Conservation Study & Management Plan 2022

Moat Wood, Westown (Naul), Co. Dublin

TAP
Trim Archaeology Projects Ltd.

Comhairle Contae Fhine Gall
Fingal County Council

Dedication

I would like to dedicate this survey to Aggie White. For many years, she was looking to get the moat investigated. I am delighted that she is getting her wish in this survey. She would've been delighted to see the lads doing all the tests and examinations.

This project is dedicated to Aggie White – The backbone of Three Gates Garden Centre and Nursery. May she rest in peace.

Christopher White

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1. Introduction

Moat Wood Barrow (DU004-005--) is a monument in private ownership which occupies a moderately elevated location on the south side of the Delvin River at Westown near Naul, County Dublin. The monument is designated as a barrow – unclassified, and consists of a small, rounded mound centrally placed on a circular platform. It sits on the SW end of a NE/SW running ridge which is on the slopes of the higher ground in Mallahow, Flacketstown and Cabinhill townlands. It lies SSW of Fourknocks ridge with its well-known passage tombs which dominates the skyline across the Delvin in Co. Meath. To the SW is the high ground at Garristown.

There is significant local interest in the monument and an active local community group who, together with the landowner who is a member of the Community Council, wish to see the monument made accessible to the wider public. It is envisaged that physical access would be determined by the opening hours of the business of the landowner (a garden nursery), and that it might ultimately form part of a wider heritage trail emanating from Naul Village to the surrounding area.

This study, funded by the Community Monuments Fund, compiles the accessible archaeological, historical, and cartographic evidence to provide a comprehensive narrative for the use of the site and inform its future protection and management. Non-invasive geophysical techniques have been applied to the mound and available adjacent fields to get a better understanding of this underexplored landscape. A full topographical survey of the monument was undertaken in tandem with the detailed geophysical survey. A biodiversity study was also included in this project to help inform future management practices of this site.

This plan aims to synthesise the accessible information and devise policies and actionable plans for the long-term preservation and presentation of the monument. This report was prepared by Trim Archaeology Projects Ltd. on behalf of Naul Community Council.

Plate 1: View of Moat Wood Barrow (DU004-005--) facing SSE

2. Study Area

Moat Wood is located in the townland of Westown, Naul in North County Dublin near the Meath border and the Ford de Fyne on the river Delvin; it lies c. 10km inland from the coastline to the east. The village of Naul is 1.7km to the north-east and the prehistoric tombs of Fourknocks lie 2.3 km to the north. About 3.5km to the east is the complex of monuments in Knockbrack and Kitchenstown, Co. Dublin, which includes a hillfort, ring-ditches and barrows.

The 'Barrow' monument itself is situated in the field adjacent to Three-Gates Garden Centre and is accessible by foot from the R122 road. It is situated on the highest point at the end of an NE/SW ridge within pasture fields which slopes gradually to the south-east, more steeply to the west and drops sharply to the north. It commands views over the Delvin River valley, west to the high ground at Garristown and along the Fourknocks ridge. The bedrock geology consists of shale, sandstone, and limestone, beneath tills.

The monument site was enclosed by a ring of trees which formed a small plantation in a former designed landscape of Westown Demesne. Today there are trees along the boundary to the SW and there are hedgerows forming boundaries from the SE around to the north of the monument with occasional large trees along them. It is adjacent to a former Gate lodge and avenue to Westown House, constructed c.1890. A garden centre now occupies the adjacent site which is attached to the gate lodge.

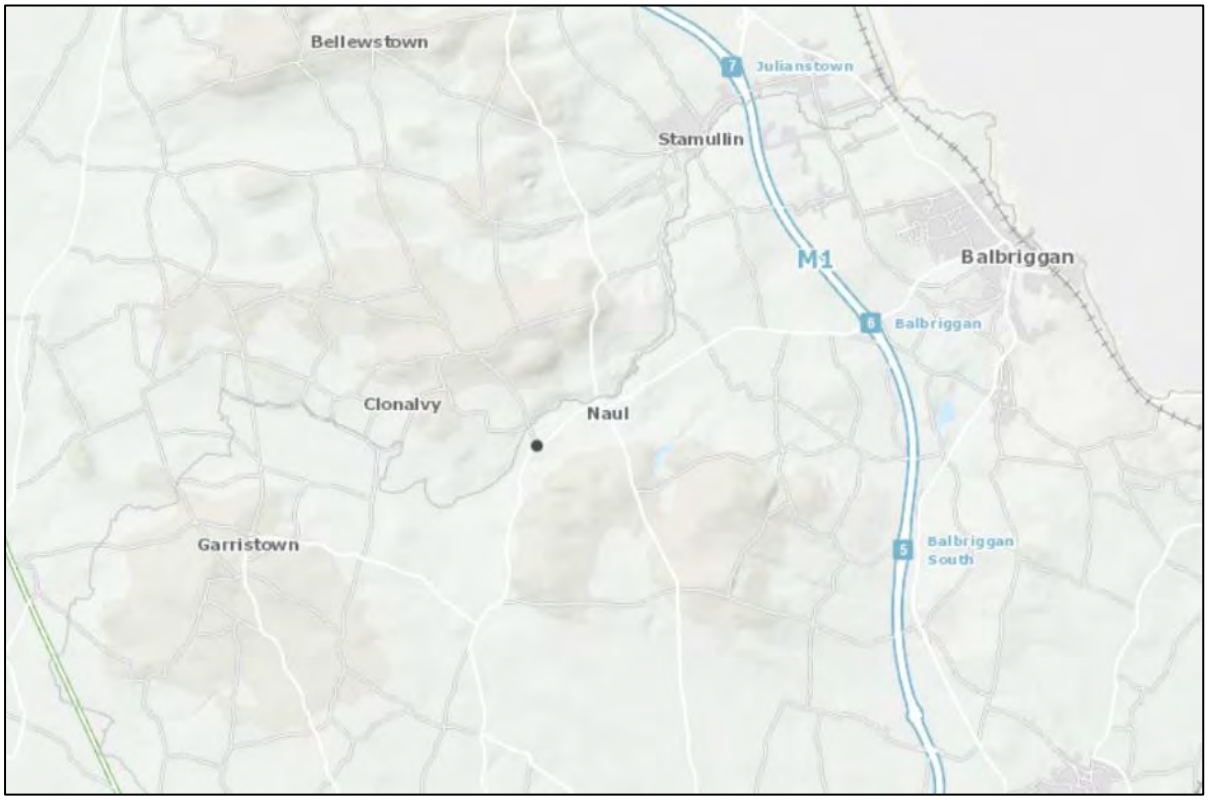


Figure 1: Location Map (Source: www.osi.ie)

Plate 2: View of Moat Wood Barrow (DU004-005--) facing North; Fourknocks ridge is in the background and the garden centre is on the right

3. Methodology

This conservation study aims to guide future development of this site. To understand its significance, a detailed study of the monument itself and its wider context is required. A three-phased approach was undertaken for this study comprising desk top research, field recording including both remote sensing and biodiversity surveys, and report compilation.

Phase 1: Information Gathering

Assessing the significance of this monument required a study of the monument and its wider context. A desktop survey included gathering all accessible information on the site and surrounding area through an examination of archaeological, documentary, and cartographic evidence and aerial imagery. Comparisons for its form and location were looked for to try to better understand it.

To be useful and successful, a conservation and management plan must set out the significance of a monument so that it can be appropriately managed to ensure its future preservation.

The information sought and the sources used are as follows:

- Historical: all publicly available literary sources were consulted including National Library of Ireland, Royal Irish Academy, Royal Society of Antiquaries of Ireland, Schools Manuscript Collection, Placenames loganim.ie, Ordnance Survey Name Books, Griffith's Valuation and Archaeology Ireland magazines.
- Cartographic: Down Survey Maps, John Rocque's Map of County Dublin 1760, Taylor and Skinner's road maps of 1778, Griffith Valuation Maps, Ordnance Survey mapping 1838 onwards.
- Aerial Imagery: Aerial Photography and imagery available publicly through the Ordnance Survey Ireland Map Viewer, Google Earth and Heritage Maps.
- Archaeological Evidence: A study of the townlands within a 3km radius of the Moat Wood site comprised of information gathering from the Records of sites and monuments on the National Monuments Service Database (www.archaeology.ie), Topographical Files held in the archives of the National Museum of Ireland and an Excavations Database Search (www.excavations.ie) which contains summaries of excavations carried out annually in Ireland.

Phase 2: Site Inspections and Surveys

- A number of visits to the site were undertaken in June, August, September and October 2022 to assess the monument itself archaeologically as well as its immediate archaeological landscape. Additional factors such as visitor access and site conditions were also considered.
- A remote sensing survey was commissioned which included a detailed topographical survey of the monument and surrounding area, earth resistance surveys carried out on the surrounding fields and further investigations of the mound itself using electrical resistivity tomography.
- A survey assessing the biodiversity and ecology of the immediate environs was commissioned to improve understanding of the local ecosystem and to inform future planning for this site.

All the information gained from these studies has been used to describe the monument and form a statement of its significance. From this the issues regarding current management, policies for future management and list of actions have been formulated.

Phase 3: Consultation and Compilation

Consultation with all stakeholders who have sought to have this work carried out and who are invested in its future was key to the development of this plan in order to devise strategies for the future use of the monument and its setting. Informal consultation had taken place locally, but an open day was held

on October 29th with local interest groups to assess the levels of interest in and knowledge of the monument and to gauge interest in future involvement. Stakeholders consulted were:

- The Landowner
- The Heritage Officer for Fingal County Council
- Members of Naul Community Council
- The wider community of those with an interest in the heritage of the area and the country as a whole.

The results of the above phases have been compiled and presented in this report to inform the conservation and management plan which sets out to devise policies and actionable plans for the long-term preservation of this site.

4. Statutory Protection

The Monument at Moat Wood, Westown, Naul, Co. Dublin is listed on the *Record of Monuments and Places* under RMP number **DU004-005** (Fig.2) and is protected under the National Monuments Act 1930 – 2014. See Appendix 1 for the SMR entries for this and all monuments in the study area.

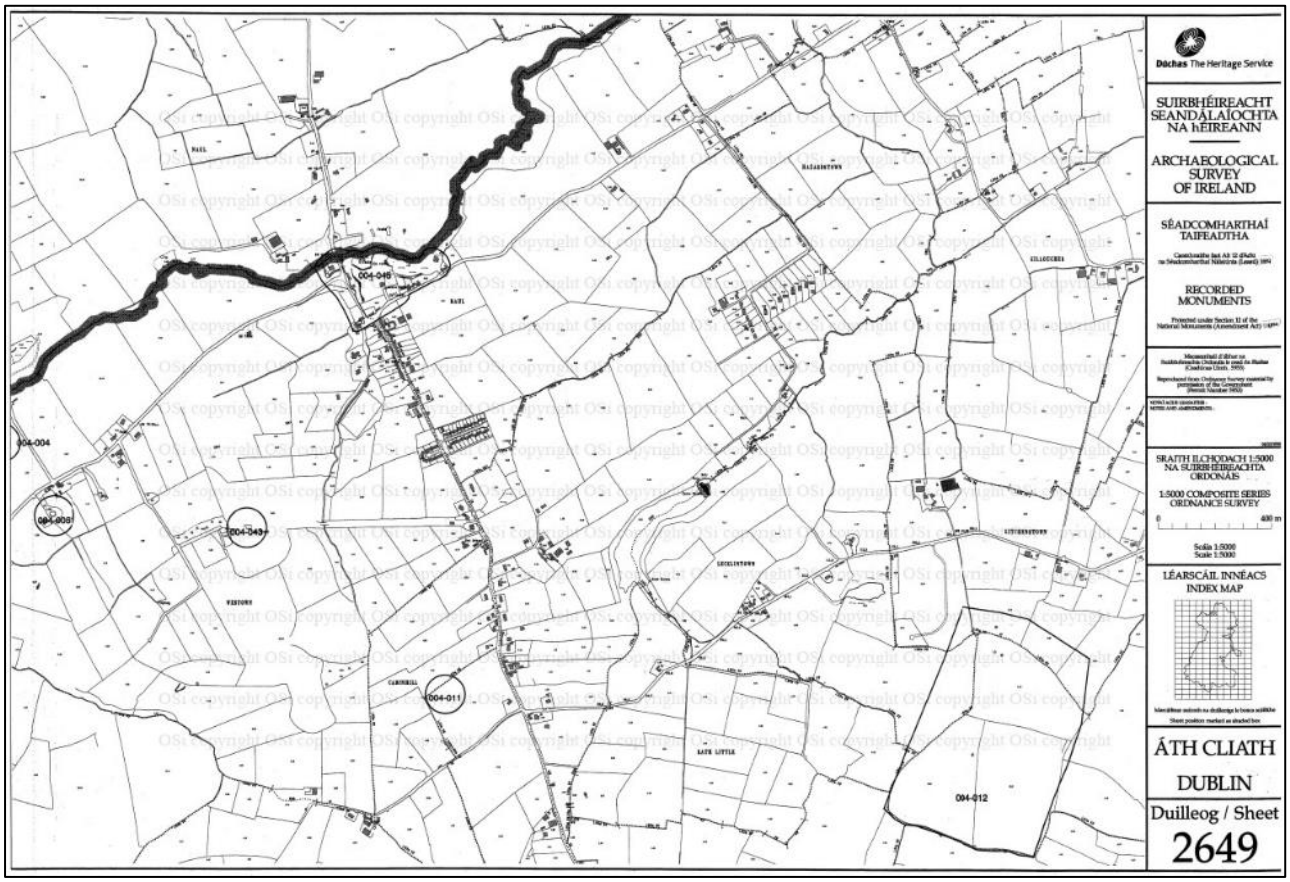


Figure 2: Map from the Archaeological Survey of Ireland showing RMP numbers given to archaeological sites in the Westown and Naul area (Source www.archaeology.ie)

The monument is listed on the *Record of Protected Structures* for Fingal, RPS No. 0115, which confers protection on the monument and any buildings or structures within its curtilage (Fingal Development Plan 2017 – 2023, Appendix).

5. Understanding the Monument

Plate 3: Aerial View of the monument facing West, (courtesy of Ian Lennon).

5.1 Description of the monument

Barrow DU004-005---- is located on the western edge of a ridge on the south side of the Delvin River valley. The exact nature of the monument is unknown, it is categorised as a 'barrow – unclassified' and described within the records as follows:
This barrow is situated on a hilltop under pasture beside the Naul to Fourknocks road and near the Ford of Fyne. A circular dome-shaped mound (diam. 15m; H 2.5m) which rests on a circular earthen platform (diam.30m; H2m). Slopes down steeply to north and south to circular tree-lined enclosure. marked on the OS 25" as a 'moat'. Directly to the north on the other side of the Delvin is the Fourknocks ridge. When the grass is down large stones are visible.

The current condition of the monument is very good. It is situated in a pasture grazed by sheep. It retains its shape and is not visibly denuded or eroded. While in the past trees have grown on the monument today they are around the perimeter and scrub has been cut back.

There has been no known conservation work carried out on the monument within living memory (1930 – date). Briars and gorse are encroaching on the site. Overgrown hedgerows in recent years have obscured the monument from the road.

The dimensions and characteristics of the mound can be described in more detail due to the results of the geophysical and topographical surveys. The mound was mapped in great detail and the following information derived from this survey (see appendix 4).

The topographical survey was confined to the monument and did not extend much beyond the limits of the lower mound. The height range within the survey area was between 81.5 to 89.2m OD, with the mound being located on the topographical high point or plateau which is at about 85.5m OD and which extends to the east from beneath the mound. At road level to the north the ground drops to about 78m. The monument appears to be composed of an upper mound and lower mound. The lower mound measures 23.8m in diameter and its height is 1.2m. It's lower break of slope is recorded at 85.7m OD, while the upper break of slope measures 86.9m OD. The upper mound is located in the centre of the lower mound. It measures 10m in diameter and 1m in height. It's shape is more bulbous than the lower mound. The lower break of slope of this mound is at 87.5 OD and the top of the mound at 89.2m OD, so the mound itself is 1.3m high. The total height of the monument is 2.5m.

