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**ARCHAEOLOGICAL EXCAVATION
OF DEVELOPMENT AT
LIMERICK TUNNEL PPP: SOUTHERN CONTRACT**



MINISTERIAL ORDER REF: A005/000

SCHEME SUB NUMBER: A005/1024

REGISTRATION NUMBER: E3940

CHAINAGE: 750

NGR: 157885/154835

OD LEVEL: 10.4M

SITE NAME: ROSSBRIEN SITE 2

PARISH: ST MICHAELS

BARONY: PUBBLEBRIEN

COUNTY: LIMERICK

SITE DIRECTOR/REPORT AUTHOR: TOM JANES

EDITS: JOHN WINFER, FINTAN WALSH

FINAL REPORT

SUBMITTED TO LIMERICK COUNTY COUNCIL

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IAC Irish Archaeological
Consultancy

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This final report has been prepared by Irish Archaeological Consultancy Ltd on behalf of Limerick County Council and the National Roads Authority in advance of the construction of the Limerick Tunnel Southern Contract. This excavation has been carried out under Ministerial Direction to the Department of Environment, Heritage and Local Government (DoEHLG), in consultation with the National Museum of Ireland issued under Section 14 of the National Monuments Acts 1930–2004.

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ABSTRACT

This report, prepared on behalf of Limerick County Council and National Roads Authority, has been undertaken to describe the results of an excavation (E3940) carried out at the site of the proposed Limerick Southern Ring Road, on a 72m² site, at Rossbrien, Co. Limerick (OS sheet 013), (Figure1). An archaeological desktop assessment of the proposed development was undertaken by Margaret Gowen and Co. in 2003 as part of the EIS for the scheme. The desktop assessment recommended that a programme of test trenching be undertaken in all areas of land take prior to the commencement of construction works.

Test trenching commenced on 2nd December and lands available were tested until 22nd December 2004. Additional testing of lands not available during the main testing programme was carried out on 17th January 2005. The test trenching programme resulted in the identification of archaeological remains at Ch0750 (NGR 157885/154835). It was clear that the proposed development will impact negatively upon the identified archaeological remains and it was therefore recommended that an area measuring 9m x 8m be subject to a full archaeological excavation and preservation by record prior to the commencement of construction works in this area. All topsoil removal and related sub-surface archaeology was subject to a programme of archaeological monitoring.

The excavation of Rossbrien Site 2 took place between 4th and 5th April 2005. A burnt mound, comprising charcoal-rich silt and heat-shattered stone, and an associated trough were excavated. A post-medieval/modern date was obtained for the site using charcoal retrieved from the trough.

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1 INTRODUCTION

1.1 General

This report, prepared on behalf of Limerick County Council, describes the results of an excavation carried out on a small burnt mound and associated trough uncovered at Rossbrien townland at NGR 157885/154835. The site was discovered during Phase I linear testing along the route of the southern contract of the Limerick Tunnel PPP (Figure 1). A Ministerial Direction for the scheme was issued to Limerick County Council under Ministerial Order Ref: A005/000. This site was assigned scheme sub-number A005/1024 and was subsequently excavated under Registration Number E3940. An area 9m x 8m was fully exposed and excavated by Tom Janes for Irish Archaeological Consultancy Ltd. The excavation took place between 4–5 April 2005.

The Cultural Heritage and Archaeology section of this EIS for the project was carried out by Margaret Gowen and Co. in 2003. This identified any known archaeological sites or monuments on the proposed route. A field inspection of the proposed route was carried out in late November 2004 by IAC Ltd and this did not identify any new or potential archaeological sites along the route to those identified by the EIS.

The EIS recommended that a programme of pre-construction archaeological test investigation be undertaken. As a result, more precise mitigation strategies could then be formulated in order to avoid, reduce or offset potential negative effects of the proposed development on the archaeological resource.

Test trenching commenced on 2nd December and lands available were tested until 22nd December 2004 under Ministerial Direction scheme sub-number A005/1012 and Registration Number E2077. Additional testing of lands not available during the main testing programme was carried out on 17th January 2005. A total of six known sites were investigated and four previously unknown sites were identified and investigated during the testing program. The main focus of the site E3940 was a burnt mound identified during the linear testing.

1.2 The Development

Limerick County Council intend to develop a ring road (Limerick Southern Ring Road Phase II) between the existing Limerick Southern Ring Road Phase I and the N18 Ennis Road. The route crosses through (from south to north) the townlands of: Rossbrien, Ballinacurra (Weston), Ballinacurra (Hart), Dooradoyle, Ballykeeffe, Skehacreggaun, Bunlicky and Castlemungret, Co. Limerick, crossing the Shannon by means of a tunnel to Coonagh West, and from Coonagh West travels north to join with the existing N18 in the townland of Cratloemoye, Co Clare. A link road will also be constructed between Coonagh West and Clonmacken townland to the northeast. The length of the main scheme is approximately 10km, with 2 km of link road (Figures 1 and 2).

The work is divided into two contract lots, Southern Archaeological Services Contract and Northern Archaeological Services Contract, divided by the River Shannon. This site is located within the Southern Contract.

