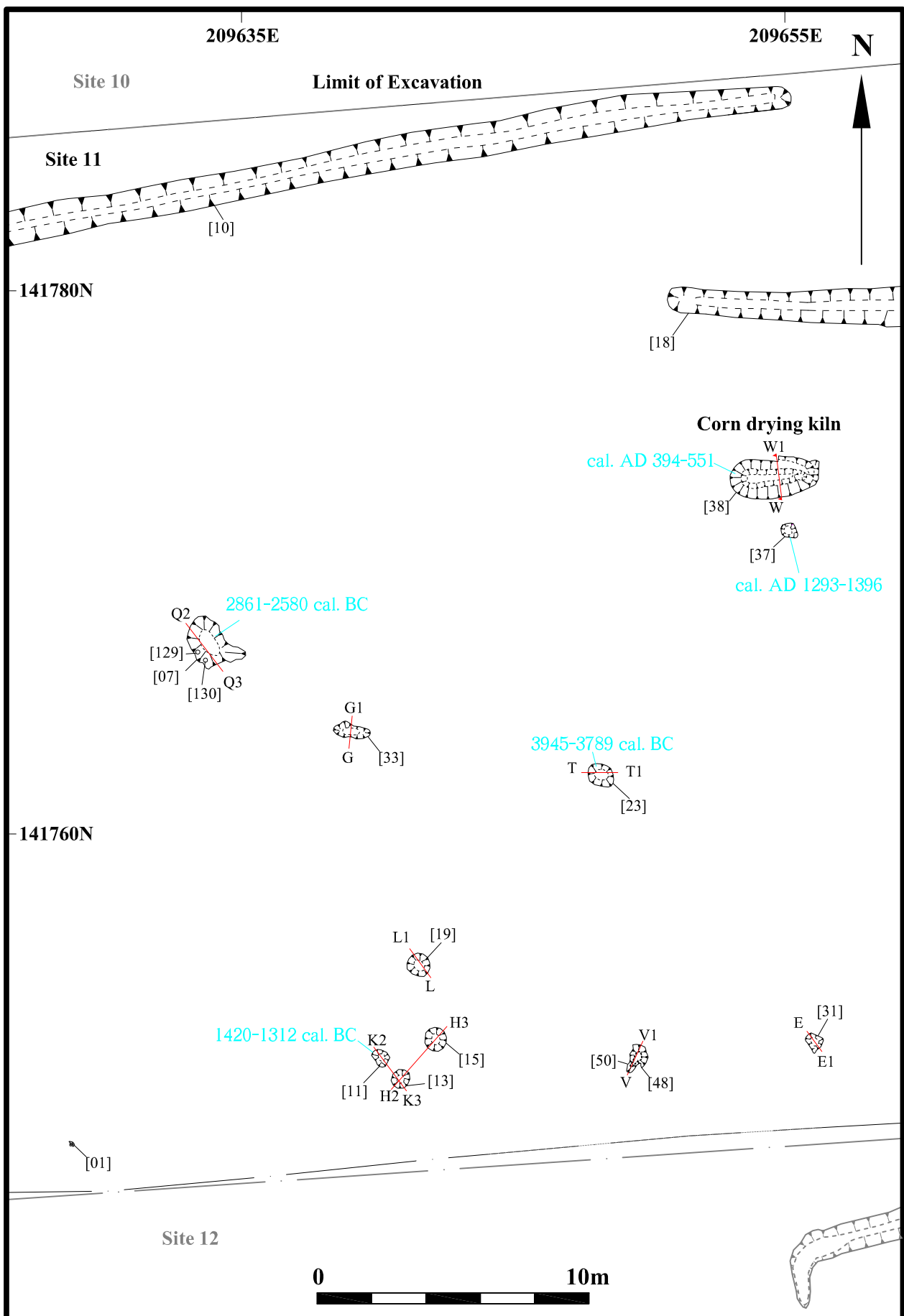
T V A S
IRELAND
LTD



Key:

■ - Water course/Pond



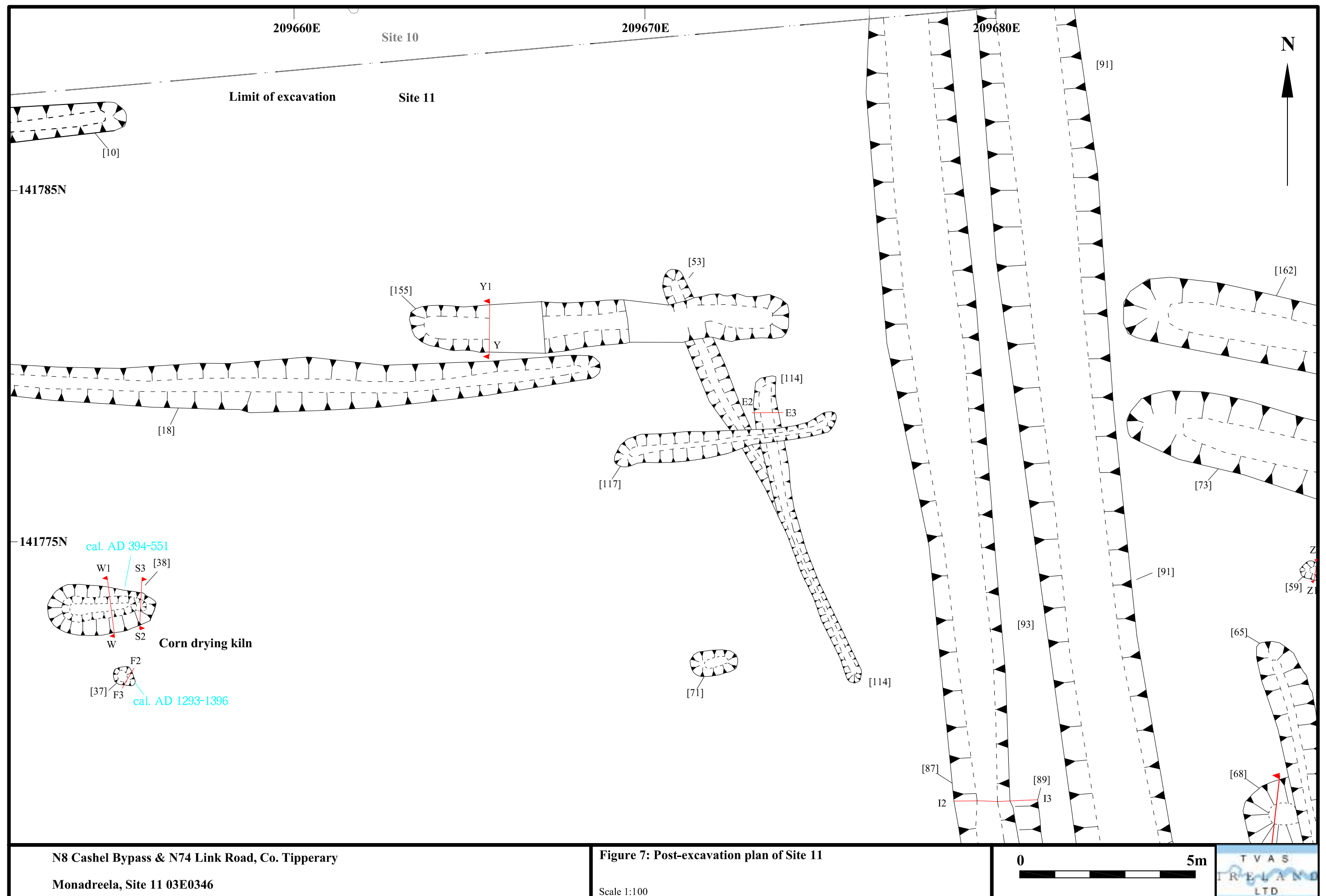


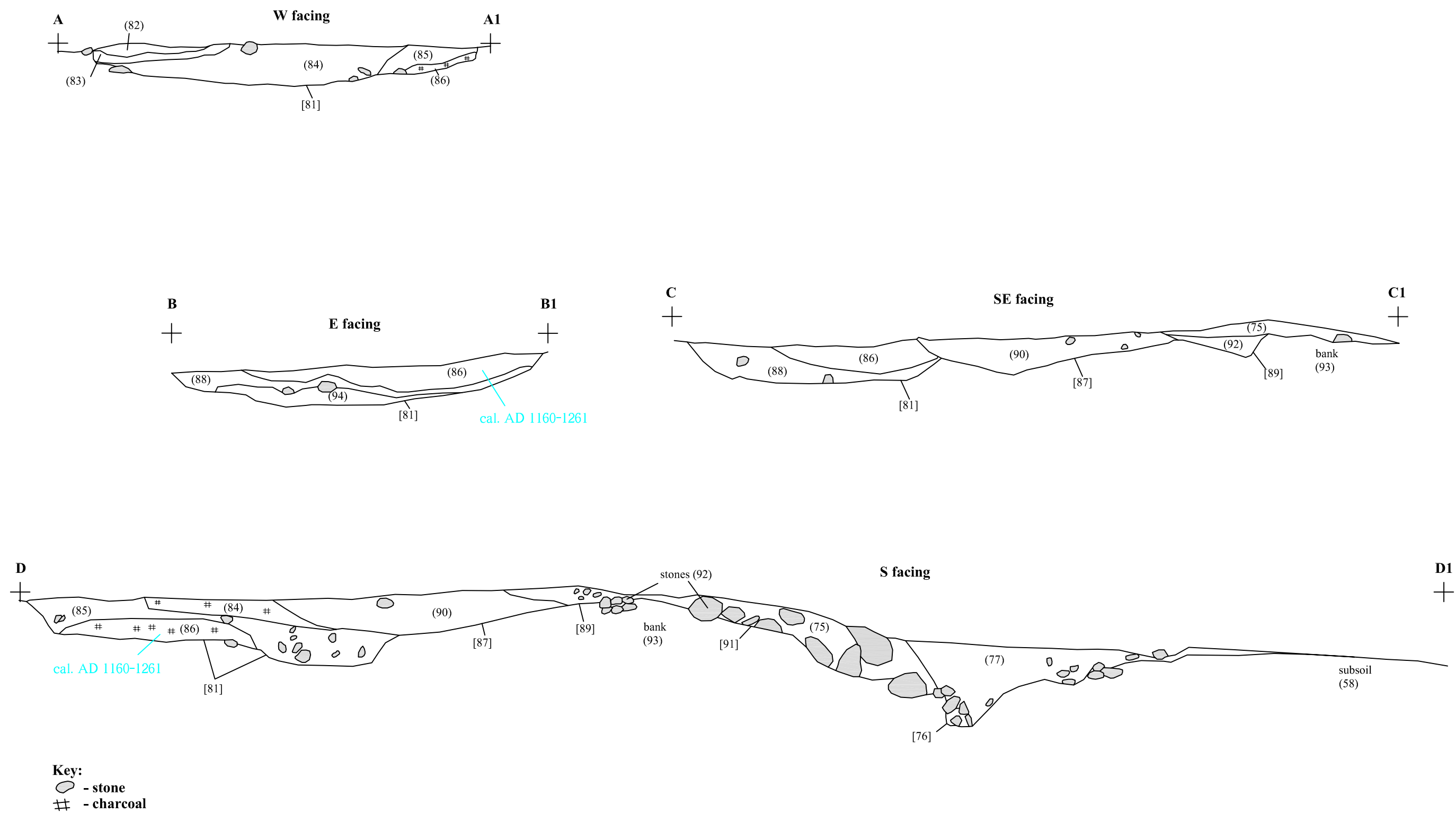
N8 Cashel Bypass & N74 Link Road,
Co. Tipperary
Monadreela, Site 11 03E0346