On top of the upper mound, two distinct features were identified in the survey. One is a circular feature measuring 4m in diameter and 0.2m in height situated just off centre on the mound. There is a dip in the centre suggesting that this upper mound may have had a shallow bank or rise on its outer edge, either an original feature or a later addition. The second feature identified is located in the centre of the first. It measures 0.5m in width and 0.2m in height and while it may be of archaeological interest, it could also be related to vegetation growth. There was no depression recorded in this mound, which, if present might have represented earlier antiquarian investigations. It is unlikely therefore, that the site was ever excavated or disturbed in the modern period.

The barrow is of distinctive form and is more akin to a category defined in the NMS database as **Barrow** – ***Stepped***:

> *An oval or circular platform with a raised, flat-topped or rounded central area, giving the monument its characteristic 'stepped' profile, sometimes with a bank on the outer edge of the platform. These are part of the Bronze/Iron Age burial tradition (c. 2400 BC - AD 400).*

There are 63 barrows of this form on the RMP. One in Ballymount, Dublin, two in Meath, and none in Louth. There are 15 in Westmeath, nine of which were described by David McGuinness as part of his research, this may account for the higher total there. By contrast there is a total of 921 Barrow – *Unclassified* in the record.

However, a review of the category of Barrow – *Stepped* shows that widely varying forms have been included. Many are mounds defined by a fosse with an outer berm, others are contained within a larger enclosure. Some, as at Westown, have the distinct berm and sometimes, also the possibility of an outer fosse. An example at Ballynasrah, Offaly (OF016-008) is very similar in form and setting to that at Westown, although it is smaller, with a maximum diameter of c. 13m.

Plate 4: Ballynasrah, Co. Offaly

Image source:
https://webservices.archaeology.ie/arcgis/rest/services/NM/NationalMonuments/MapServer/0/107098/attachments/5912

A better description of the type might be Bell Barrow, a term used in the UK but not here.

The Concise Oxford Dictionary of Archaeology defines the barrow typology as*: "A class of early Bronze Age round barrow found in northwestern Europe…" "They are called bell barrows because, in profile, the mounds resemble the campanile form of medieval and later church bells—a flattish top, slightly flaring sides, and a bevelled skirt around the bottom. The mounds, which are separated from the surrounding ditch by a berm, cover one or more primary burials and often have satellite and secondary burials within the mound"* (Darvill, 2009).

While 'bell barrows' are not a classification of barrow used in Ireland, the closest comparative barrow classification here is a 'stepped barrow'. Stepped barrows have widely varying forms as can be seen when comparing the stepped barrow at Kilturra, County Sligo, which is a relatively shallow monument, to the stepped barrow at Ballymount Great, Co. Dublin, which is a much taller barrow with a wide flat platform.

The profile of the barrow at Moat Wood appears to closely resemble the campanile form, with a distinct bulbous, flat-topped central mound form with a flaring berm and bevelled skirt around the bottom. When compared to other stepped barrows in Ireland, the distinct form of the barrow at Moat Wood would appear to better resemble the architectural characteristics of the stepped barrow's UK counterpart, the 'bell' barrow, which is a more definitive morphology than that seen under the broader stepped barrow classification.

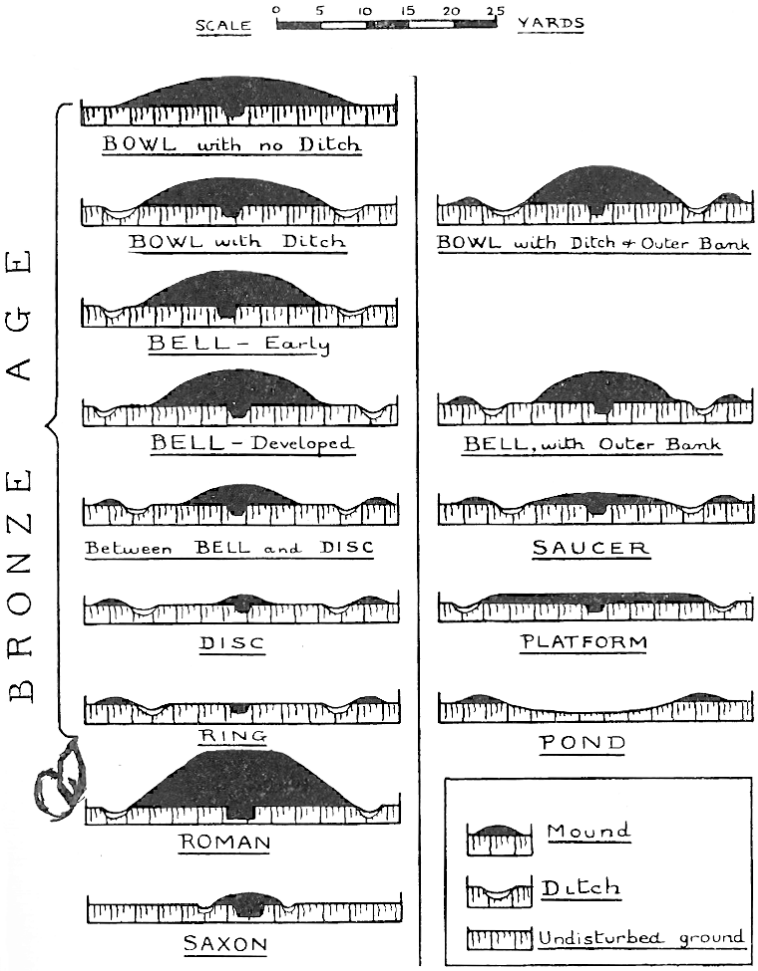


Figure 3: Barrow forms, The Ancient Burial-mounds of England

5.2 The Archaeological landscape

For the purpose of this study a gazetteer of archaeological sites in the wider locality (c.3km radius) was compiled in an effort to understand the context of this monument (Fig.4). The important complexes at both Fourknocks to the North and Knockbrack to the south-east have also been included and the wider context referred to.

Of the 116 sites in the study area 39 are recorded as cropmarks, that is they have no above ground expression. Assigning a date to these features is problematic as the majority would have a generally circular form of varying diameters, and the presence of associated field systems with some would suggest a possible habitational function, although this is highly speculative.

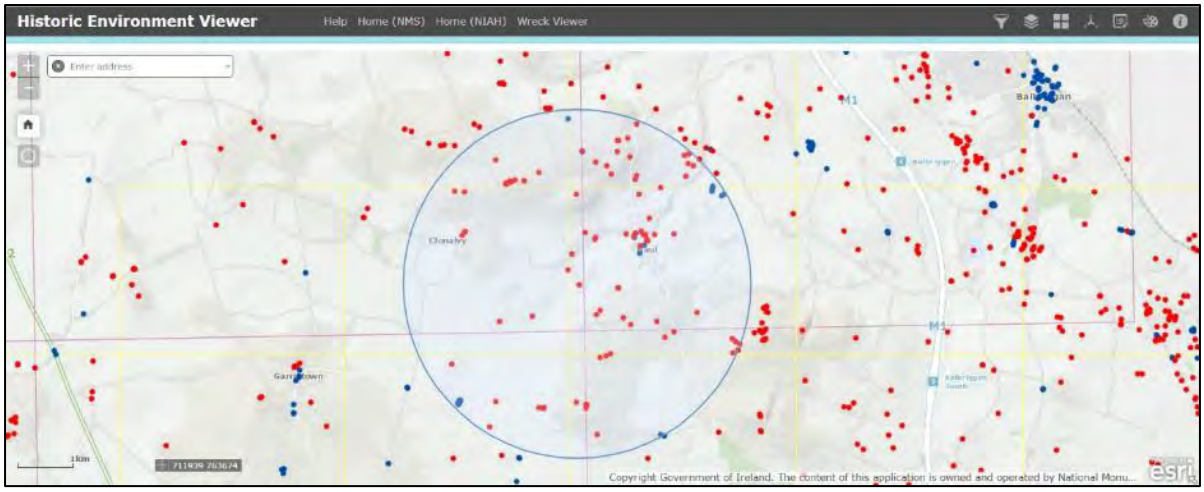


Figure 4: Radius of archaeological sites in the vicinity included in this study. (Source: www.archaeology.ie)

The following townlands were included in this study (Figs.4 & 5):

COUNTY DUBLIN	**COUNTY MEATH**
WESTOWN	NAUL
NAUL	GRANGE (DULEEK UPPER BY.)
MALLAHOW	FLEMINGTOWN (DULEEK UPPER BY.)
GRALLAGH	FOURKNOCKS
LOUGHMAIN	MICKNANSTOWN
RATH GREAT	MOORESIDES
FLACKETSTOWN	BODINGTOWN
BALDWINSTOWN	HERBERTSTOWN (DULEEK UPPER BY.)

RATH LITTLE	TULLOG
KNOCKBRACK	HODGESTOWN
HYNESTOWN	
LECKLINTOWN	
CABINHILL	
CURRAGH WEST	
TOBEEN	

Figure 5: Table showing the Townlands included in this study.

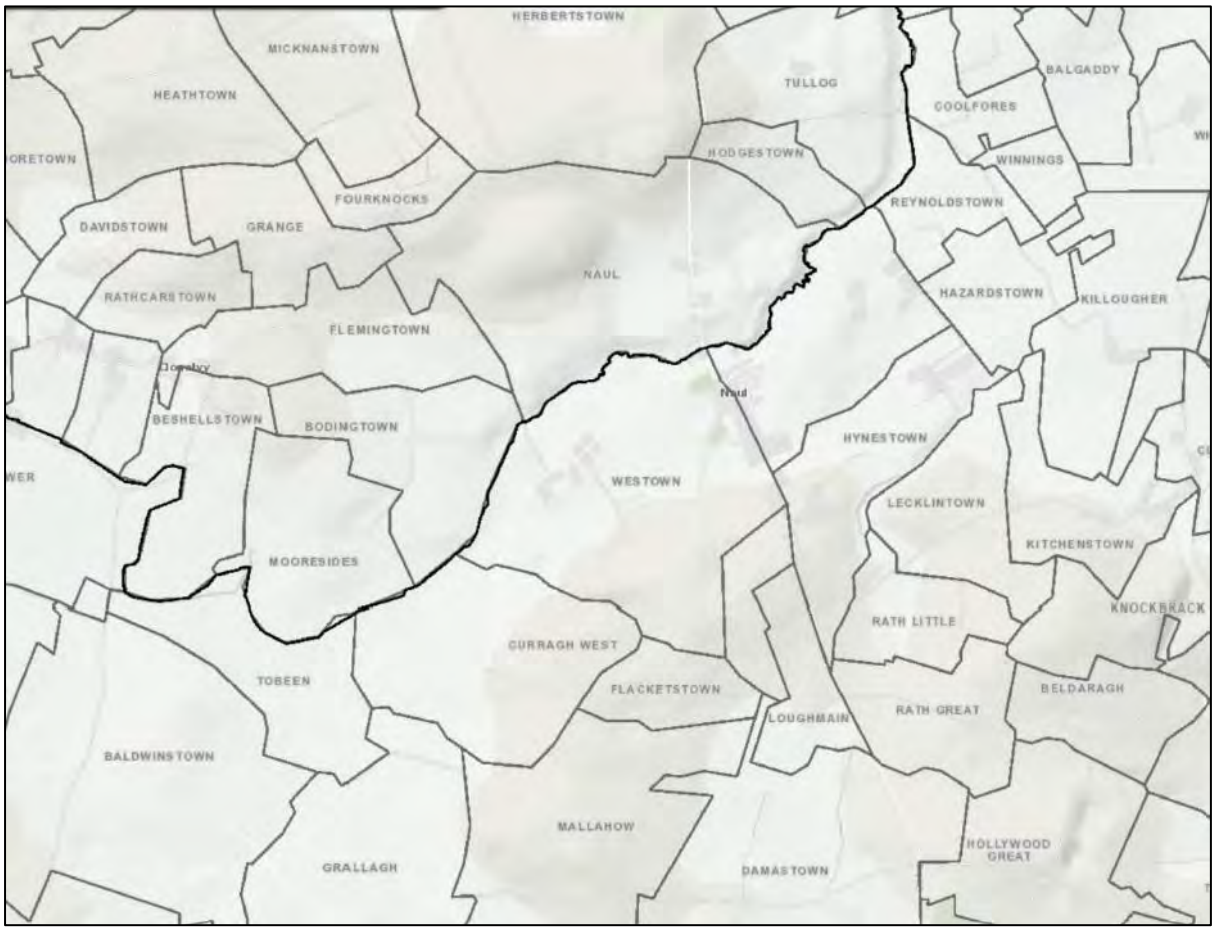


Figure 6: Map of Townlands in the vicinity of Westown (Source: www.heritagemaps.ie).

Moat Wood Barrow is situated in the Townland of Westown, County Dublin. The archaeological database on the national monuments website shows 11 recorded sites in this townland (Fig.7). Of these and including this Barrow DU004-005----, six are of indeterminate date including four enclosures and one ring-ditch. Of the other five, one is a medieval tower-house and the other four most likely date from the early modern to modern period. The six sites of indeterminate date may include some of prehistoric date, such as the possible ring-ditch, and all, with the exception of the site under discussion, are cropmarks with no surface expression.

The Delvin River formed the valley above which this monument sits. The Delvin rises near Garristown and enters the sea at Gormanston, forming the border between Meath and Dublin for much of its course. High ground flanks either side of the river, Knockbrack which lies about 3.5km to the east rises to 176m OD while Fourknocks ridge in Co. Meath is 158m OD. The site sits on a ridge below the higher ground of Mallahow (148m OD) and Cabinhill (143m OD) at 81m OD. The ground drops to the north and the Delvin River is at about 78m OD. The land is fertile and under both pasture and tillage. It is predominantly farmland, and the village of the Naul is the only village in the study area.

Figure 7: Digital Globe map showing recorded archaeological sites in Westown townland (Source: www.archaeology.ie).

5.3 Prehistoric

The coast has seen evidence of some of the earliest human habitation in the area, with records of shell middens being found from Malahide to Balbriggan (Baker 2009, 90). Recent excavations in Balbriggan by Steven McGlade uncovered a multi-period site with an extraordinarily long-lived trackway that had its origins in the Mesolithic period (Excavations 2016:150, Licence No. 15E0586). No evidence of Mesolithic activity has yet come to light in the study area around Westown.

The mouth of the Delvin is notable for the presence of two passage tomb complexes; Gormanston on the north bank where two tombs survive (ME028-020-21) and Bremore on the south side (DU002-001001-5; Rynne 1960). It is likely that for early settlers the river provided a routeway westwards inland and so the presence of the Neolithic to Early Bronze Age complex on Fourknocks ridge (ME033-028001--, ME033-02900 and ME033031) which lies 2.2km south across the Delvin River from the mound at Westown is not surprising. The passage tomb is cruciform with later bronze age burial insertions. It is 20m in diameter and is about 4m in height. The undisturbed passage grave was excavated by P.J Hartnett in the early 1950's Hartnett 1957 and 1971) and subsequently reconstructed by the Office of Public Works (Cooney 2005, 4).

Fourknocks II, a second mound is situated to the east and it and a third mound, Fourknocks III were also excavated by Hartnett in the early 1950's although they have not been restored (Hartnett 1971). Fourknocks II comprises of a neolithic mound measuring 28m by 24m and around 4m in height with a surrounding ditch. The mound itself comprises of a bell-shaped cairn with a trench placed transversely to it.

Plate 5: Aerial view of Fourknocks 1 facing south (Source: www.discoverboynevalley.ie)

During the bronze age, cist burials were inserted into the mound. Fourknocks III is a smaller mound of about 13m in diameter and 2m in height. Excavation revealed a central pit containing cremated human bone and higher deposits revealed an urn with cremated human remains of a child.

Hartnett's excavations demonstrated the multi-period nature of the sites on the ridge, and Heather King's excavations in Fourknocks further east along the ridge brought to light habitational activity ranging in date from between 4305 ± 45 BP and 2275 ± 30 BP (King 1999, 157).

A monument which lies to the east of these sites on the ridge in Herbertstown (ME034-004----) has had an 18th century folly built on it. Its location and form suggest that it is a possible passage tomb.