2 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

The Southern Archaeological Services Contract encompasses the townlands of Rossbrien, Ballinacurra (Weston), Ballinacurra (Hart), Dooradoyle, Ballykeeffe, Skehacreggaun, Bunlicky and Castlemungret.

2.1 Geology

Bedrock geology consists of a series of siltstones, mudstones and thin tubidite beds of Ordovician/Silurian Age. The drift geology consists primarily of stiff clays and glacial boulder clays, often forming drumlins and locally there are inter-drumlin peats and alluvial clays (MCOS/COWI 2003).

2.2 Topography and Hydrology

The topography along the roadtake is characterised by the flood plain/intertidal zone of the River Shannon estuary and by its associated tributaries. The Ballynaclogh River flows into the Ballinacurra Creek which in turn runs into the Shannon. Much of the ground is very low-lying and incorporates alluvial flood plain deposits and reclaimed/drained wetlands that rise to gently undulating glacial drift. For the most part the land is used for grazing.

2.3 History and Archaeology

Parts of the following historical background have been extracted from Appendix K of the EIS and, where applicable, are referenced to the author.

2.3.1 Prehistoric Period

The river Shannon has formed a main access route into mainland Ireland since earliest times and formed the focus of settlement from the Neolithic period onwards. The results of the archaeological intertidal survey of the Shannon estuary, carried out for the North Munster Project of the Discovery Programme, revealed evidence for some sea-level rise and marine transgressions (O'Sullivan, 1996). Local conditions appear to have resulted in the submergence of Neolithic and Bronze Age forest landscapes, which now lie sealed beneath estuarine clays (such as that found in Coonagh West). Due to these changes, the Shannon Estuary's landscape has always been a dynamic one, varying from raised bogs to freshwater fens, salt marshes and mud flats.

Archaeological research, and the distribution of sites on the Shannon Estuary, suggests that the estuary was the focus of settlement and of traffic/trading during the prehistoric period. A possible Neolithic stone axe was found (NMI 95E0228:3) with a variety of animal bones on the lower part of this foreshore in peats that were dated to the Mesolithic (O'Sullivan 2002). Intertidal and dry land surveys also indicate that quite significant Bronze Age populations were active along the river shoreline and its hinterland, with settlements extending far inland (Margaret Gowen & Co Ltd. 2003).

The Bronze Age period (2200-600 BC) is characterised by the introduction of metalworking technology to Ireland and coincides with many changes in the archaeological record, both in terms of material culture as well as the nature of the sites and monuments themselves. In addition to changes in material culture, there were changes in burial rite from communal megalithic tombs to single burial in cists, which were then frequently covered by cairns or barrows (mounds of earth and/or stone) (Buckley and Sweetman 1991, 63). There is one possible burial site dated to this period within the study area, a cairn site located in the townland of Rossbrien (RMP site LI013:149, site A005/1013). Further evidence for this period comprises the remains of a funerary monument excavated in Rathbane South (99E630: Ex. Bu. Ref. 2000/606). Further east again in Banemore remains related to a prehistoric

settlement of late Neolithic/early Bronze Age date were excavated as part of the Limerick Main Drainage scheme (00E506: Ex Bu. Ref. 2000/575).

Other sites that are indicative of Bronze Age activity in the area are classified as or burnt mounds. These sites are regarded as ancient cooking places and consist of a horse-shoe or kidney shaped mound of fire cracked stone, surrounding a slight hollow in which either a clay lined pit or wood or stone lined trough is normally found (Gibbons 2001, 14). They are usually located in low-lying areas near a water source, often in clusters. Radiocarbon dates from these sites have indicated that they are Bronze Age in date. The mounds of these features are frequently ploughed out or removed but top-soil stripping reveals the trough or burnt spreads of former burnt mounds.

While there are no recorded burnt mounds in close proximity to the proposed route, several previously unknown burnt mound sites (Bennett 1999/533 & 1999/534; 99E0235 & 99E0524) and a burnt mound (Bennett 2000/611; 00E0204) were revealed during excavations in the townland of Rossbrien. Four burnt mounds were also excavated in Rathbane South, and a further three in Dooradoyle (Bennett 2000/607, 1997/339/388, 1999/529/530/531; 00E0431 97E399, 97E289, 99E525 99E0633 & 99E0634). One site in Rathbane South produced a chert hollow-based arrowhead suggesting a late Neolithic/early Bronze Age for the feature.

Although settlement in this area is likely to have continued into the Iron Age (c. 600BC – 500AD), there is no direct archaeological evidence for activity in this area during this period.

2.3.2 Early Medieval Period (c. AD 500–1100)

When the Irish annals refer to a place called *Luimneach*, they specify an area by the Shannon estuary, but make no reference to any town or fort existing there. The name *Luimneach*, which can be dated to around 561 AD when it is used in an ancient poem, is generally taken to mean ‘the bare marsh’, however, as Ó Maolfabhail points out, the word is also an adjective meaning ‘cloaked’ or ‘shielded’ and may well indicate a sheltered area or harbour (1990, 213).

The range and variety of monuments of an early medieval date in the vicinity of Limerick City attest to the intensive settlement in the area during this period. Field monuments of this period, notably ringforts and ecclesiastical enclosures, occur in some numbers around the city, and there are suggestions from the historical record that the city area itself formed the focus of settlement before the Viking period (c. early 9th century; Spellissy 1998, 17).