Figure 5: Post-excavation plan of western side of Site 11

Scale 1:200





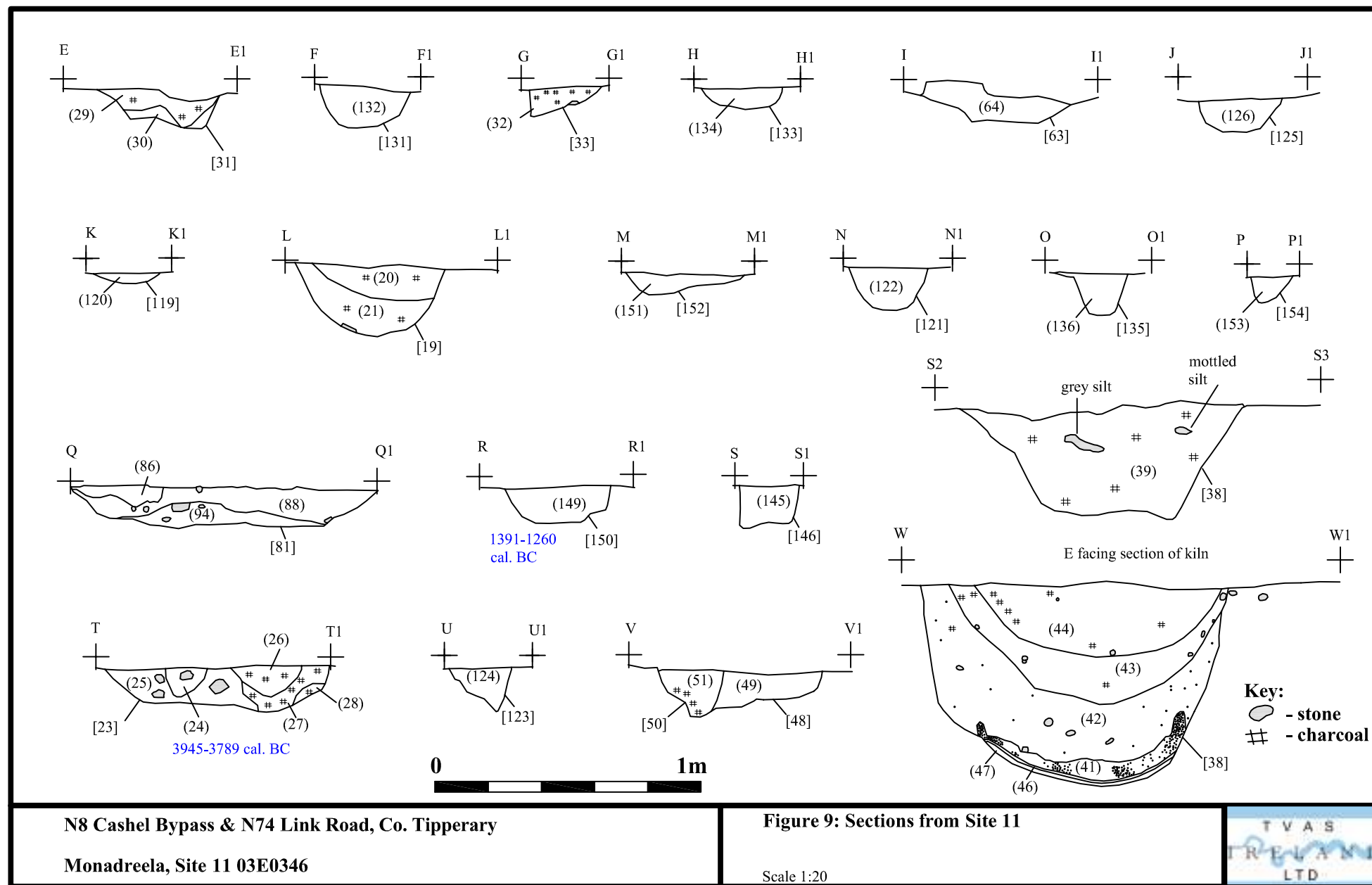


N8 Cashel Bypass & N74 Link Road, Co. Tipperary

Monadreeela, Site 11 03E0346

Figure 8: Sections from Site 11 showing structure [81] & field boundaries [87], (93) and [91]

Scale 1:25



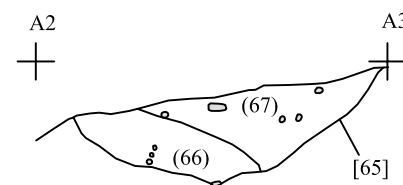
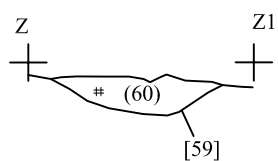
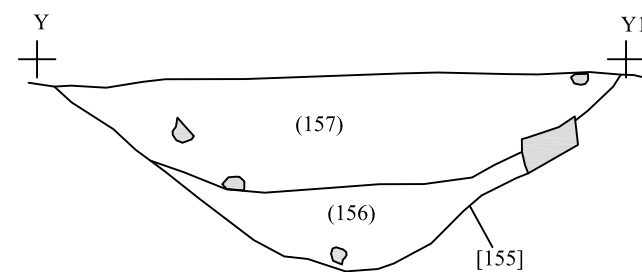
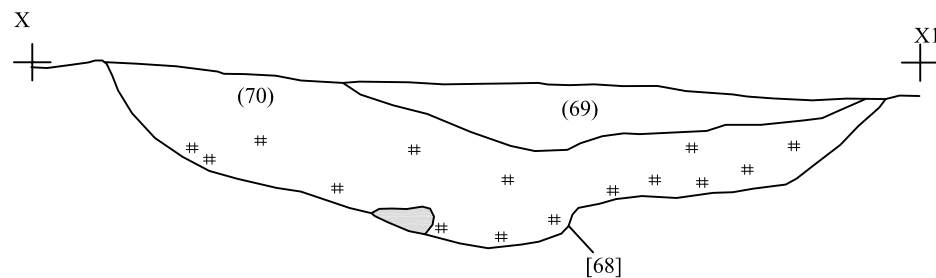
N8 Cashel Bypass & N74 Link Road, Co. Tipperary