Plate 6: View looking south of the possible passage tomb in Herbertstown

Photo courtesy of Ian Lennon

Enclosures of possible Late Neolithic to early Bronze Age date have been identified through aerial photography and LiDAR, and while the dates are not confirmed, and few have above ground expression (for example that in Fourknocks/Micknanstown, ME033-025----) that date is generally accepted for their initial construction (Stout 1991). It is noticeable that all those in the study area line on or north of Fourknocks ridge.

Hartnett appended a gazetteer of monuments in his 1957 publication (Appendix A), and he refers to a number of mounds which have possible kerbs or chamber stones or both. Two of these are in Naul (Co. Meath; Hartnett's nos 18 and 19) and they have been recorded as ME033-033 and 034. The latter monument from both the position of No. 19 on Hartnett's map (1957 Fig. 1) and the description is more likely to be where ME034-012 is recorded now. All three monuments have been destroyed.

About 2.5km to the north lies the prehistoric complex of Knockbrack on the highest point in this area. The top of the hill is enclosed by an enormous circular enclosure encompassing 8.5 ha and with a diameter of 350m N/S by 330 E/W (Dowling 2015, 6). Both field survey (Keeling 1983) and geophysical survey (Dowling 2015) have recorded the presence of several mounds and probable ring-ditches or ploughed out barrows on the hilltop, and though a date somewhere in the middle to late Bronze Age was argued for by Keeling (1983, 70) Dowling argues that on the basis of the location and proximity to Fourknocks, together with the high position that a Neolithic date cannot be ruled out for some elements (Dowling 2015, 5).

Barrows, mounds and ring-ditch type monuments been identified not only in the Westown Townland itself but in its surrounding townlands such as Naul, Rath Great, Loughmain, Flacketstown, Mallahow to the East and South and Herbertstown, Tullog and Hodgestown to the North (see appendix 1). A mound, described in the records as a barrow – mound, (ME034-006) is in Tullog, slightly outside the study area, but a dominant feature on the landscape. It too is known as a Moat locally, but clearly is a prehistoric monument, albeit partly quarried in the past giving it an asymmetrical aspect.

Plate 7: View of Moat Hill from west (Photo courtesy of Ian Lennon)

There are five barrows recorded as Barrow-Unclassified; one is the barrow under discussion, in Westown, two are in Fourknocks townland, ME033-030---- and ME033-031---- , the latter excavated by Hartnett (1971), and two on Knockbrack, DU004-012004- and DU004-012007-.

Ring-ditches, assumed usually to be later prehistoric burial monuments, have been identified in the study area. Twenty-five ring-ditches occur, all are cropmarks and therefore their date is assumed to be Bronze Age to Iron Age, but it's likely that if excavated some may belong to a different period and have a non-burial function.

A total of 22 enclosures in addition to those a Knockbrack and Fourknocks/Micknanstown already mentioned are within the study area. A site listed as a ringfort in Grange (ME033-024----) has a diameter of c. 70m and has been re-classified as a possible henge. Another in Herberstown (ME034-034----) has been noted as a possible landscape feature.

Dating the remainder, many of which are about 30m in diameter (where dimensions are given), is difficult given the lack of surface expression or indeed of any excavations. The size is similar to that of many ringforts which would indicate a medieval date, and the presence of possible field systems with some, eg Westown (DU004-004—and DU004-077) may support this, though again a later prehistoric date is also possible.

5.4 Medieval

Two ringforts are recorded in Naul townland (ME034-031---- and ME034-032----) both identified as cropmarks. Both have the suggestion of an outer fosse and so may be multi-vallate in form. A ringfort in Loughmain, (DU004-074----) also has cropmark evidence for a possible internal structure. One in Bodington (ME033-061----) is noted as having a possible entrance at the NE.

Two enclosures, one in Westown (DU011-165----) and one in Naul (ME033-072----) are square and rectangular respectively suggesting a possible medieval date.

A souterrain was recorded in Flemington (ME033-027----) situated just south of the medieval church (ME033-027----) in Clonavey, just outside the study area.

In Westown, both the presence of a tower house (DU004-043001-) and the remains of the medieval vaulted basement at Westown House (DU004-043002-) represent evidence of Anglo-Norman settlement. Naul village itself is medieval in origin and was established in the late 12th century as Anglo-Norman manor. The remains of several medieval buildings (Appendix 1), including castles and a church are recorded at its core (Baker 2020) and Anglo-Norman settlement is also recorded at Mallahow (Motte DU004-020----).

Figure 8: Naul Castle, County of Meath, by T. Cocking. c. 1783-91 (Source: National Library of Ireland)

5.5 Modern Period

Moat Wood barrows lies on the western limits of Westown Demesne, an estate comprising of hundreds of acres.

Westown House (RMP DU004-043002-), a 7 bay mansion (see plate 4), is listed both on the National Monuments Website and the National Inventory of Architectural Heritage. It is an 18th century mansion which incorporates the ground floor of a medieval building. A castle is reputed to have been built on the site in the 12th century by Lord Beaulieue, though there is no evidence of this today. The 18th century house incorporates a portion of a late medieval tower house (RMP DU004-043001) and the ground floor of a possible late 16th / early 17th century hall (RMP DU004-043002) (www.archaeology.ie).

The most recognised family associated with this estate are the Husseys, who were resident from the 16th century to the 1940's. Around 1940, most of the land was sold to the land commission which was then divided out among small farmers in the area. The House remained in occupation until the 1960's, after which the property fell into disuse. The structural remains of the house and outbuildings were in relatively sound condition until the 1990's, until dressed stone and materials were 'salvaged' from the site. The renovation of the house was undertaken in 2016, following an archaeological impact assessment and archaeological monitoring (Sweetman, 2015)

In the Dublin Historical Record, Scully refers to the mansion in his 'Around Historic Naul' as the ruins of 'A respectable mansion of antiquated character in a highly timbered demesne containing a Rath, and commanding a magnificent view of the beautiful Roche valley' a quote he states was taken from 'a book from the last century' (Scully 1974, 104).

The later 19th century gate lodge and entrance in the north-western corner of the former Westown Estate survive on the south side of the R122 road, in the grounds of the Three Gates Garden Centre and Nursery. The entrance is depicted on the 25-inch OS map of 1906-09 and it comprises four cut-stone, tall square pillars with three wrought iron gates (Crowley 2021, 99). It is interesting that the Moat Wood site, which predates the establishment of the Westown Estate was integrated into the estate's landscape to this day (Fig.7).

Plate 8: View of Westown house in ruins before restoration work was carried out.

5.6 Archaeological investigations

There has been a limited number of archaeological investigations in the area of Westown and its surrounding townlands with the exception of the major archaeological projects at both Fourknocks and Knockbrack.

Archaeological monitoring of drainage works was carried out in 2002 and 2003 at the site of the GAA Club, in the Clann Muire GFC grounds (Licence No. 02E0938). No archaeological remains or artefacts were identified (Powell 2002). Archaeological testing took place in 2004 (Licence No. 04E1261) at the Old Mill, Naul, which determined the development area was not archaeologically significant due to previous construction, landscaping and dumping (O'Hara 2004). In 2006/07 archaeological monitoring (Licence No. 06E0063) was undertaken at the Delvin Banks residential development across the road (south of) the Naul Church and Graveyard (RMP Nos DU004-045004 & -045005). No archaeological material features or deposits were identified (Kieran, 2007). In 2017, monitoring took place in the Naul in advance on a house project (17E0061). No archaeological material features or deposits were identified (Neilis, 2017).

In 2019, the Naul Community Dig took place ((Licence Nos 19E0480 and 19R0175). This involved a metal-detection survey and the excavation of two trenches to the rear of Naul Graveyard, in a field known locally as 'the Sexton's'. The aim of excavation was to identify possible remains of 19th century garden features and to inform future works, including a graveyard extension and community garden. It also sought to determine if there were any early surviving archaeological remains relating to the medieval core of the village. The excavation established that this field was used for cultivation from the 13th century onwards, though no trace was found of medieval houses or settlement plot boundaries. The artefacts recovered indicate the dumping of building materials – possibly from the cottages demolished on Main Street in the 1860s or the demolition of the post-medieval church building – and the continued use of the site for cultivation in the 19th century (Baker, 2020).

The closest investigations to 'Moat Wood' took place in 2015 when an archaeological inspection and monitoring at Westown House (DU004-043002-), in advance of its recent restoration, confirmed the presence and condition of the medieval remains (a late medieval barrow vault) on which the 18th century house was built (Sweetman 2015).

Also at the Ford De Fyne, investigations took place in 2008 at the quarry (08E242) close to mound (SMR ME033-034----). After geophysical survey had highlighted areas of archaeological potential, test trenching was carried out which revealed number of features including a curved ditch containing charcoal and animal bone (O'Hara, 2008). Additional testing in 2010 (8E242 Ext.) aimed to identify traces of the mound (of which no visible traces remain above ground) but no features relating to the monument were exposed.

Figure 9: Excavations carried out in the local area (Source: www.heritagemaps.ie)

5.7 Historical & Cartographic Evidence

The townland of 'Weston' is mentioned as early as 1408 in The Irish Cartularies of Llanthony Prima and Secunda**.** It is named as 'Westowne' in the 1654 civil survey (Civil Survey VII. 1654-1656; County of Dublin*)* and as 'Westown' in 1685 in Hiberniæ Delineatio by William Petty. It is referred to in the 16th century as 'Westown of the Naall' or 'the Weston of Naall' which emphasises its close associations with the medieval manor of Naul, as it is literally west of the town, hence its name. **(www.logainm.ie)**

The Down Survey and the Civil Survey both refer to Westown. The Civil Survey was so called because it was ordered by the Civil Authority and was taken from 1654-56. The Down Survey (so called because a chain was laid down and a scale made) was taken from 1656-58 under the direction of William Petty. It was, at the time, the most coherent mapping project ever undertaken in the world. In the Down Survey, the townland of Westown is recorded and the Hussey family are recorded as owners in both the 1640 and 1760 records (Fig.11 & Fig.12).

Figure 10: Extract from the Down Survey parish map of 1656 showing Westown below Naul (Source: http://downsurvey.tcd.ie)

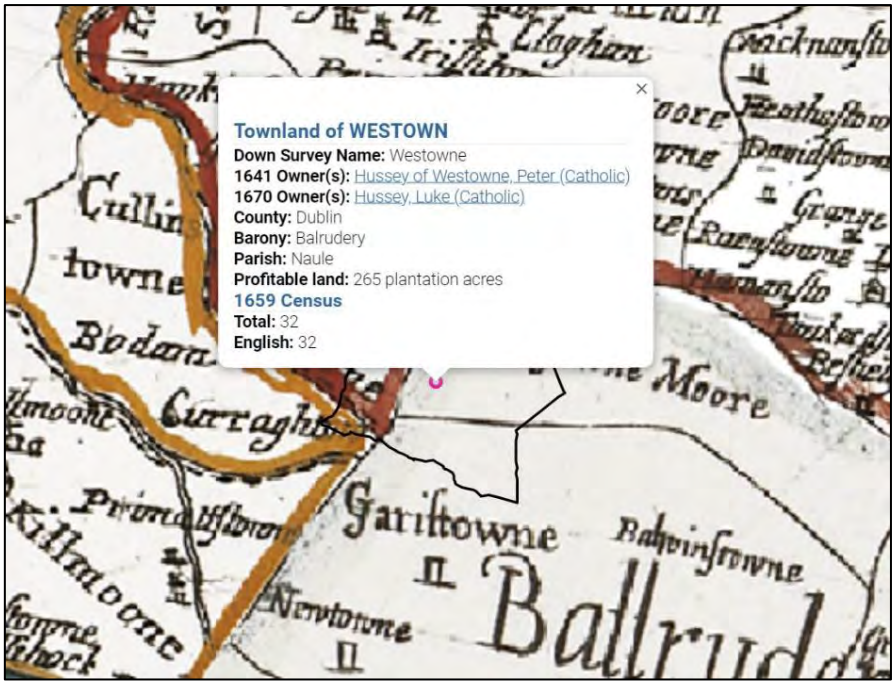


Figure 11: Extract from the Down Survey parish map of 1656 showing detail of the Westown Townland (Source: http://downsurvey.tcd.ie)

Rocque's 1760 map may contain the earliest depiction of the moat wood monument. Although it looks to be placed slightly more to the east a distinct circular feature is depicted in the same field as the monument is today (Fig.12).

Figure 12: Extract from Rocque's 1760 map showing the Westown Estate and possibly the Moat Wood monument highlighted.

(Source: https://www.dublinhistoricmaps.ie)

An entrance to the Westown estate is approached from the North, on a public road (now the R122) and this tree-lined carriageway entrance served with a gate lodge is visible on the second edition ordnance survey map, as is the Moat Wood monument (Fig.13). It is described on the 25 inch ordnance survey maps as a 'moat' (but not on the first edition) and the place name 'Moat Wood' indicates a belief may have been held that the monument relates to the time of the Anglo Normans.

The monument at Moat Wood survived the centuries, eventually becoming incorporated into a landscape feature on Westown Demesne from the 17th to 20th centuries and survives to this day.

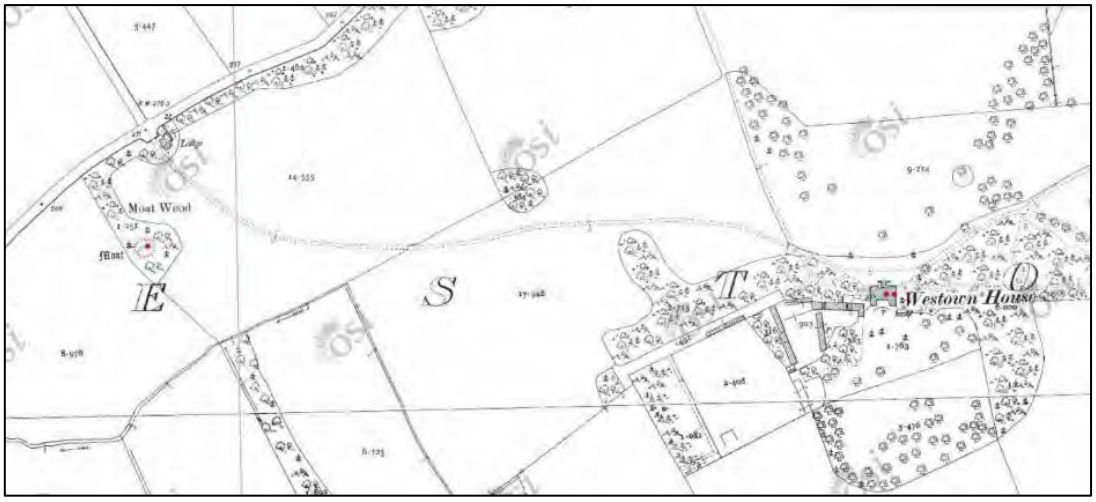


Figure 13: Second edition Ordnance Survey 25-inch map (1906-09) showing the northern entranceway to the Westown Estate and the Moat Wood monument (Source: www.archaeology.ie).

The Dúchas School's Folklore collection for the area was consulted. References were made to several 'moats' and 'fairy forts' in the area are made, however many relate to a monument at Mallahow (Castle-Motte DU004-020) and some relating to the mounds at kitchenstown. Unfortunately, none of the online Dúchas accounts directly reference Moat Wood.

Later references to 'Moat Wood' appear in a 1976 stroll of historical sites at Naul by An Taisce, Fingal.