The ringfort or rath is considered to be the most common indicator of settlement during this period. The most recent study of the ringfort (Stout 1997) has suggested that there is a total of 45,119 potential ringforts or enclosure sites throughout Ireland. They are usually defined as a broadly circular enclosure delimited by an earthen bank and ditch (ringfort) or by a stone wall (cashel). Ringforts represent individual defended family homesteads (Lynn 1975, 30), and the site of one such monument is recorded along the proposed ring road (LI013-015). A number of the monuments classified as enclosures, a monument type most prevalent in the north east corner of Limerick, are also likely to have been ringforts or the sites of ploughed out ringforts. An enclosure is recorded in proximity to the proposed ring road (A005/1014) in Rossbrien townland (LI013:019), with several others in the vicinity (Rathbane South LI013:020; Dooradoyle LI013:013).

The period is also characterised by the foundation of a large number of ecclesiastical sites throughout Ireland, following the introduction of Christianity in the 5th century AD. Many holy wells can be found associated with early ecclesiastical sites. Most have no artificial features associated with them and where such do occur they can usually be shown to be of very recent origin. What is clear, however, is that the veneration of wells is a very widespread and ancient tradition in Ireland. Plummer (1910) demonstrates that at least some holy wells in Ireland were important venues of pre-Christian ritual activity. Most wells are springs but occasionally other water sources, such as hollowed stones which collect water, are treated as holy wells. Holy wells are frequently marked on the Ordnance Survey maps. There is one holy well in the vicinity of the proposed southern ring road, St Dominic's well (LI013:018) which lies to the south of a church of the same name (LI013:017/01–02) in Rossbrien.

2.3.3 Hiberno-Norse (Viking) Settlement

Limerick was raided during the early 9th century with a Viking settlement founded there by the early 10th century forming one of the five major Viking coastal towns; the other urban centres were at Dublin, Cork, Waterford and Wexford (Edwards 1990). As with Dublin (*Dubhlinn* to *Dyflin*), the Vikings adopted the Irish name *Luimneach*, but corrupted it slightly, using one of their terms *Laemrich*, *Hlimrek*, or *Allymrick*, which means rich land, rich soil, and rich loam respectively, although it appears that they also called their settlement *Odensay*, or Odin's Island, after their god (Spellissy 1998, 18). The Irish referred to it as *Inis Sibtond*. A base or fortification was established as early as 845 on Lough Ree (Edwards 1990, 178). However, it was the following century when Tamar, a Norse King, set up the base at Limerick on the easily defended island formed by the Abbey River, which later became known as the 'King's Island'.

A possible Viking base was recently identified in Fairyhill townland Co. Clare, 1km north of Athlunkard Bridge, on the bend of the River Shannon, to the northeast of Limerick City (Kelly & O'Donovan 1998). Athlunkard Bridge is the modern 19th century successor to an important ford between Clare and Limerick, which was located at St Thomas' Island. A possible Viking wooden jetty was found in estuarine clays in Cooperhill in 1958 (Co. Limerick) during drain digging for reclamation, and lying on it was a Viking iron sword (Margaret Gowen & Co Ltd. 2003). The site was located across the channel from the townlands of Coonagh East and Coonagh West, or *Cuanach* meaning haven or place of shelter, indicating the presence of local harbours and suitable places to draw up boats (O'Sullivan 2002).

The capture of the town in 967 by the native Irish marks the beginning of a period of Ua Briain domination that was to last until the coming of the Anglo-Normans. Within this period, during the reign of Toirrdelbach Ua Briain, King of Munster from 1063-86, the Ua Briain's essentially abandoned their royal seat at Cashel in favour of making the Viking town their new capital. (Margaret Gowen & Co Ltd. 2003).

2.3.4 Medieval Period

Limerick was one of the last towns to fall to the Anglo-Normans who invaded Ireland in 1169. It developed as a walled Anglo-Norman town in much the same way as Dublin. Both were reserved to the Crown and formed part of the vast demesne lands of the King. It received various charters and privileges as did Dublin and a strong stone castle was built to defend the town. In addition, various religious orders were established within and around the town. By the early 14th century the south suburb, on the other side of the Abbey River had developed as a separate entity known as Irishtown, where the Gaelic people lived. This was walled or partially walled as early as 1310 (O Rahilly 1995).

2.4 Site Specific Background

The townland of Rossbrien lies within the parish of St. Michael's and the barony of Pubblebrien. In 1837 it contained c. 323 acres. It consisted mainly of grassland with areas along its east boundary liable to flooding. At its centre was Rossbrien House, with Rossbrien Paper Mill located towards its north region. A possible cairn (LI013-149) is located to the south of the site the subject of this report consisting of a low pile of boulders now overgrown.