Monadreele, Site 11 03E0346



Figure 9: Sections from Site 11

Scale 1:20





Key:

-  - stone
-  - charcoal



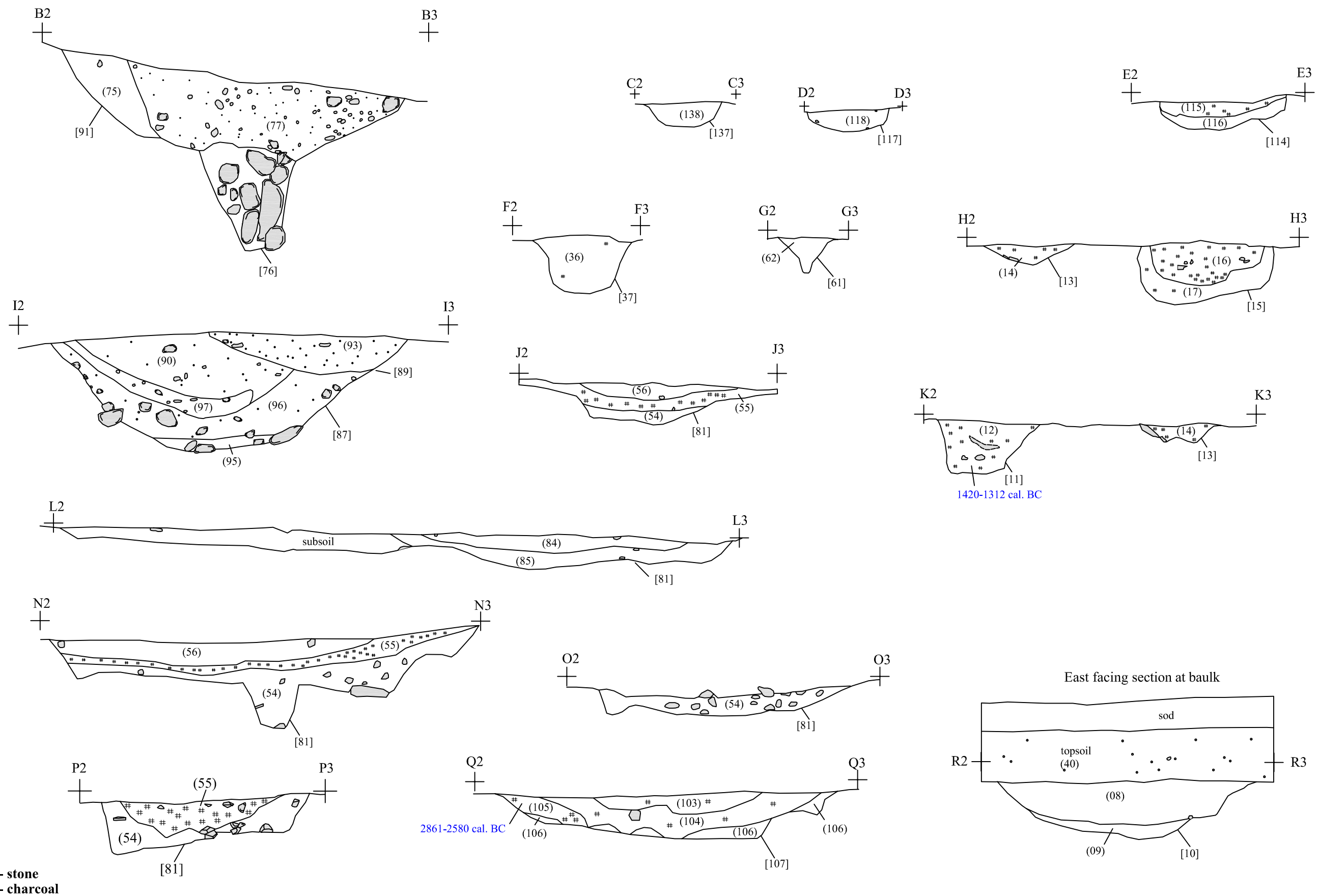
N8 Cashel Bypass & N74 Link Road, Co. Tipperary

Monadreele, Site 11 03E0346

Figure 10: Sections from Site 11

Scale 1:20

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



N8 Cashel Bypass & N74 Link Road, Co. Tipperary
 Monadreela, Site 11 03E0346

Figure 11: The rest of the sections from Site 11
 Scale 1:20

0 1m