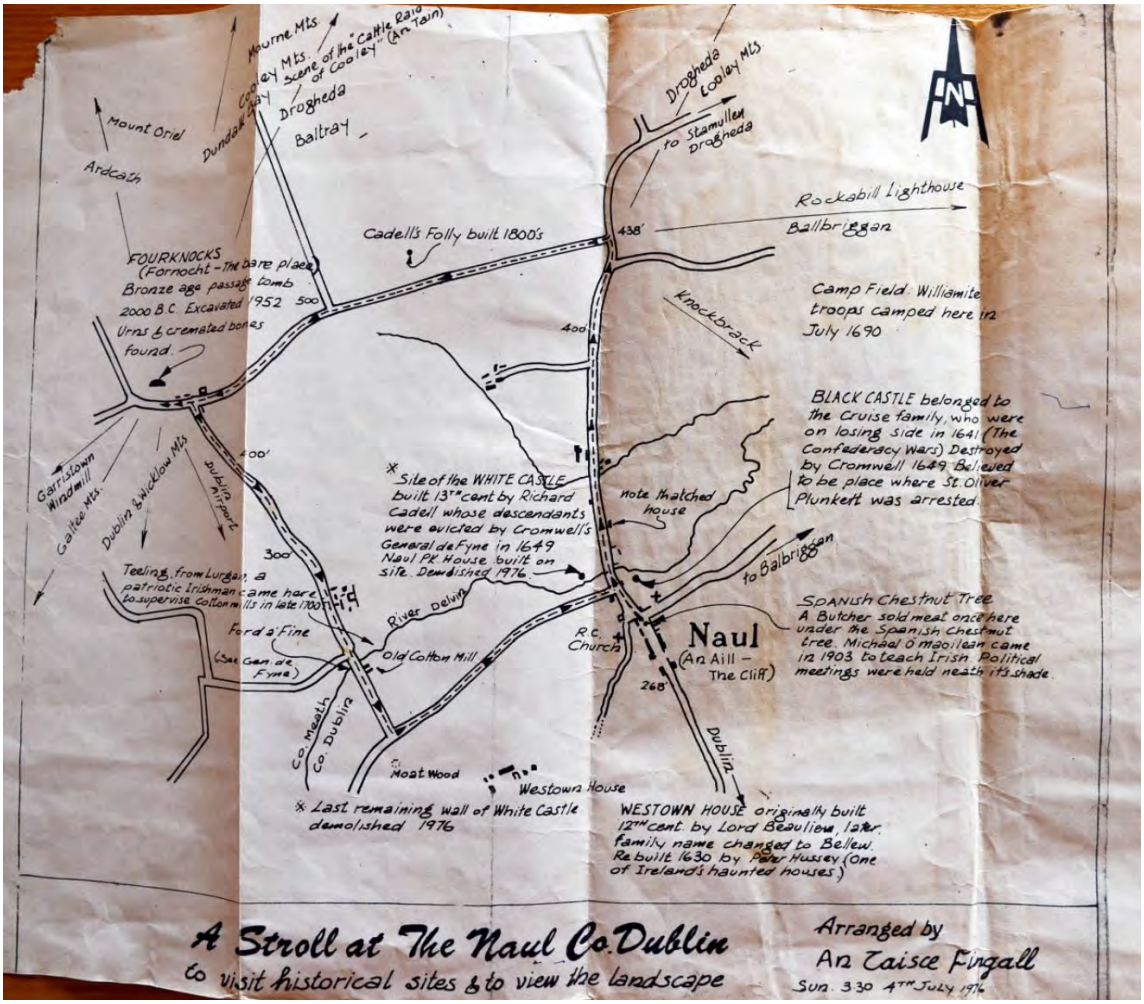


Figure 14: A Stroll at The Naul, Co. Dublin, 04/07/1976, An Taisce Fingal (Source: Joe Curtis)

6 Material Culture

An investigation of the topographical files for artefacts found in the townlands listed above, was carried out at the archives of the National Museum of Ireland (See Appendix 2). These artefacts have been recovered as stray or 'surface' finds from this area. A limited number were listed for only two Townlands (Naul and Fourknocks) and there were no records for the Townland of Westown.

Eleven Flint artefacts were recovered in the townland of Naul, nine of which were recorded as from 'the vicinity of the destroyed cairn'. This presumably relates to recorded Megalithic Tomb ME034-012---- which was destroyed by a quarry in the 1980's. The two other flint artefacts have a vague recorded location of 'soil brought in from the Naul Townland' and 'found near the Naul at Ballygrath Moat parish of Ardcastle' and so it is more difficult to give these an archaeological context. Two more objects were found in the Naul, a bronze chisel of which no location is provided and a stone object, a possible vessel, found 'in a cromlech near the Naul' again a location too vague for interpretation beyond the townland location.

The other four records found in this search, were all from the Fourknocks townland and relate to the passage tomb Fourknocks I (a polished stone axe head and an 'excavated assemblage') and the burial mound Fourknocks II (two 'excavated assemblages').

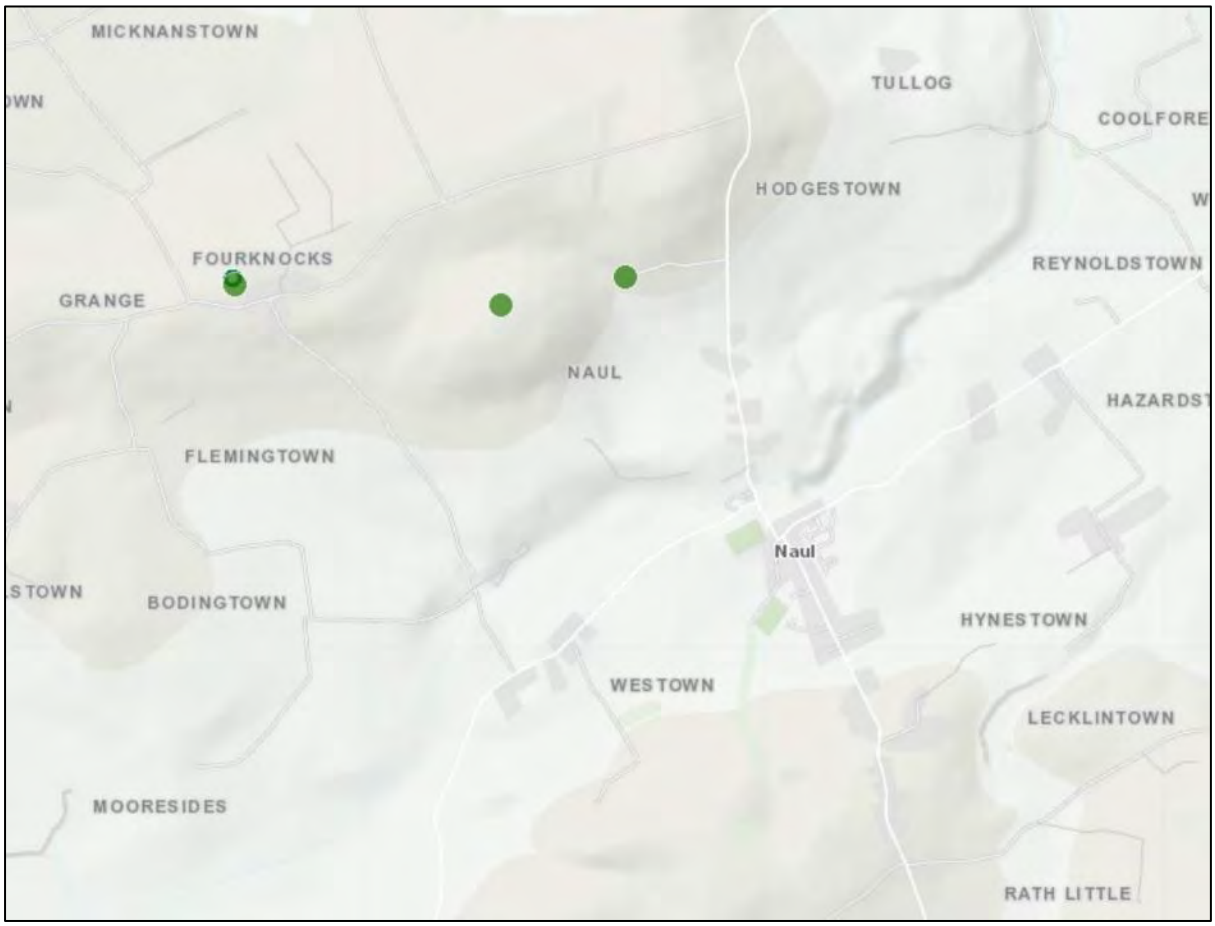


Figure 15: Locations of artefacts in the records of the National Museum in the local area (Source: www.heritagemaps.ie)

Somewhat surprisingly the assemblage from Heather King's excavation was not listed, nor was the collection of lithics found in the vicinity of Fourknocks by Sarah Cross in fieldwork for a Masters thesis.

7 Geophysical Survey

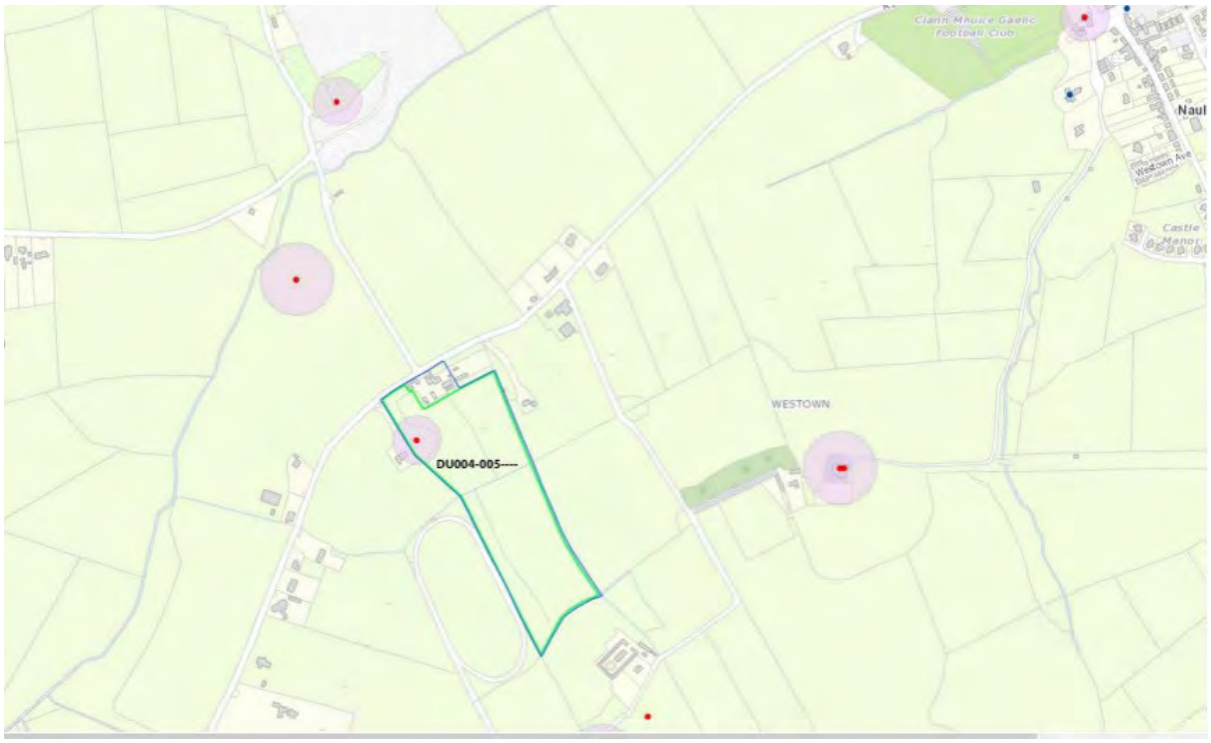


Figure 16: Extent of area subjected to geophysical survey

Between July 25th and August 4th and the 25th and 26th August 2022, a series of geophysical surveys were undertaken over Barrow DU004-005 and on lands surrounding the monument by Earthsound Geophysics Ltd. The full report for this survey can be found in Appendix 4.

The aim of the geophysical survey was to assess the archaeological potential in the vicinity of the Moat Wood site as well the characteristics of the monument itself. Detailed electromagnetic, topographical and earth resistance surveys were undertaken as well as lines of ground penetrating radar and electrical resistivity tomography. A survey area of 6.05 hectares was examined.

The methods used and the areas covered during this survey to uncover the archaeology of this landscape were:

1. The agricultural land surrounding the monument was investigated using electromagnetic resistivity surveys at a sample resolution of 0.5m x 0.25m.
2. The area within the vicinity of the barrow was investigated using earth resistance at a sample resolution of 0.5m x 1m.
3. A detailed topographical survey was also undertaken on this land as well as over the barrow.
4. The makeup and composition of the barrow was investigated using three lines of electric resistivity tomography and ground penetrating radar.

Results of the survey:

A series of previously unknown potential archaeological features were revealed through this survey.

The electromagnetic investigations of the land surrounding recorded monument barrow DU004-005 revealed a series of relict agricultural boundaries and what may be associated cultivation furrows. The orientation of these is different than the field boundaries now, but the earliest mapping which shows field boundaries, Rocque's map (see Fig. 12) seems to indicate a similar pattern to the present, so this system is likely earlier than the 18th century. The remains of the entranceway for Westown House was

also detected running through the survey area (M34). A number of the relict agricultural boundaries appear to interconnect with this feature suggesting that they are contemporary

The area was also found to contain a series of low and high resistivity areas which could be related to agricultural, geological or archaeological processes. On the southern edge of the survey area a series of arcing ditches were identified (M9, M10, M14) and M20, a larger oval ditch lay to the north of these.

At the northern end two small circular features (M52) could be hut sites or small ring-ditches. Areas showing wider impacts suggesting stonier ground were picked up in the resistance survey to the south of the monument on the slope, and could relate to its construction or activity in the area (E4).

The monument and its immediate vicinity:

The land surrounding the recorded monument was subjected to a series of high-resolution surveys consisting of high resolution topographical and earth resistance surveys as well as lines of electric resistivity tomography and ground penetrating radar. These surveys revealed the full extent and composition of the monument. Two distinct mounds were identified. The lower mound measures c.23.8m in diameter and 1.2m in height, has a relatively flat top and is surrounded by a possible enclosure ditch and agricultural features.

The upper mound has been placed on the centre of the lower and measures 10m in diameter and over 1m in height. This mound is more bulbous in formation and has no distinctive break in slope at the top. A circular expression measuring c. 4m in diameter and 0.2m in height sits on top of the upper mound. A central topographical expression measuring c.0.5 wide and 02m in height sits on top of this circular expression.

The internal structure of both mounds indicates that they appear to be built on the natural topography and contain multiple separate deposition events, it was impossible to tell if they represent one building event or are two mounds built at separate times one on top of another. One anomaly, R9 represents a break in the soil structure and a hard or compact object. This is located at the break of slope for the upper mound and a suggestion is that the mound was formed by the placement of large stones. There are some indications of internal features such as R11, an area of disturbed stone filled soil located in the centre and approximately 1.6m below the ground.

No evidence for excavation shafts were detected such as those that may have been dug by antiquarians and indeed no distinctive structure could be identified within the mound apart from a slightly off-centre zone of compact earth which contains numerous small deposits or stones. Located around 1m in depth this feature may be archaeological in origin or could represent the natural soil surface on which the mound was constructed.

Surrounding this mound, a possible enclosure ditch was detected as well as evidence for agricultural processes. Adjacent to the mounds evidence for arcing ditches, pits, stone deposits and banks was detected. While some of these appear to follow or respect the alignment of the mounds and are suggestive of archaeological remains others represent agricultural boundaries.

8 Biodiversity

Plate 9: Looking south at the monument prior to grazing; the landowner, Christopher White is in the foreground

An Ecological survey and biodiversity management plan was undertaken by Wildlife Surveys Ireland Ltd (See Appendix 5). Recommendations from this plan include:

1. Existing Hedgerows should be restored and maintained to achieve biodiverse, dense vegetation with a wide base.
2. The trees on the site should be regularly checked for disease and damage. If required, they should be pruned by a qualified tree surgeon. It is important to retain cracks, crevices, and hollows. The large Oak tree may be a Leisler's mating perch. If it is safe, dead trees should be left standing, to provide dead wood habitat and provide hollow nesting sites, which are increasingly rare.
3. A bat box scheme to be put in place. It is recommended that Bat boxes should be placed in the trees.
4. A barn owl nest box could be erected on or near to the site.
5. Exclude large farm animals and equipment from the site. Trampling and foraging by large farm animals, movement of farm machinery, and keeping fodder leads to changes in the structure of soil and flora.
6. Encourage ground nesting of Bees and Wasps. Keep the exposed bank currently hosting ground nesting solitary bees bare.
7. Create a Nature trail with information such as the species found during the study and the importance of dark sky areas. Links on the trail could be given via a QR code which would lead to further information such as a local person speaking about the wildlife, an expert, or an animation.
8. An annual public event should be held, where an expert gives a talk and information on the flora and fauna in the area. It would be interesting to get an expert on fungi, as there are several species of fungi on site. Other experts could include experts from Butterfly Conservation Ireland, Bat Conservation Ireland, and The Irish Wildlife Trust.
9. Walkways should be built, and visitors encouraged to use to avoid trampling and destroying hedgerows.
10. To keep the top and banks of the barrow open cut the grass once or twice a year and managed as a hay meadow. This will encourage growth of more broadleaved herbs and will provide food for pollinators.