Rossbrien is derived from the Irish *Ros Uí Bhriain* meaning O'Brien's Wood or alternatively the *Ros* element may refer to the headland of the Ua Briain. The name of Rossbrien is quite a recent name and an earlier place name, *Farranegalen*, is shown on the Down Survey map of 1657, which comes from the Irish '*Fearann na gCailleach*' meaning nun's land. There was a grant to Trinity College Dublin in 1597 '*of the lands of Farrenyellsghé near Limerick... possessions of the late cell of St. Peter in Limerick*' and in the seventeenth century the Earl of Thomond was in possession. The O'Brien ownership accounts for the present name of the townland; the last recorded use of the earlier name was in the Corporation Records of 1833 when the Presentments list '*Farranagalla or Rossbrien*' (Maloney 1962-65, Simmington 1938 and Down Survey Map 1657).

St Dominic's church and graveyard (LI013:017/01-02) is located within the townland, c.150m south of the proposed route. The church lies within an overgrown rectangular stone wall enclosure. Westropp (1904-1905) describes the church as 'completely hidden by ivy' with 'most of the walls now leveled'; he ascribes a date of 1410 date to the church. According to O'Donovan, St Dominic's Church (LI013:017/01-02) was reused as a burial place for children until 1835 (Spellissy 1998). Children's burial grounds, sometimes known as killeens (*cillín*) or caldrags (*ceallúrach*), are patches of unconsecrated ground where unbaptised babies or victims of suicide or drowning were buried. They are sometimes located within ringforts or other archaeological monuments regarded as somewhat otherworldly places. They can also be located directly outside church graveyards, often as a small field attached to (but not part of) the consecrated ground. Very occasionally, they appear in early or medieval church sites that had fallen out of use. They are often characterised by rough ground and by small stone grave markers with no names.

2.5 Cartographic Analysis

First Edition Ordnance Survey map, 1840-1, scale 1:10,560

The location of the site is shown as green field on this map. A lane/track runs in an east-northeast to west-southwest direction to the immediate south while a field boundary runs north to the west of the site with a corresponding boundary to the east. Another field boundary lies to the south. Lands to the east and southeast of the site are described as liable to flood.

Second Edition Ordnance Survey map, 1902, scale 1:10,560

The location of the site is shown as being in a large field which is an amalgamation of four smaller fields. The laneway to the immediate south of the site is gone.

Third Edition Ordnance Survey map, 1924

The location of the site is again shown as green field. The land to the east appears to have been drained.

3 THE EXCAVATION

3.1 Methodology

After initial bulk stripping the area of excavation was hand cleaned in order to identify potential archaeological remains. All features were subsequently fully excavated and recorded by hand, using the single context recording system with plans and sections being produced at a scale of 1:50 and 1:20 (sections were recorded generally at 1:10). All works were carried out in agreement with the Project Archaeologist and The Department of the Environment, Heritage and Local Government (DoEHLG) and in accordance with the Ministerial Directions.

Samples were taken of any environmental and burnt material.

All contexts are described in Appendix 1.

3.2 The Excavation

The excavation took place between the 4th and 5th April 2005. The site comprised a shallow spread of heat-shattered stone and charcoal measuring approximately 9m x 5.2m. This spread sealed a sub-circular trough 1.6m x 1.4m x 0.37m deep. The site is:

- Site E3940, route chainage (Ch) 0750
- NGR 157885/154835

Activity is divided by phase into groups on site and then into subgroups for associated features within a phase of activity. Subgroup numbers have been allocated from {1000} onwards to avoid confusion with context numbers.

In the following text, brackets are used as follows:

{ } - enclose subgroup numbers.

() - enclose deposit numbers.

[] - enclose cut numbers.

4 EXCAVATION RESULTS

4.1 GROUP 1: Natural Deposits & Landscape

SUBGROUP: {1000} Natural Geology

Contexts;

Context	Fill of	Basic Description	Interpretation
2	n/a	Grey firm sandy clay, moderate stones	Natural geology

Finds: None

Description:

The bedrock geology of the region around Rossbrien consists of a series of siltstones, mudstones and thin tubidite beds of Ordovician/Silurian Age. The drift geology consists primarily of stiff clays and glacial boulder clays, often forming drumlins and locally there are inter-drumlin peats and alluvial clays.

Landscape:

The site was located on poorly drained ground at the base of a slope which rises to the west. The land was unused at the time of excavation, but had recently been under pasture.

4.2 GROUP 2: Burnt Mound

SUBGROUP: {1001} Trough

Contexts;

Context	Fill of	Basic Description	Interpretation
5	n/a	Sub-circular, E-W, 1.6 x 1.4 x 0.37m deep, rounded corners, steep-vertical sides, concave base	Trough
7	5	Medium firm black sandy silt, moderate burnt stone, frequent charcoal	Burnt spread material - basal fill of trough
8	5	Medium firm black sandy silt, frequent burnt stone, frequent charcoal	Burnt spread material

Finds: None

Description:

A sub-circular trough **C5** measuring 1.6m x 1.4m x 0.37m deep with steep sides and a concave base was located under and approximately central to the burnt spread **C4** (Figure 3; Plate 2). The primary fill comprised charcoal-rich sandy silt with inclusions of heat shattered stone (**C7**). This was sealed by a charcoal-rich mix of heat shattered stone (**C8**) identical to the material that formed the spread. No artefacts were recovered.