9 Climate Change Risk Assessment

With our changing climate comes potential risks and impacts to our cultural heritage assets. Increased precipitation may expediate natural processes, such as mechanical weathering, flooding and soil instability. Conversely, with increased frequency of dry weather events there are potential risks, such as changes to the structure of soils and groundcover vegetation which may play a role soil stability at cultural heritage sites.

The monument at Moat Wood is an earthen archaeological monument located in the east of the country, where there has been evidence in recent years of an increase in drought conditions (The Irish Times, 2021). As the intensity of weather events increase, it is pertinent to assess the potential risks to our cultural heritage assets, such as the monument at Moat Wood.

In July 2021 Fingal County Council's Heritage Office published the *Fingal Cultural Heritage & Climate Change Risk Assessment*. The Assessment toolkit examines natural hazards and climate change risks to over 2,200 cultural heritage assets in Fingal. Six natural hazards were selected to inform the assessment, including fluvial flooding, pluvial flooding, groundwater flooding, coastal flooding, coastal erosion and slope instability. Historic Gardens, Designed Landscapes, ACAs, RPS, NIAH sites, Monuments and geological heritage sites were all included in the risk assessment. Datasets, such as flood maps, GSI datasets, Meteorological data, Heritage Maps and a wide spectrum of data sources were used to inform a risk quantum for each of the cultural heritage assets in Fingal included in the assessment. The findings and individual risk assessments were mapped on GIS datasets and are available to consult online (https://www.fingal.ie/sites/default/files/2021-07/fingal-cultural-heritage-risk-assessment-report_1.pdf).

The monument at Moat Wood (ID: A0258) was noted as having a total risk score of 8, with Pluvial flooding (Risk Score: 3) and instability (Risk score: 5) identified as the biggest pressures on the site. The wider heritage asset of Westown House (ID: A0049) was noted to have a total risk score of 25, with instability (Risk score: 20), Fluvial flooding (Risk Score: 6) and Pluvial flooding (Risk Score: 3) identified as the biggest pressures on the designed landscape at Westown. The risks identified for the monument at Moat Wood and Westown Demesne will inform any future measures at the site.

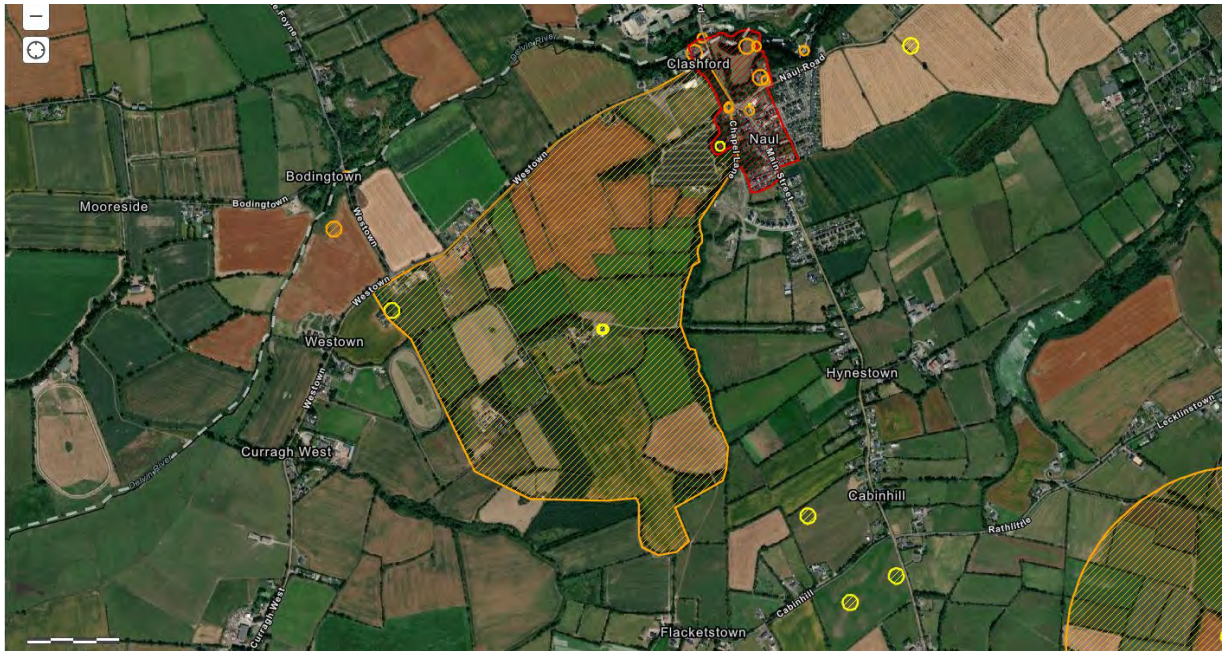


Figure 17: Extract from the Fingal Cultural Heritage & Climate Change Risk Assessment online map (Source: https://luc.maps.arcgis.com/home/webmap/viewer.html?webmap=d3ab54100756429e803104c490f8131e)

10 Community Engagement

An open day was held on October 29th, 2022, to inform the wider community about the project. Donna Mullen and Brian Keely of *Wildlife Services* were present to discuss the biodiversity of the area, along with Goska Wilkowska (botanist). Information gathered from their survey was shared and best practices for future enhancement of the biodiversity at the site was discussed. Donna, a *Farming For Nature* ambassador, discussed ways in which the site could be managed for net biodiversity gain while protecting and enhancing the archaeological context (See: https://www.farmingfornature.ie/

Plate 10: The local community engages with biodiversity

Finola O'Carroll of TAP Ltd. was also on hand to discuss what was known about the archaeology of the monument and the wider area, and to show the results of the geophysical survey. Members of Naul Community Council organised the event and it attracted a good attendance. Afterwards the attendees were invited to fill in a questionnaire which 15 people did, asking about their interest in heritage and how they would like to be able to engage with it (See Appendix 6). The reaction to the day was very positive.

Plate 11: Members of the local community at the open day.

11 Assessment of Significance

The barrow at Westown, Naul has intrinsic significance because of its form, its context, its long survival and the ecology it supports.

11.1 Archaeological Significance

The monument is a Barrow, in the NMS records it is listed as Barrow – unclassified, but its form suggests that it better relates to the category of stepped barrow, similar to a Bell-Barrow in the UK. Only 63 stepped barrows have been so classified out of the thousands of barrow monuments in the country. Without further study the category and date to which it may belong are poorly understood, though it is definitely prehistoric in general date. The detailed topographic survey and the geophysical report provide a very useful basis on which further comparative studies can be built. Its occupation of an elevated site above the river valley in an area that has notable prehistoric monuments from the Neolithic onwards provide the context in which to further explore this important monument and to understand the significance of what appears to be a relatively unusual monument form in this area.

11.2 Historic Significance

This monument, unlike so many barrow monuments countrywide, has survived relatively intact. Its position within a demesne landscape has provided protection as it was effectively incorporated into a managed landscape associated with the earlier castle and later 'Big House' at Westown. It did not suffer the same fate as many similar monuments in recent years, of being ploughed down, but instead has been carefully preserved by the family who currently have owned it for three generations.

11.3 Ecological Significance

While the site overall contains predominantly a dry meadows and grassy verges type habitat which is common, but still important, the presence of trees giving a Treeline habitat which provides feeding and nesting opportunities for a variety of fauna is deemed significant. The site hosts a small bat and visiting badger population, along with ground nesting solitary bees. There is a wide variety of birdlife in the area.

11.4 Amenity Significance

Presently the site can only be accessed by the landowners and by small groups given access on an arranged basis in an informal way. The goal is to allow access in a safe way which doesn't adversely impact the monument to interested visitors, who may simply be coming to the Garden Centre, or who may travel specifically to see it. It would provide a pleasant goal for a cycle or walk and it is hoped it would ultimately be part of a wider heritage loop of the area. There are educational opportunities for heritage and biodiversity related learnings for local schools and local groups, such as the walking and cycling groups, gardening groups and others in the immediate area.

11.5 Community Significance

A very active community group in Naul village (Naul Community Council) is working to promote the area for the enjoyment of local people and visitors alike. The Westown estate is very much part of the local landscape and the heritage of the area part of the collective consciousness. At the community open day, the interest shown in the monument was notable and in the idea that it would be accessible, both physically and through the dissemination of information about it was clearly important.

12 Issues

Recognition of current issues, conflicting concerns between the current management regime and that proposed by the studies carried out as part of this process and unintended consequences that might arise as a result of the objectives of the plan coming to fruition need to be set out so they can be addressed.

12.1 Archaeological Research

The remote sensing surveys identified not just the makeup and extent of the monument but indicated a considerable number of potential features in the fields in which the monument sits and those directly adjacent belonging to the landowner.

The existence of these features means that all works relating to presentation and access need to be cognisant of their presence and methods that have the least impact employed.

The lack of knowledge of the actual category of the monument needs to be addressed through research to fully understand what it might be, and this may extend to the need for some ground-truthing of the remote sensing, both adjacent to the monument and on it to confirm form, function and date, if possible.

12.2 Vandalism and Metal Detecting

The site has survived to the 21st century in remarkably good condition. The objective is to ensure its continued survival in the same condition. Fortunately, vandalism is not a current threat to the monument, but consideration of that possibility would have to be considered. Alerting the wider public to its existence may bring some unintended consequences.

Metal detecting without a licence issued by the Minister of Housing, Local Government and Heritage is illegal. Fortunately, it has not so far been an issue at this site but may become so without vigilance.

12.3 Management Issues

There are a number of issues relating to the site which would have to be addressed in the medium to longer term if the objectives of the management plan are to be realised.

As the site is in private ownership and the landowner and Naul Community Council wish it to be accessible without imposing a charge, but with the proviso that access is only during the business hours of the garden centre. Any management issues have to be compatible with the present use of the site as grazing land for sheep. A donkey has been quartered here for a while but has been re-located to another field. This means that provision of walking surfaces, hard standing if signs are to be provided and so on must be done using methods which protect against degradation of the surfaces while allowing grass to grow.

The baseline surveys produced so far provide an excellent starting point for ongoing monitoring of the condition of the site, in order to assess if the increased access is causing any negative impacts on its fabric.

12.4 Wider issues and contexts of access

One principal purpose of the management plan is to encourage visitors to the site, both from the immediate hinterland and from the wider area. It is not intended to provide parking additional to that which currently serves the needs of the garden centre, or a separate entrance. A bicycle rack could be provided, and local bus services may extend to the site and beyond. While the road is a regional road, it is not ideal for walking on as a footpath only extends from the Naul as far as the GAA grounds.

It may be necessary to review insurance issues and formulate policies relating to visitor access in detail prior to allowing access to ensure that the landowner and the community council are protected from

costs arising from potential claims from those granted access. It remains to be seen whether the site could accommodate large scale visits from commercial entities who visit other monuments in the area, notably Fourknocks.

12.5 Biodiversity

The recommendation from the biodiversity management plan was to remove all stock and have a twice-yearly mowing regime. This may not be compatible with current usage and further advice and strategies may be needed. Similarly, the recommendation to keep certain areas free of growth for ground nesting bees may not be feasible unless a grazing regime continues.

12.6 Interpretation

It is not intended to provide guides at the site, but interpretative materials using best practices will be provided (see https://www.heritagecouncil.ie/content/files/bored_of_boards_1mb.pdf and https://www.fingal.ie/sites/default/files/2021-06/a4-fcc-hertiage-signage-booklet-eng-web.pdf) . These may take the form of one information panel close to the entrance area or on the grounds of the Garden Centre, and ideally a QR code giving access to digital signage which could have links to materials such as the geophysical and biodiversity reports, provided they can be hosted on an appropriate website.

13. Opportunities

The process of compiling the information gleaned from this baseline study of the site suggests that there are multiple opportunities for further research, benefits long-term to biodiversity and potential benefits to the local community arising from implementation of the intentions of this plan.

13.1 Archaeological Research

The production of a comprehensive geophysical survey, tomographic survey and topographical survey together with a desktop survey of sites and artefacts in the wider area as part of this process has provided an excellent basis for future study of the monument and its immediate and wider environs. There are opportunities to ground-truth some of the findings of the geophysical survey by means of very targeted excavation, both in the immediate environs of the monument and on the monument itself. This aspiration would be subject to the securing of funding by some means and appropriate approvals.

There are also opportunities arising for further study of similar monument forms, given the excellent baseline information the remote sensing has provided. Such studies would help to situate the monument within its cultural and regional context.

13.2 Community Participation

Although the site is presently in private ownership the intention is to make it available to the community as a resource and amenity. This can be achieved both by making it accessible in the ways described but also by engaging in open days on aspects of the site, its archaeology, history, and biodiversity. An objective of the Council would be to see community participation in surveys or even excavations at the site and to build awareness of it, while being mindful of the potential threats that might arise also.

13.3 Education and Dissemination

There is already a considerable body of information amassed on which to build. It would be of great benefit to see the site included in wider research programmes, be they post-graduate theses on the particular monument form or research into the wider archaeology of the area. There are also plenty

of opportunities to engage school children with all the aspects of the site and this could be done by liaising with schoolteachers in the area.

13.4 Collaboration

There are opportunities for collaborative work across various disciplines; students of historical geography / of demesne landscapes and relevant areas of study might be drawn to look at Westown, as this is a good example of the incorporation of earlier monuments into the landscaping of an area.

13.5 Tourism and Recreation

The area around the Naul is very popular with cyclists who find the hilly countryside an interesting challenge. Others are attracted to the roads around the area for walks, especially up on Fourknocks ridge where there are excellent views, and the passage tomb can be accessed, (albeit by getting the key on production of a refundable fee from a house 1.6km from the site). The provision of another focal point where there is both something of interest, and possibly a picnic table to sit at and rest awhile could make this an attractive part of the local and wider recreational offerings. It is not too much of a leap to see this being attractive to visitor from further afield also. The integration of this site into some form of looped or linear heritage trail would be welcomed by the local community, although this would require discussions with other landowners in the area, as at present there is no footpath infrastructure outside Naul Village.

14. Policies

The policies set out below are considered appropriate to the nature of the monument and its archaeological and historical attributes, its regional significance and its ownership status.

14.1 Policy 1: Protection of the Monument

Policy 1.1

Acknowledge the protected status of the monument which is listed on the Record of Monuments and Places under RMP number **DU004-005** (Fig.2) and is protected under the National Monuments Act 1930 – 2014. It is also a Recorded Structure on the RPS of Fingal (No. 0115) and protections under both mechanisms must be observed and built into any proposals for works to it.

Policy 1.2

Ensure that the protection and conservation of the site is in line with Heritage objectives and policies contained within both the current Fingal County Development Plan 2017-2023 and subsequent policies contained in the forthcoming Fingal County Development Plan 2023-2029. The CMP will align with policies in the existing Fingal Heritage Plan 2018-2023 and the forthcoming *Fingal Heritage Plan 2023-2029*. The Moat Wood CMP is also aligned with the new National Heritage Plan, *Heritage Ireland 2030: A Framework For Heritage.*

Policy 1.3

Ensure that the immediate context of the site is given equal consideration and protection as the visible monument, especially in light of the results of the geophysical programme.

Policy 1.4

Ensure the protection and conservation of the site. Its setting must also be protected while acknowledging that it is in private ownership and a working Garden Centre lies adjacent to it.

14.2 Policy 2: Conservation and maintenance

Policy 2.1

No works shall be undertaken on or in the vicinity of the monument without prior notification to the National Monuments Service, as per the National Monuments Acts 1930 – 2014.