A fragment (0.15g) of pumoideae charcoal recovered from a sample of trough fill **C7** was chosen for AMS dating and returned a result of 160+/-40 BP (UBA 279204). The 2 Sigma calibrated result for this was AD 1660–1960 (Beta Analytic Inc., Appendix 2.1). This suggests a post-medieval/modern date for this site.

SUBGROUP: {1002} Burnt Mound Spread

Contexts;

Context	Fill of	Basic Description	Interpretation
4	n/a	Irregular, N-S, 9 x 5.2 x 0.1m deep, firm black sandy silt, frequent burnt stone, frequent charcoal	Burnt mound spread

Finds: None

Description:

The burnt spread was an irregular shaped spread of charcoal-rich sandy silt and heat shattered stone **C4** (Figure 3; Plate 1). It measured approx 9m x 5.2m x 0.1m deep but extended beyond the limits of the site to the south which was defined by an existing field boundary which also defined the development boundary. This spread sealed a trough {1001} and was truncated by a later drain {1003}. No artefacts were recovered from this spread.

GROUP 2 DISCUSSION:

Group	SG	SG type	Period by finds	Period by interpretation	Group Interpretation
2	{1001}	Trough	n/a	Prehistoric	Prehistoric
2	{1002}	Burnt spread	n/a	Prehistoric	Prehistoric

The burnt mound comprised a spread of heat shattered stone {1002} with charcoal inclusions. The spread measured approx 9m x 5.2m and was no more than 0.1m deep. A trough measuring 1.6m x 1.4m x 0.37m deep {1001} was located approximately under and approximately central to the burnt spread. This was filled with a primary fill of charcoal-rich sandy silt mixed with heat shattered stone **C7**. This was sealed by a charcoal-rich mix of heat shattered stone **C8** identical to the material that formed the spread. Despite the amounts of heat-shattered stone and charcoal on-site, there was no evidence of *in situ* burning.

4.3 GROUP 3: Post-Medieval Drain

SUBGROUP: {1003} Drain

Contexts;

Context	Fill of	Basic Description	Interpretation
3	n/a	Linear, E-W, 7 x 0.5 x 0.1m deep, vertical sides, flat base	Drain
6	3	Medium firm orange-brown sandy silt	Natural silting

Finds: None

Description:

A narrow linear feature (**C3**) orientated east–west was identified. This followed the natural slope of the ground (Figure 3; Plate 3). This probable drain was approximately 0.5m wide x 0.1m deep and continued to the east of the area investigated truncating the burnt spread **C4**. It was filled with homogenous orange brown silt **C6**. No artefacts were recovered.

A second drain was also present on the site running northwest–southeast. This was obviously modern and was not investigated. It truncated burnt spread **C4**.

Although no artefacts were recovered from this drain the dimensions and inclination of the feature indicate that it is likely to represent post-medieval field drainage.

4.4 GROUP 4: Topsoil

SUBGROUP: {1004} Topsoil

Contexts;

Context	Fill of	Basic Description	Interpretation
1	n/a	Mid brown sandy silt, moderate mixed stones	Topsoil

Finds: None

Description:

Topsoil comprised a homogenous mid-brown sandy silt with moderate inclusions of small and medium angular, sub-angular, rounded and sub-rounded stones.

Topsoil and ploughsoil **C1**, which was on average 0.1m deep, sealed the whole site. This area had been subject to modern farming practices.

5 DISCUSSION AND CONCLUSION

5.1 Discussion

The excavation at Rossbrien Site 2 uncovered a single phase of burnt mound activity truncated by later agricultural activity. A post-medieval/modern date (cal. AD 1660–1960) was obtained from charcoal retrieved from the trough. This suggests that although the burnt mound shares many characteristics of prehistoric burnt mounds it is likely that it was a post-medieval or modern feature.

The burnt mound was defined by a spread of heat shattered stone with charcoal inclusions and a possible trough filled by the same material. The spread measured approx 9m x 5.2m and was no more than 0.1m deep. A trough measuring 1.6m x 1.4m x 0.37m deep was located under and approximately central to the burnt spread. The trough was filled by charcoal-rich sandy silt mixed with heat shattered stone. This was sealed by a charcoal-rich mix of heat shattered stone identical to the material that formed the spread. Despite the amounts of heat-shattered stone and charcoal on-site, there was no evidence of *in situ* burning.

Burnt mound sites (also commonly referred to as *Fulacht Fiadh*) are one of the most common field monuments found in the Irish landscape. The last published survey (Power *et al.* 1997), carried out over a decade ago, recorded over 7,000 burnt mound sites and in excess of 1,000 sites have been excavated in recent years through development led archaeological investigations. In spite of this no clear understanding of the precise function of these sites has been forthcoming.

Burnt mound sites are typically located in areas where there is a readily available water source, often in proximity to a river or stream or in places with a high water table. In the field burnt mounds may be identified as charcoal-rich mounds or spreads of heat shattered stones, however, in many cases the sites have been disturbed by later agricultural activity and are no longer visible on the field surface. Nevertheless even disturbed spreads of burnt mound material often preserves the underlying associated features, such as troughs, pits and gullies, intact.