Policy 2.2

All works must be carried out by appropriately qualified personnel.

Policy 2.3

Ensure that all works undertaken are informed by a clear understanding of the monument and the site and take cognisance of the relevant ICOMOS charters.

Policy 2.4

Develop a methodology to ensure periodic monitoring of the condition of the monument to assess the impacts of increased visits to the site in conjunction with an appropriate maintenance regime.

Policy 2.5

Ensure an appropriate regime of maintenance of trees and hedgerows is put in place and recognises the recommendations of the biodiversity management plan.

14.3 Policy 3: Information and Research

Policy 3.1

Encourage research into the site by interested parties. Any research, including possible invasive programmes must be fully compliant with the appropriate legislation and the objectives of the management plan

Policy 3.2

Implement the recommendations of the 2022 Biodiversity Management Plan, as appropriate, bearing in mind the best strategies to marry the needs of the owner, the ecology and archaeology.

Policy 3.3

The results of any research undertaken on the monument may inform future changes to the management and interpretation of the site.

14.4 Policy 4 Access and Presentation

Policy 4.1

Develop an appropriate strategy to manage access routes on the site such that walking, grazing or mowing can continue without impacting on the archaeological assets.

Policy 4.2

Develop interpretative strategies appropriate to the monument, such that there is minimal sub-surface or visual impact. Digital signs are considered highly useful for dissemination across a wide audience cohort, see https://www.heritagecouncil.ie/content/files/bored_of_boards_1mb.pdf. Any interpretative interventions must be guided by the *Fingal Heritage Signage and Heritage Trail Guidance* document, see: https://www.fingal.ie/news/heritage-signage-heritage-trail-guidance-fingal-county-council.

Policy 4.3

Promote the Moat Wood, Westown monument as a cultural asset for the locality and region and strengthen links with other historical sites in Fingal and Meath.

15 Actions & Objectives

The management plan, has, at its core the protection, preservation, and presentation of the monument. It has survived reasonably intact down through the centuries, possibly both by chance and design, but the intentions of the current owners and Naul Community Council are focused on its continued preservation as a priority, while facilitating greater access to raise awareness of it.

As a recorded monument and a protected structure there are specific steps that must be taken before any potentially impactful works are carried out. Continued consultation with the Heritage Officer, Fingal County Council is ongoing, and permissions from the National Monuments Service where applicable are mandatory for all works to the site. All strategies for works relating to its interpretation and presentation shall take cognisance of the baseline surveys that form part of this document.

Short-term Objectives - 2022/2023

15.1 Agree a balanced grass management regime compliant with the biodiversity recommendations and appropriate to the needs of the landowners. This may include grazing by sheep for all or part of the year.

15.2 Maintain the monument free of briars and other scrub and agree a plan to restore the hedgerows surrounding the monument and which also provide a legible boundary to it to encourage biodiversity.

15.3 Repair fencing and make sure it is stock proof. Trim roadside hedging to make the monument visible from the road

15.4 Replace heras fencing panels with appropriate field gates in keeping with the characteristics of the designed landscape of Westown Demesne and nearby ironwork at the gate lodge.

Medium Term Objectives - 2023 Onwards

15.5 Prepare a site access plan. This may identify a need to instal localised ground protective material, where essential, on approach to the monument. Surface mounted methods shall be employed, negating the need for excavation in any intervention, to allow access around to monument.

15.6 Seek advice on whether access onto the monument should be provided and whether similar grass-stabilising materials will be sufficient to protect it.

15.7 Prepare an interpretation plan for the site. Any physical interpretative elements shall be unobtrusive, restricted, be cognisant of the setting of the monument, which is also a protected structure in a historic designed landscape. A carefully selected material palette for interpretative elements and site tactile elements (gates etc.), with minimal impact detailing, such as surface mounting on free-standing trestles etc. shall be coordinated in a site strategy plan.

15.8 Prepare a non-fixed seating layout plan for picnics and resting, designed in natural material finishes, near the site access, visually impinging on the monument landscape setting (where existing collapsing sheds are located NE of monument) in locations not intruding onto the monument and protected by grass stabilising materials.

15.9 Allow access to the picnic area from garden centre. This area may be immediately outside the field which contains the monument and a stile may allow access to the enclosure site (Moat Wood boundary) from the adjacent field.

15.10 Manage access to the monument in a controlled way to avoid damage, access may be managed through the opening hours of the garden centre, bearing in mind a private residence is on site. Instigate a monitoring programme when the monument site is accessible on a daily basis.

15.11 Develop community activities and events around the monument to promote awareness locally. This may include visits from schools in the area and heritage groups in the wider area.

15.12 Foster links with any heritage trails and initiatives which might be developed in the area.

15.13 Coordinate a seamless integrated access from the garden centre area to the 'Moat Wood' boundary enclosure and monument. This shall be done in such a way that visitors to the garden centre/site will have access to view the monument, the site may act as a destination for short visits.

15.14 Ensure that any plans intended for the garden centre are cognisant of and in keeping with the objectives as set out in the CMP.

16. Implementation

The implementation of the policies put forward in this plan should take place in compliance with legal requirements under the *National Monuments Acts 1930 to 2014*, the *Heritage Act 2018*, the *Wildlife Acts 1976 to 2021*, the *Planning and Development Act 2000* and other applicable legislation.

As the Moat Wood Conservation Management Plan is a living document it will be reviewed on a 5-year basis, with a mid-period review. The review period allows for assessing the progress made on the objectives of the CMP and addressing any issues which may arise. The review period may also allow for analysis to be undertaken on the CMP, which may identify future measures, if necessary, to protect and enhance the monument. Regular review also allows the incorporation of emerging policies, at local, national and international levels and the inclusion of evolving best practices in the context of the CMP implementation.

Implementation of the plan will require consultation and support from various bodies, for example the ongoing support from Heritage Office in Fingal, the National Monuments Service, Naul Community Council, and any funding bodies.

Most importantly, the implementation of the CMP requires commitment from all stakeholders involved, so that the CMP becomes a reality.

14. References

Baker, C. (2019) Archaeological Excavation Final Report. Naul Community Dig 2019, Rear of Graveyard, Naul Co. Dublin. Excavation Licence 19E0480. *Unpublished report, Fingal County Council.*

Baker, C. (2020) Naul Heritage Guide. *Fingal County Council*

Cooney, G. (2005) Fourknocks, Co. Meath—: inside a Neolithic world. *Archaeology Ireland Heritage Guide No.30.*

Crowley, C. (2021) The Heritage of Naul, County Dublin. *Unpublished report, Naul Community Council.*

Dowling, G. (2015) 'Exploring the Hidden Depths of Tara's Hiterland: Geophysical Survey and Landscape Investigations in the Meath-North Dublin Region, Eastern Ireland'. *Proceedings for the Prehistoric Society*, pp. 1-25.

Fingal County Council (2011) 'The Naul Local Area Plan'. Available at http://www.fingal.ie/media/Adopted_Naul_LAP_Text_for_web.pdf)

Fingal County Council (2018) 'Fingal Heritage Plan 2018-2023'. Available at https://www.fingal.ie/council/service/heritage-plan-2018-2023

Hartnett, P. J. (1957). Excavation of a Passage Grave at Fourknocks, Co. Meath. *Proceedings of the Royal Irish Academy: Archaeology, Culture, History, Literature*, *58*, 197–277.

Hartnett, P. J. (1971). The Excavation of Two Tumuli at Fourknocks (Sites II and III), Co. Meath. *Proceedings of the Royal Irish Academy. Section C: Archaeology, Celtic Studies, History, Linguistics, Literature*, *71*, 35–89.

Keeling, D. (1983). A group of tumuli and a hill-fort near Naul, County Dublin. Journal of the Royal Society of Antiquaries of Ireland 113, 67–74

Kieran, E. (2007) 'Archaeological Monitoring at Westtown, Naul, Co. Dublin on Behalf of Headland Property Holdings. Planning Number: F05A/0837'. Unpublished report: Moore Group. Available at https://archaeologymaps.compass.ie/Therefore_ArchaeologyReports/06E0063.pdf

O'Hara, R. (2004) 'Archaeological Assessment: The Old Mill, Naul, County Dublin. Licence No. 04E1261, Planning Ref. FA04A/0238'. Unpublished report: Archaeological Consultancy Services Ltd. Available at https://archaeologymaps.compass.ie/Therefore_ArchaeologyReports/04E1261.pdf

Powell, C. (2003) 'Archaeological Monitoring of Ground Works at Garristown Road, Westown, Naul, County Dublin. Licence number. 02E0938, Planning Ref. No. F01A/1456'. Unpublished report: Archaeological Development Services. Available at /https://heritagemaps.ie/documents/Therefore_ArchaeologyReports/02E0938_1.pdf.

Scully S. (1974), Around Historic Naul' in *Dublin Historical Record,* vol. 28, no. 3 (June 1975) 110-112

Stout, G. (1991) The embanked enclosures of the Boyne region. Proceedings of the Royal Irish Academy 91C, 245-84.

Sweetman, D. (2015) Report on Archaeological Inspection at Westown House, The Naul, Co. Dublin. Unpublished report.

Taylor, G. & Skinner, A. (1778) *Maps of the Roads of Ireland Surveyed 1777*. Published by the authors.

Darvill, T. (2009). *The Concise Oxford Dictionary of Archaeology (2ed.).* Oxford: Oxford University Press.

Grinsell, L. (1936). *The Ancient Burial-mounds of England.* London: Routledge.

Online Sources

Archaeological Survey of Ireland SMR Database (https://www.archaeology.ie)

National Inventory of Architectural Heritage (http://www.buildingsofireland.ie)

Ordnance Survey of Ireland Historical Mapping (http://map.geohive.ie/mapviewer.html)

Census of Ireland 1901, 1911 (Source: National Archives of Ireland https://www.census.nationalarchives.ie)

Discover Boyne Valley (http://www.discoverboynevalley.ie)

17th & 18th century Historic Maps of Dublin (https://www.dublinhistoricmaps.ie)

Down Survey, 1650s (Trinity College Dublin, https://www.downsurvey.tcd.ie)

Database of Irish Excavation Reports (https://excavations.ie/).

Google Earth (https://earth.google.com/web/).

Griffith's Primary Valuation (Source: Ask About Ireland, https://www.askaboutireland.ie)

The Heritage Council's web viewer for built, cultural and natural heritage data sets (https://www.heritagemaps.ie)

Placenames Database for Ireland (https://www.logainm.ie/en/)

Farming For Nature (https://www.farmingfornature.ie/)

Fingal Cultural Heritage & Climate Change Risk Assessment Online GIS Mapped dataset (https://luc.maps.arcgis.com/home/webmap/viewer.html?webmap=d3ab54100756429e803104c490f8131e)

Fingal Cultural Heritage & Climate Change Risk Assessment Report (https://www.fingal.ie/sites/default/files/2021-07/fingal-cultural-heritage-risk-assessment-report_1.pdf).

Appendix 1 – Archaeological Gazetteer

Appendix 1: Archaeological Site Gazetteer of sites within a 3km radius of Barrow DU004-005—and the Knockbrack complex

Archaeological Site Type	Enclosure
Statutory Protection	DU004-004----
Townland	Westown
Location	711873; 760520
Description	Located on a ridge under a crop of corn SE of the Delvin River. An aerial photograph taken in 1972 (FSI4.536/7) shows cropmarks of an enclosure (diam. c. 40m) and possible field systems radiating from the N quadrant. Not visible at ground level.

Archaeological Site Type	Enclosure
Statutory Protection	DU004-005----
Townland	Westown
Location	712070; 760258
Description	This barrow is situated on a hilltop under pasture beside the Naul to Fourknocks road and near the Ford of Fyne. A circular dome-shaped mound (diam. 15m; H 2.5m) which rests on a circular earthen platform (diam.30m; H2m). (Healy 1975, 16; Scully 1972-3, 103). Slopes down steeply to north and south to circular tree-lined enclosure. marked on the OS 25" as a 'moat'. Directly to the north on the other side of the Delvin is the Fourknocks ridge. When the grass is down large stones are visible.

Archaeological Site Type	House - 20th century
Statutory Protection	DU004-042----
Townland	Westown
Location	713160; 760947
Description	Shown on Roque's map of 1760. Attached to the N side of a public house in Naul village. This is a two-storey stone-building with a gabled and slated roof. The latter was reconstructed, and gables raised to give a Dutch Billy effect in the 1940s. The chimney projects mid-way along the N side of building. Formerly served as an inn (VBSCD 1993). This building probably dates from the post-1700 period.

Archaeological Site Type	Castle - tower house
Statutory Protection	DU004-043001-
Townland	Westown
Location	712760; 760213
Description	Located on a ridge under a crop of corn SE of the Delvin River. An aerial photograph taken in 1972 (FSI4.536/7) shows cropmarks of an enclosure (diam. c. 40m) and possible field systems radiating from the N quadrant. Not visible at ground level.

Archaeological Site Type	Building
Statutory Protection	DU004-043002-
Townland	Westown
Location	712767; 760213
Description	Westown House is an 18th-century mansion which incorporates the ground floor of a possible hall (Knight of Glin, Griffin & Robinson (Reprint 1889, 67; VBSCD 1993). The latter may be the building referred to in the Civil survey (1654-6) as a stone house, which was partly slated (Simington 1945, 33). In 1993 the mansion and rear courtyard containing finely built outbuildings were still in relatively good condition. The rear of the mansion and the outbuildings have since been demolished. Accessed by long grass tree-lined avenue leading westwards from Naul village. House facing north, three bay over basement. The main ground floor chamber has a broad, round arch opening in the south-east corner where an entrance down into a passageway is located, the roof of which contains brickwork and is secured with wooden joists. Rumoured to be some sort of tunnel but possibly leads to cellar/icehouse-externally to the north-west of the gable is an outer chute which possibly links the two. Area to rear of house has also been cleared-some architectural fragments stockpiled.

Archaeological Site Type	Water mill - unclassified
Statutory Protection	DU004-045001-
Townland	Westown
Location	713043; 761125
Description	The Civil survey (1654-6) mentions a cornmill at Westown (Simington 1945, 32). This was replaced by a flour mill erected by Arthur Mervyn between 1718 and 1722. The Old Mill ceased operations sometime between 1869 and 1906 and was roofless by 1934, when Oliver St. john Gogarty pondered the 'ruined ....

	roofless mill' in a poem he entitled The Mill at Naul. An archaeological assessment was undertaken (Licence No. 04E1261) prior to renovation. No archaeological finds or features were identified. (O'Hara, 2004).

Archaeological Site Type	Bridge
Statutory Protection	DU004-045008-
Townland	Westown
Location	713068; 761174
Description	The Down Survey (1655-6) map shows 'Naul Bridge' on the main route to the N from Swords through Rathbeale via Roganstown, the Naul and Dardistown to Drogheda. At present the river Delvin is crossed by a double-arched bridge which occupies the site of the earlier bridge. This has round segmental arches and dressing on the stonework.

Archaeological Site Type	Ring-ditch
Statutory Protection	DU004-076----
Townland	Westown
Location	712988; 759564
Description	Located towards the S boundary of a large arable field, c. 1.4km SSE of the Delvin River, which forms the Dublin/Meath boundary, and c. 1.1km SE of a barrow in Westown (DU004-005----). Positive cropmarks visible on Apple Maps coverage (June 2018) indicate the presence of a ring-ditch (ext. diam. c. 13m) defined by a ditch (Wth c. 2.5m). There are no clear indications of a gap through the ditch.

Archaeological Site Type	Enclosure
Statutory Protection	DU004-077----
Townland	Westown
Location	712371; 759737
Description	Located towards the NW boundary of an arable field. Site located c. 818m SE of the Delvin River, which forms the Dublin/Meath County boundary, and c. 601m SSE of a barrow in Westown (DU004-005----). Site bisected NW-SE by a later field boundary, now cleared (post c. 2012). Positive cropmarks visible on Apple Maps coverage (June 2018) indicate a subcircular enclosure (ext. dims c. 38m N–S; c. 50m E–W) defined by a ditch (Wth c. 3m). There are no clear indications of a gap through the ditch. An arrangement of 3 smaller sub rectilinear enclosures can be seen extending from the E perimeter of the primary enclosure.