Ó Néill (2003–2004, 82) has aptly identified these sites as the apparatus and by-product of pyrolithic technology. This technology involved the heating or boiling of water by placing fire-heated stones into troughs of water. Small shallow round-bottomed pits, generally referred to as pot boiler pits or roasting pits, are often associated with burnt mound sites. The purpose of these pits remains unclear. Occasionally large pits are also identified and may have acted as wells or cisterns. Linear gullies may extend across the site, often linked to troughs and pits, and demonstrate a concern with onsite water management. Post and stakeholes are often found on burnt mound sites and these may represent the remains of small structures or wind-breakers.

Burnt mound sites are principally Bronze Age monuments and reach their pinnacle of use in the middle/late Bronze Age (Brindley *et al.* 1989–90; Corlett 1997). Earlier sites, such as Enniscoffey Co. Westmeath (Grogan *et al.* 2007, 96), have been dated to the Neolithic and later sites, such as Peter Street, Co. Waterford (Walsh 1990, 47), have been dated to the medieval period. Thus although burnt mound sites generally form a component of the Bronze Age landscape, the use of pyrolithic technology has a long history in Ireland.

Although there is a general consensus that burnt mound sites are the result of pyrolithic technology for the heating or boiling of water, the precise function of these

sites has, to date, not been agreed upon. Several theories have been proposed but no single theory has received unanimous support. The most enduring theory is that burnt mounds sites were used as cooking sites. O'Kelly (1954) and Lawless (1990) have demonstrated how joints of meat could be efficiently cooked in a trough of boiling water. The use of burnt mound sites for bathing or as saunas has been suggested as an alternative function (Lucas 1965, Barfield and Hodder 1987, O' Drisceoil 1988). This proposal is largely influenced by references in the early Irish literature to sites of a similar character and is very difficult to prove, or disprove. Others, such as Jeffrey (1991), argue that they may have been centres of textile production for the fulling or dyeing of cloth. More recent demonstrations by Quinn and Moore (2007) have shown that troughs could have been used for brewing, however, this theory has been criticised by leading Irish environmentalists due to the absence of cereal remains from most burnt mound sites (McClatchie *et al.* 2007).

Archaeological work carried out by TVAS (Ireland) on behalf of Limerick County Council along the length of the southern ring-road (Phase II) in 2004–5 revealed two burnt mounds in Coonagh West townland. One burnt mound had a timber lined trough while the other had a spring as its trough. A 23m long brushwood trackway was also excavated in the area with a line of horizontal oak posts that ran adjacent. One of these posts produced a felling date of 1507–1506 BC (Taylor 2006).

Whatever the function of this site the small quantity of burnt mound material suggests that the trough was only used on a few occasions.

5.2 Conclusion

This burnt mound appears to have been used on only a few occasions. Although it shares characteristics of prehistoric burnt mounds the date obtained from the trough suggests it has post-medieval/modern origins.

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APPENDIX 1 CATALOGUE OF PRIMARY DATA

Appendix 1.1 Context Register

Context	Fill of	Basic Description	Interpretation
1	n/a	Mid brown sandy silt, moderate mixed stones	Topsoil
2	n/a	Grey firm sandy clay, moderate stones	Natural geology
3	n/a	Linear, E-W, 7 x 0.5 x 0.1m deep, vertical sides, flat base	Drain
4	n/a	Sub-circular, N-S, 9 x 5.2 x 0.1m deep, firm black sandy silt, frequent burnt stone, frequent charcoal	Burnt spread
5	n/a	Sub-circular, E-W, 1.6 x 1.4 x 0.37m deep, rounded corners, steep-vertical sides, concave base	Trough
6	3	Medium firm orange-brown sandy silt	Natural silting
7	5	Medium firm black sandy silt, moderate burnt stone, frequent charcoal	Burnt spread material - basal fill of trough
8	5	Medium firm black sandy silt, frequent burnt stone, frequent charcoal	Burnt spread material

Appendix 1.2 Catalogue of Artefacts

There were no finds recovered from the site during excavation.

Appendix 1.3 Catalogue of Ecofacts

Sample	C	Description	No. Bags
1	4	Bulk soil sample - burnt spread	4
2	7	Bulk soil sample - pit fill	4
3	8	Bulk soil sample - basal pit fill	1

Appendix 1.4 Archive Index

Item	Quantity
Site plans and sections	3
Site registers/indexes	4
Site diary/notes	1
Context sheets	8
Context matrix	1
Digital images (colour)	13
Environmental samples	3

APPENDIX 2: SPECIALIST REPORTS

Appendix 2.1 Radiocarbon Dating Results – BETA Analytic Inc. Laboratory

The “Measured radiocarbon age” is quoted in conventional years BP (before AD 1950). The error is expressed at the one-sigma level of confidence.

The “Calibrated date range” is equivalent to the probable calendrical age of the sample material and is expressed at the one Sigma (68.3% probability) and two-Sigma (95.4% probability) level of confidence.

Calibration dataset:

INT CAL04 Radiocarbon Age Calibration IntCa 104: Calibration Issue of Radiocarbon (Volume 46 , nr 3 , 2004).

Context	Sample No	Material	Species id/ Weight	Lab	Lab Code	Date Type	Calibrated date ranges	Measured radiocarbon age (BP)	13C/12C Ratio ‰
C7 Fill of trough	2	Pomoideae	<i>Pomoideae</i> (0.15g)	BETA	279204	AMS(Std)	AD 1670–1950 (1 sigma), AD 1660–1960 (2 sigma)	160+/-40	-25.2

APPENDIX 3: RMP SITES WITHIN THE SURROUNDING AREA

RMP No.:	LI013:149
Townland:	Rossbrien
Parish:	St Michaels
Barony:	Pubblebrien
Classification:	Cairn (possible)
Description:	The site is located on the east-west running ridge in an undulating pasture field with good views to the north, north west, south and south west. It consists of a low pile of weathered boulders overgrown with grass and hawthorn trees. There is a slight dip around the circumference of the site. The cairn is c.4m in diameter. Accessible.
Reference:	RMP Files
RMP No.:	LI013:019
Townland:	Rossbrien
Parish:	St Michaels
Barony:	Pubblebrien
Classification:	Enclosure
Description:	The site is located on the east slope of a hill with excellent views of the surrounding landscape to the north, west and south. The site is c.20m in diameter, with an overgrown earthen bank. The east side of the site has been built up with field clearance.
Reference:	RMP Files
RMP No.:	LI013:015
Townland:	Ballinacurra
Parish:	St Michaels
Barony:	Pubblebrien
Classification:	Ringfort(Site)
Description:	The site is situated on the south east-facing slope of a glacial ridge that extends south towards the Ballinacloyh river from Limerick. The site overlooks the river, and to the east, west and south are the low-lying peaty soils of the flood plain. As part of the Limerick main drainage scheme the site was exposed, recorded and preserved in situ. It consisted of a medium-sized univallate ringfort measuring 43m in external diameter and 19.5m in internal diameter. It was hexagonal or sub-circular in plan, and an interior, denuded bank and enclosing ditch were all clearly visible. The site was subsequently backfilled and avoided by the LMD scheme.
Reference:	RMP Files
RMP No.:	LI013:012
Townland:	Ballinacurra(Hart)
Parish:	St Michaels
Barony:	Pubblebrien
Classification:	Possible 'site of' Bridge
Description:	The bridge consists of a semi-circular single arched stone bridge which carries the Ballinacurra road (the old road led to Mungret) over the Ballinacloyh river. The east facing (upstream) arch and parapet survives, however the west-facing (downstream) side of the bridge has been widened in recent times.

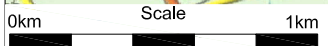
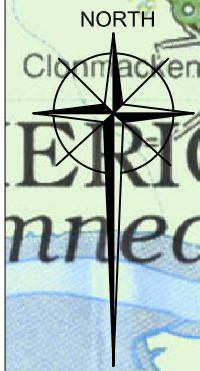
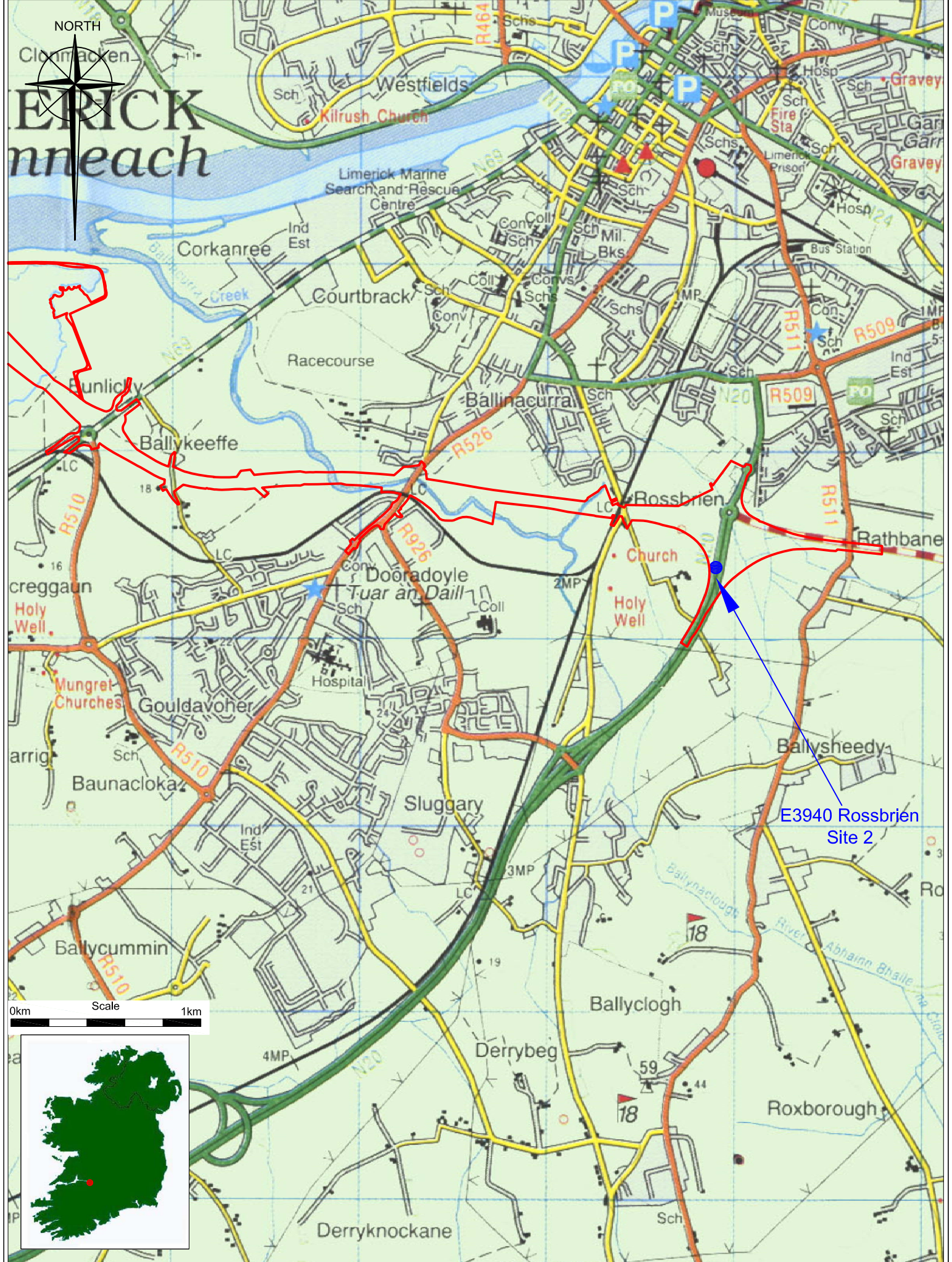
Reference:	RMP Files
RMP No.:	LI013:114
Townland:	Ballinacurra
Parish:	St Michaels
Barony:	Pubblebrien
Classification:	Possible 'site of' Castle
Description:	According to the RMP files the 'site of' this castle is possibly located in the vicinity of Ballinacurra House. Local knowledge has indicated that a cellar was discovered to the rear of the house.
Reference:	RMP Files