Archaeological Site Type	Enclosure
Statutory Protection	DU004-087----
Townland	Westown
Location	712848; 759683
Description	Located towards the S boundary of a large arable field, c. 1.23km SSE of the Delvin River, which forms the Dublin/Meath boundary, and c. 922m SE of a barrow in Westown (DU004-005----). Positive cropmarks visible on Apple Maps coverage (June 2018) indicate the presence of a palimpsest of subsurface features, enclosures, and linear cropmarks. The main enclosure is circular in plan (ext. diam. c. 37m) defined by a ditch (Wth c. 2m). There is no clear indications of a gap through the ditch. To the N and W of the enclosure are other linear and curvilinear features, some of which may form smaller associated enclosures.

Archaeological Site Type	Enclosure
Statutory Protection	DU011-165----
Townland	Westown
Location	712447; 759809
Description	On a SE facing slope in tillage, a square-shaped enclosure visible as a cropmark. This monument (ext. diam. 28m NE-SW; 26 NW-SE) was first identified by Anthony Murphy on Google Earth imagery taken on the 24th of June 2018. This feature lies 65m ENE of a distinctive oval cropmark enclosure.
Image	

Archaeological Site Type	Cross
Statutory Protection	DU004-010002-

Townland	Naul
Location	713285; 761043
Description	The cross in the interior of the church in the Naul is monumental in nature and probably commemorative in function. It most likely dates from the 19th century.

Archaeological Site Type	Castle - tower house
Statutory Protection	DU004-045002-
Townland	Naul
Location	713246; 761151
Description	Located on the E edge of a ravine on the S bank of the River Delvin. The remains comprise the N end of an oblong three storey tower house. The southern end of the building, containing the staircase, collapsed in the 1960s. Built of coursed limestone masonry. There are remains of a double barrel-vault over ground floor. The second and third floors were originally of timber. There is a featureless doorway in W wall and a single-light ope with a splayed embrasure in the E wall on ground floor. Putlog holes are visible in the S and E walls. Traces of possible bawn wall project from the NE corner (Mc Dix 01 December 1896, 244; Healy 1975, 16). Described as an 'old castle' owned by Christopher Cruise in the Civil survey (1654-6) (Simington 1945, 30). The remains are completely covered in ivy which has resulted in structural damage. Geophysical survey (Licence No. 10R0077) was undertaken in the field where the castle is situated to inform the Naul Local Area Plan. A curvilinear respond perhaps representing an enclosing ditch around the tower house was identified. This response corresponds to a possible ditch and bank identified as a low earthwork. It encompasses an area of high responses west of the tower house (Harrison 2010, 6).

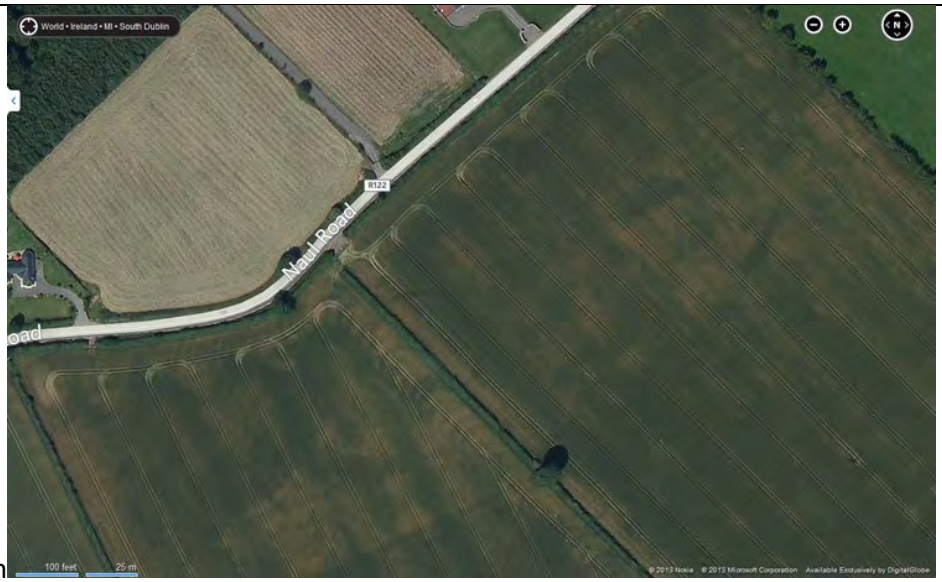
Archaeological Site Type	Ritual site - holy well
Statutory Protection	DU004-045003-
Townland	Naul
Location	713404; 761141
Description	A spring well at the bottom of a ravine SE of the River Delvin. Approached from an overgrown pathway. No longer venerated (Healy 1975, 16). The well is a chalybeate spring. Circa 2000, the owner capped the spring in a concrete structure (Skyvova 2005, 59).

Archaeological Site Type	Church

Statutory Protection	DU004-045004-
Townland	Naul
Location	713280; 761041
Description	Located in an elevated position in graveyard N of road in Naul Village. This is a plain rectangular building (int. dims. L 9.70m, Wth.5.10m) orientated ENE-WSW. The N wall is missing. Allegedly built as a chapel in 1710 according to wall plaque but the building retains earlier features indicating the re-use of a medieval building. The Civil survey (1654-6) described the medieval parish church in the Naul as ruinous with only 'the walles of ye parish church', standing (Simington 1945, 30). The interior is lit by a double-light ogee-headed window with transom in E wall and a plain double-light window in S wall. Chapel entered through pointed-arched W doorway with cable-moulding and pocked dressing (Walsh 1888, 244). Proportions of the extant remains are off. Locally held that the northern wall was never built.

Archaeological Site Type	Graveyard
Statutory Protection	DU004-045005-
Townland	Naul
Location	713262; 761049
Description	On the S bank of the river Delvin in the village of Naul. It is a walled graveyard that is square in plan (Dims 34m). There are the upstanding remains of a church in the interior (DU004-045-001). It has been extended in the NE. The interior is raised above the surrounding ground level and falls away to the N. The oldest grave slabs are in the W and S which are 18th-19th century date. Graveyard surveyed in 1992 (Egan 1992).

Archaeological Site Type	Enclosure
Statutory Protection	DU004-045009-
Townland	Naul
Location	713215; 761150
Description	Geophysical survey (Licence no. 10R0077) was undertaken in the vicinity of tower house (DU004-045002). A possible curving enclosure ditch was identified which corresponds to a possible ditch and bank identified as low earthworks. The ditch may represent an enclosing feature associated with the adjacent tower-house. A cluster of within the enclosing ditch may also indicate archaeological activity although no clear archaeological patterns are visible (Harrison 2010, 6).

Archaeological Site Type	Enclosure
Statutory Protection	DU004-061----
Townland	Naul
Location	713753; 761165
Description	A circular enclosure visible as a crop mark on an aerial photograph (SMR file; pers. comm. T. Condit). On high ground of a long east-west ridge, that slopes down northwards towards the road and river valley. Formerly used as a dump. No visible remains.
Image	om 

Archaeological Site Type	Mound
Statutory Protection	ME033-033----
Townland	Naul
Location	712021; 761863
Description	Oval mound (dims. 15m N-S, 12m E-W, H 2m) described as barrow (PRIA 1957, 266, site 18). Since destroyed.

Archaeological Site Type	Mound
Statutory Protection	ME033-034----
Townland	Naul
Location	711939; 760810
Description	Described as barrow, (PRIA 1957, 266, No 19). No visible trace.

Archaeological Site Type	Enclosure
Statutory Protection	ME033-071----
Townland	Naul
Location	713089; 762190
Description	Situated on a steep SE-facing slope. The cropmark of a subcircular or D-shaped enclosure (dims c. 33m NE-SW; c. 25m NW-SE) is visible on images recorded from a drone-mounted camera by Ian Lennon on 24/07/2021. It is defined by a fosse with the straight side that has a possible entrance gap at SE. The enclosure is at the W side of a large triangular field of field system (ME033-071001-) and is also faintly visible on Bluesky images (2018) and Google Earth (24/06/2018).

Archaeological Site Type	Field system
Statutory Protection	ME033-071001-
Townland	Naul
Location	713059; 762129
Description	Situated on a steep SE-facing slope. The cropmark of enclosure (ME033071----) is on the W side of and part of the perimeter of a large D-shaped or triangular enclosure (max. dims c. 110m NW-SE; c. 85m NE-SW) defined by single fosses or drains. Extending SW from this large enclosure is a series of at least four rectangular fields (dims c. 40m x c. 35m) defined by the cropmarks of drains that have not been recorded on any map. The entire area covers about 15 acres (c. 4.5 ha) and is visible on images recorded from a drone-mounted camera by Ian Lennon on 24/07/2021. The features are also faintly visible on Bluesky images (2018) and Google Earth (24/06/2018).

Archaeological Site Type	Enclosure
Statutory Protection	ME033-072----
Townland	Naul
Location	712634; 762216
Description	Situated on a steep S-facing slope. The cropmark of a rectangular enclosure (dims c. 25m E-W; c. 23m N-S) defined by wide fosses (Wth c. 2-3m) that are convex in plan and with rounded corners was recorded with a drone-mounted camera by Ian Lennon on 24/07/2021. There is a pit (diam. c. 3m) inside the NW corner. The perimeter at S is very slight and is aligned with an unmapped E-W field drain that conforms with the fields mapped on the 1836 and 1908 editions of the OS 6-inch map. It is also visible on Google Earth (21/07/2021).

Image	

Archaeological Site Type	Mill - unclassified
Statutory Protection	ME034-009----
Townland	Naul
Location	713175; 761212
Description	Information on this record is currently unavailable.

Archaeological Site Type	Castle - unclassified
Statutory Protection	ME034-010----
Townland	Naul
Location	712899; 761164
Description	Remains of 'Whitecastle or Snowtown castle' incorporated into Naul Park House. Original castle thought to have been built by Richard Caddell in the 13th century. The Caddell family were evicted by Cromwell's General De Fyne in 1649. Naul Park House was built adjoining the E of the castle c. 1800. The entire house was demolished in the 1980s. Ground floor footings remain. (pers. comms. Mr Colin Byrne, Briarleas, County Meath).

Archaeological Site Type	Enclosure
Statutory Protection	ME034-011----

Townland	Naul
Location	713132; 761857
Description	Located on a SE-facing slope overlooking a SW-NE portion of the Delvin River which is c. 500-600m to the SE. The remains of a circular enclosure are depicted on a Longfield map (1825) in NLI (MS 21F. 14/(011) in a field known locally as the 'Ringfield' (pers comm. Mr Colin Byrne, Briarleas, County Meath). Images of it were recorded on a drone-mounted camera by Ian Lennon in July 2020 where it appears to be a circular pit or quarry (diam. c. 30m).
Image	

Archaeological Site Type	Megalithic tomb - unclassified
Statutory Protection	ME034-012----
Townland	Naul
Location	713311; 761438
Description	Earthwork shown on Duncan's map (1821). Local tradition of mound with passage. Destroyed by a quarry c. 1980's (pers. comm. Mr Colin Byrne, Briarleas, County Meath).

Archaeological Site Type	Ringfort – rath
Statutory Protection	ME034-031----
Townland	Naul
Location	712179; 761193

Description	Located at the outer edge of a shelf on a SE-facing slope, at a break in the slope down to a SW-NE section of the Delvin River. The cropmark of a subcircular enclosure (int. diam. c. 30m NW-SE; c. 25m NE-SW) defined by a fosse SE-W-NW is visible only on Apple Maps which utilises a survey undertaken by Bluesky International during June 2018. An outer fosse can also be seen E-S-NW, but the defining features are obscured elsewhere by the tracks of vehicles.
Image	

Archaeological Site Type	Ringfort - rath
Statutory Protection	ME034-032----
Townland	Naul
Location	713517; 761982
Description	Located towards the bottom of a S-facing slope with a small WSW-ENE stream c. 40m to the S. The faint cropmark of a circular enclosure (int. diam. c. 25m) defined by a fosse was recorded by a drone-mounted camera operated by Ian Lennon on 30/05/2020. A very slight outer fosse is c. 2m distant at S and c. 8m distant at NE. No entrances are visible.

Archaeological Site Type	Enclosure
Statutory Protection	ME034-038001-
Townland	Naul
Location	712350; 761068
Description	Located towards the bottom of the steep S-facing slope in the valley of a SW-NE section of the Devlin River, with the stream c. 40m to the SE. The cropmarks of an

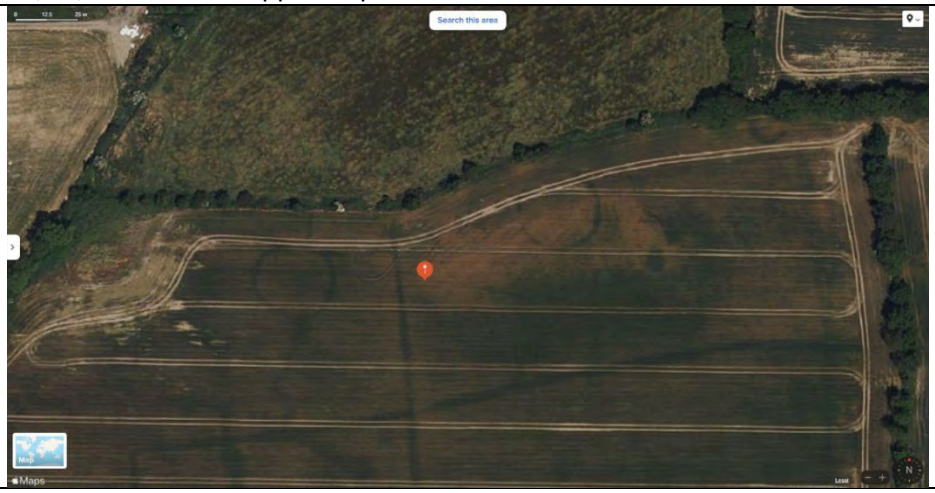
	enclosure with ring-ditch just outside it to the NE are visible on a digital image captured with a drone-mounted camera by Colin Byrne on 22/07/2021. The enclosure (diam. c. 35m) is defined by a single fosse that is very slight N-E. An internal feature (diam. c. 10m) with a blurred outline like a fosse could be a ring-ditch or a pit. An outer fosse encompasses the enclosure and the external ring-ditch on the SE side, but the N side unclear. It is also visible on Google Earth (2021).
Image	

Archaeological Site Type	Ring-ditch
Statutory Protection	ME034-038002-
Townland	Naul
Location	712360; 761095
Description	Located towards the bottom of the steep S-facing slope in the valley of a SW-NE section of the Devlin River, with the stream c. 60m to the SE. The cropmarks of an enclosure with a ring-ditch just outside it to the NE are visible on a digital image captured with a drone-mounted camera by Colin Byrne on 22/07/2021. The ring-ditch (int. diam. c. 10m) is defined by a wide fosse, and an outer fosse encompasses the enclosure and the ring-ditch on the SE side, but the N side unclear. It is also visible on Google Earth (21/07/2021).

Image	

Archaeological Site Type	Enclosure
Statutory Protection	DU004-091----
Townland	Flacketstown
Location	712542; 759008
Description	Circular-shaped cropmark (diam. c. 30m) visible on Google Earth orthoimage taken 24/06/2018 and on Apple Maps.
Image	

Archaeological Site Type	Enclosure
Statutory Protection	DU004-092----
Townland	Flacketstown

Location	712437; 758978
Description	Circular-shaped cropmark (diam. c. 30m) visible on Google Earth orthoimage taken 24/06/2018 and on Apple Maps.
Image	

Archaeological Site Type	Ring-ditch
Statutory Protection	DU004-093----
Townland	Flacketstown
Location	712625; 759041
Description	Circular-shaped cropmark (diam. c. 7m) visible on Google Earth orthoimage taken 24/06/2018 and on Apple Maps.
Image	

Archaeological Site Type	Ringfort – rath
Statutory Protection	ME033-061----

Townland	Bodingtown
Location	711240; 759710
Description	Situated in the shallow valley of the SW-NE Delvin River, with a SW-NE section of the stream c. 20m to the S. A circular grass-covered area (diam c. 40m) defined by a wide fosse feature (Wth c. 5m) is visible on Bing images. It is also visible on Google Earth (2009) where it has an entrance feature at NE.