See Figure 2 for location.

APPENDIX 4: STRAY FINDS WITHIN THE SURROUNDING AREA

Information on artefact finds from the study area in Limerick has been recorded by the National Museum of Ireland since the late 18th century. Location information relating to these finds is important in establishing prehistoric and historic activity in the study area.

According to the EIS (Margaret Gowen & Co Ltd. 2003) prepared for the proposed project no stray finds have been recorded from the townlands on the Southern Contract.



 Irish Archaeological Consultancy Ltd.	Title:	E3940 Rossbrien Site 2 site location	Scale:	NTS
	Project:	Limerick Tunnel PPP - Southern Contract	Date:	05/07/10
	Client:	Limerick County Council	Produced by:	P Higgins
			Job No:	J2239
			Figure No:	1



BALLYKEEFFE Td
Béal an Chaoith

CASTLEMUNGRET Td
Caisleán Mhugairt

BUNLICKY Td
Bun Leice

BALLYKEEFFE Td
Béal an Chaoith

BALLINACURRA (Hart) Td
Béal Átha na Cora (Hart)

BALLINACURRA (Hart) Td
Béal Átha na Cora (Hart)

LI013-114

BALLINACURRA (Weston) Td
Béal Átha na Cora (Weston)

LI013-012

LI013-015

RATHBANE NORTH Td
An Ráth Bán Thuaidh

RATHBANE SOUTH Td
An Ráth Bán Theas

SKEHACREGGAUN Td
Sceach an Chreagáin

LI013-010

DOORADOYLE Td
Tuar an Daill

LI013-019

LI013-017
ROSSBRIEN Td
Ros Uí Bhriain

**Rossbrien
Site 2 E3940**

LI013-149

RATHURD Td
Ráth Bán Thuaidh

DOORADOYLE Td
Tuar an Daill

LI013-016

LI013-018

ROSSBRIEN Td
Ros Uí Bhriain

BALLYSHEEDY EAST Td
Baile Shioda Thiar

LI013-009

LI013-013

LI013-116

0m Scale 500m

Legend

- RMPs
- CPO Line

Title: E3940 Rossbrien Site 2 RMP map showing site location and road footprint		
Project: Limerick Tunnel PPP - Southern Contract		
Client: Limerick County Council		
Scale: 1:12000	Job No: J2239	
Date: 05/07/10	Figure No: 2	
Produced by: P Higgins		



Extent of burnt Spread C4

Modern Drain

10,535
^

157882,
154387

10,460
^

Drain
C3

AD 1660 - 1960

Trough
C5

157887,
154382

10,365
^

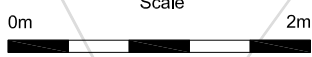
157882,
154382

10,255
^

Limit of Excavation

Disturbance/
Field Boundary

Field Boundary



Legend	
CXX	Cut numbers
CXX	Fill numbers
	Burnt mound deposits
	Stone
XXXXXXE XXXXXXN	National Grid Reference
XX,XXX ^	Levels - metres OD



Plate 1: E3940 Rossbrien Site 2 spread **C4** pre-excitation looking west



Plate 2: E3940 Rossbrien Site 2 trough **C5** post-excitation looking south.



Plate 3: E3940 Rossbrien Site 2 site post-excitation with trough **C5**
and drain **C3**. looking west.