Archaeological Site Type	Church
Statutory Protection	ME033-026----
Townland	Flemingtown (Duleek Upper By.)
Location	710046; 761205
Description	Located on a W-facing col with Fourknocks ridge rising over it c. 0.7km to the N and a slight knoll c. 300m to the S. A church at Clonalvey is listed in the ecclesiastical taxation (1302-06) of Pope Nicholas IV (Cal. doc. Ire. 5, 253). Ussher (1622) describes the church of Clonalvey as indifferently repaired and the chancel as ruined (Erlington 1847-64, lxv). According to the Dopping (1682-5) and Regal (1695) visitations the church of St John the Baptist was unrepaired since 1640 (Ellison 1971, 36). The parish church of Clonalvey is within a rectangular graveyard (dims c. 55m NE-SW: c. 45m NW-SE) defined by masonry walls with a NE-SW road outside it to the SE. The graveyard has headstones dating from 1743 to the present. The church (ext. dims 23.5m E-W; 7.3m N-S) is reduced to the W wall with putlog-holes and a destroyed window together with an attached section (L 5.4m) of the S wall. The church is an overgrown sunken area but an attached and overgrown sacristy (ext. dims 6.85m E-W; 3.8m N-S) at the E of the N wall survives as featureless walls (H 2m). Souterrain (ME033-027----) is c. 85m to the SSW.

Archaeological Site Type	Graveyard
Statutory Protection	ME033-026001-
Townland	Flemingtown (Duleek Upper By.)
Location	710046; 761198
Description	Located on a W-facing col with Fourknocks ridge rising over it c. 0.7km to the N and a slight knoll c. 300m to the S. The parish church of Clonalvey (ME033-026----) is within a rectangular graveyard (dims c. 55m NE-SW: c. 45m NW-SE) defined by masonry walls with a NE-SW road outside it to the SE. The graveyard has headstones dating from 1743 to the present.

Archaeological Site Type	Souterrain

Statutory Protection	ME033-027----
Townland	Flemingtown (Duleek Upper By.)
Location	709996; 761128
Description	L-shaped souterrain, ending in undifferentiated chamber (L 6m). Beehive chamber (diam. 2.1m, H 2.2m) connects with main passage at corner by means of short passage. Situated to S of church (ME033-026----). (NMI file)

Archaeological Site Type	Field system
Statutory Protection	ME033-060----
Townland	Mooresides
Location	710655; 759615
Description	Located in the shallow valley of the SW-NE Delvin River, with a WSW-ENE section of the stream c. 100m to the S. It was first identified by Ivor Kenny and is visible on the Bing aerial images. An area of c. 2 ha (5 acres) contains a number of grass-covered relict field banks and ditches forming a number of small rectangular enclosures (dims c. 30m x c. 20m) and one subcircular enclosure (diam. c. 50m).

Archaeological Site Type	Enclosure
Statutory Protection	DU004-011----
Townland	Loughmain
Location	713453; 759618
Description	Located within a large field situated on a high ridge with views across to Knockbrack. Situated on a natural rise in a field adjacent to the townland boundary. An aerial photograph taken in 1972 (FSI 4513/4) shows a circular cropmark of an enclosure (diam. c. 30m). Not visible at ground level.

Archaeological Site Type	Ringfort - rath
Statutory Protection	DU004-074----
Townland	Loughmain
Location	713598; 759338
Description	Located on a south-facing slope, down from the crest of a ridge which rises to the NNE, is a sub-circular enclosure. There are restricted views upslope to the NNE, broad views to Knockbrack hill at the E where some of the barrows (DU004-

	01207--) in the barrow cemetery are visible, very extensive views S to the Dublin mountains and somewhat restricted aspect along the ridge to the W. The cropmark was first identified by the landowner, Mr. Francis Macken, from his tractor as he applied fertilizer in a field of pasture in July 2018. This field has been known to the landowners as the kiln field. The cropmark was observed as a broad ring of additional darker grass growth set against a background of stunted lighter-shaded grass during the dry summer of June to July 2018. With the assistance of his nephew Mr. Warren Macken, a drone survey was commissioned from (Drone Services Ireland) which highlighted the monument and identified several other features in the same field (DU004-075---- cropmarks). The enclosure is sub-circular (dims 44m E-W; 43m N-S) with squared corners at the N, E and S. It measures 44m (E-W) internally to the inner edge of the fosse which is 2.8m wide. The fosse terminates sharply in linear terminals at the ESE with the entrance causeway measuring 3.8m in width. On the basis of the setting, scale and form this cropmark has been interpreted as a ringfort - rath. Within the interior at the eastern side of the monument a rectangular shaped crop-mark is traceable. This measures approximately 15m in overall length E-W and is 5m N-S. There are significant other cropmarks (DU004-075----) in the field. These comprise multiple ring-ditches and square and linear features some of which may relate to the ringfort, others not.

Archaeological Site Type	Ring-ditch
Statutory Protection	DU004-075----
Townland	Loughmain
Location	713748; 759429
Description	Located on a south-facing slope, down from the crest of a ridge which rises to the NNE within a field are numerous cropmarks including several ring-ditches. There are restricted views upslope to the NNE, broad views to Knockbrack hill at the E where some of the barrows (DU004-01207--) in the barrow cemetery are visible, very extensive views S to the Dublin mountains and somewhat restricted aspect along the ridge to the W. The cropmark of a ringfort (DU004-074----) was first identified by the landowner, Mr. Francis Macken, from his tractor as he applied fertilizer in a field of pasture in July 2018. This field has been known to the landowners as the kiln field. With the assistance of his nephew Mr. Warren Macken, a drone survey was commissioned from (Drone Services Ireland) which highlighted the monument and identified several other features in the same field. While linear and square features were observed there were also some clusters of ring-ditches noted from the drone image. These are most clearly visible at the E side of the field adjacent to the public road where several conjoined ring-ditches, including one larger ring-ditch linked to two subsidiary ring-ditches and another figure of 8 pair, again with a larger ring-ditch joined to a much smaller example. The ring-ditches range in size from 8 - 20m in diam. More indistinct ring-ditches are visible at the southern portion of the field with linear square features visible at the western side. Such is the complexity and spread of the features that the entire field has been included within the zone of notification.

Archaeological Site Type	Enclosure
Statutory Protection	DU004-089----
Townland	Rath Little
Location	714164; 759767
Description	Circular-shaped cropmark (diam. c. 46m) visible on Google Earth orthoimage taken 21/07/2021.
Image	

Archaeological Site Type	Enclosure
Statutory Protection	DU004-064----
Townland	Rath Great
Location	714844; 759257
Description	A large oval enclosure visible as a crop mark on an aerial photograph together with other features that could indicate a possible field system (DU004-065----) (SMR file; pers. comm. T. Condit).

Image	

Archaeological Site Type	Field system
Statutory Protection	DU004-065----
Townland	Rath Great
Location	714910; 759218
Description	A field system visible as a crop mark on an aerial photograph together with an oval shaped enclosure (DU004-064----) (SMR file; pers. comm. T. Condit).
Image	

Archaeological Site Type	Ring-ditch
Statutory Protection	DU004-078----

Townland	Rath Great
Location	714777; 759315
Description	Located in the NW corner of a large arable field on the SW slopes of Knockbrack Hill, this ring-ditch is part of a palimpsest of field systems and enclosures. The ring-ditch is located c. 40m WNW of enclosure DU004-064----, and c. 625m WSW of the centre of the Knockbrack ceremonial enclosure (DU004-012006-). The ring-ditch is clearly visible on Apple Maps (June 2018). It comprises a circular feature (ext. diam. c. 12m) defined by a ditch (Wth c. 12m). There is no evidence of an entrance gap through the ditch.

Archaeological Site Type	Ring-ditch
Statutory Protection	DU004-080----
Townland	Rath Great
Location	714798; 759051
Description	Located towards S boundary of a large arable field on the SW slopes of Knockbrack Hill, this ring-ditch is part of a palimpsest of field systems and enclosures. The ring-ditch is located c. 208m SSE of enclosure DU004-064---- and c. 725m SW of the centre of the Knockbrack ceremonial enclosure (DU004-012006-). The ring-ditch is clearly visible on Apple Maps (June 2018). It comprises a circular feature (ext. diam. c. 11m) defined by a ditch (Wth < 1m). There is no evidence for an entrance gap across the ditch.

Archaeological Site Type	Ring-ditch
Statutory Protection	DU004-081----
Townland	Rath Great
Location	714883; 759113
Description	Located in a large arable field on the SW slopes of Knockbrack Hill, this ring-ditch is part of a palimpsest of field systems and enclosures. The ring-ditch is located c. 166m SE of enclosure DU004-064----, in the same field, and c. 620m SW of the centre of the Knockbrack ceremonial enclosure (DU004-012006-). The ring-ditch is clearly visible on Apple Maps (June 2018). It comprises a a circular feature (ext. diam. c. 11m) defined by a ditch (Wth < 1m). There is no evidence for an entrance gap across the ditch.

Archaeological Site Type	Castle - motte
Statutory Protection	DU004-020----

Townland	Mallahow
Location	712386; 757612
Description	Situated immediately south of road, on a south-facing slope under pasture. The site comprises a flat-topped circular mound (diam. at base 21m E-W; 27m N-S, diam. at top 8m; H 5m). Waterlogged area around base in the S may indicate the presence of a fosse. It has been defaced by livestock (Healy 1975, 16; Morris 1939, 189). Laneway located at its base to west. Curved bank west of laneway. Bank c.1m h., earthen with well-established tree line (c.3m width). Extends for c.16m. Extensive panoramic views from Lambay (E) to Howth/Dublin Mts (S) and Kildare (SW).

Archaeological Site Type	Ring-ditch
Statutory Protection	DU004-071001-
Townland	Mallahow
Location	712020; 758181
Description	Geophysical survey (Licence no. 13R083) was undertaken at the site by the Discovery Programme as part of the 'Late Iron Age and "Roman" Ireland' project. Located at the summit of the hill the enclosure (25m diam.) is defined by a circular ditch (3-4m in width) with a causewayed entrance to the east. Internal features include a possible circular structure (7.5m diam.), centrally positioned (Dowling 2015, 9).

Archaeological Site Type	Ring-ditch
Statutory Protection	DU004-071002-
Townland	Mallahow
Location	712186; 758143
Description	Geophysical survey (Licence no. 13R083) was undertaken at the site by the Discovery Programme as part of the 'Late Iron Age and "Roman" Ireland' project. Located downslope of ring ditch (DU004-071001-) this site is defined by a penannular ring (c.5m diam.) with a single pit-type response internally (Dowling 2015, 7).

Archaeological Site Type	Ring-ditch
Statutory Protection	DU004-071003-
Townland	Mallahow

Location	712194; 758081
Description	Geophysical survey (Licence no. 13R083) was undertaken at the site by the Discovery Programme as part of the 'Late Iron Age and "Roman" Ireland' project. Located southeast of ring ditch (DU004-071002-) this site is defined by a penannular ring (c.8m diam.) with a single pit-type response internally (Dowling 2015, 7).

Archaeological Site Type	Field system
Statutory Protection	DU004-049----
Townland	Grallagh
Location	710592; 758194
Description	A field system spread over a wide area visible as crop marks on an aerial photograph (SMR file; pers. comm. T. Condit).
Image	

Archaeological Site Type	Enclosure
Statutory Protection	DU004-050----
Townland	Grallagh
Location	710490; 757744
Description	A circular enclosure visible as a crop mark on an aerial photograph (SMR file; pers. comm. T. Condit).

Image	

Archaeological Site Type	Enclosure
Statutory Protection	DU004-051----
Townland	Grallagh
Location	711453; 758092
Description	A circular enclosure visible as a crop mark on an aerial photograph together with other features that could indicate a possible field system (DU004-053----). A further enclosure is located to the west (DU004-052----) (SMR file; pers. comm. T. Condit).
Image	

Archaeological Site Type	Enclosure
Statutory Protection	DU004-052----

Townland	Grallagh
Location	711358; 758092
Description	A circular enclosure visible as a crop mark on an aerial photograph together with other features that could indicate a possible field system (DU004-053----). A further enclosure is located to the east (DU004-051----) (SMR file; pers. comm. T. Condit).
Image	

Archaeological Site Type	Field system
Statutory Protection	DU004-053----
Townland	Grallagh
Location	711433; 758075
Description	A field system visible as a crop mark on an aerial photograph together with two circular enclosures (DU004-051---- & DU004-052----) (SMR file; pers. comm. T. Condit).
Image	

Archaeological Site Type	Enclosure
Statutory Protection	DU004-054----
Townland	Baldwinstown
Location	709814; 758863
Description	A circular enclosure visible as a crop mark on an aerial photograph (SMR file; pers. comm. T. Condit).
Image	

Archaeological Site Type	Ringfort – rath
Statutory Protection	ME033-024----
Townland	Grange (Duleek Upper By.)
Location	710030; 761907
Description	Circular area (diam. c 70m) with two banks and intervening ditch surviving SE-SW. Remainder of banks and interior ploughed out. This site has been re-assessed and re-classified as henge, possible (Steve Davies, UCD, pers comm.)

Archaeological Site Type	Enclosure
Statutory Protection	ME033-048----
Townland	Grange (Duleek Upper By.)
Location	709865; 761910
Description	Aerial photograph (GB89.K.33) shows cropmark of a circular enclosure defined by a fosse. Compiled by: Dr Gillian Barrett for the Archaeological Survey of Ireland.

Archaeological Site Type	Megalithic tomb - passage tomb
Statutory Protection	ME033-028001-
Townland	Fourknocks
Location	710777; 762049
Description	Excavated in 1950-2, the mound, 19m in diam. and delimited by a low dry-walled kerb, contained a cruciform passage-tomb opening to NNE. Three recesses open off the large pear-shaped central chamber, 6.5m by 7.5m, now covered by a shell-concrete dome. Twelve structural stones bear megalithic art. Cemetery mound (ME033-028002-) and cists and pits (ME033-028004-) related to megalithic tomb. (Herity 1974, 253-4; Sheet 1981, 220-2)

Archaeological Site Type	Burial mound
Statutory Protection	ME033-028002-
Townland	Fourknocks
Location	710777; 762049
Description	Mantling mound of clay, which sealed and contained cist and pit burials (ME033-028004-), added to passage-tomb (ME033-028001-). (Hartnett 1957, 202, 254-7).

Archaeological Site Type	Cist
Statutory Protection	ME033-028003-
Townland	Fourknocks
Location	710776; 762050
Description	Part of the Fourknocks complex ME033-028- excavated by Hartnett in the 1950's. See Hartnett, P.J. 1957 Excavation of a passage grave at Fourknocks, Co. Meath. Proceedings of the Royal Irish Academy 58C, 197-277.

Archaeological Site Type	Pit-burial
Statutory Protection	ME033-028004-
Townland	Fourknocks
Location	710777; 762051
Description	Five cists, one empty and the rest containing crouched burials of children, were inserted into the cairn of passage-tomb (ME033-028001-). Grave goods consisted

	of one Bowl Food Vessel and a possible pit burial contained another Food Vessel. Cists sealed by mound (ME033-028002-), into which two inverted Cinerary Urns were inserted in pits. (Hartnett 1957, 202, 254-7).

Archaeological Site Type	Passage tomb art
Statutory Protection	ME033-028005-
Townland	Fourknocks
Location	710776; 762051
Description	Part of the Fourknocks complex ME033-028- excavated by Hartnett in the 1950's. See Hartnett, P.J. 1957 Excavation of a passage grave at Fourknocks, Co. Meath. Proceedings of the Royal Irish Academy 58C, 197-277.

Archaeological Site Type	Cist
Statutory Protection	ME033-028006-
Townland	Fourknocks
Location	710776; 762049
Description	Part of the Fourknocks complex ME033-028- excavated by Hartnett in the 1950's. See Hartnett, P.J. 1957 Excavation of a passage grave at Fourknocks, Co. Meath. Proceedings of the Royal Irish Academy 58C, 197-277.

Archaeological Site Type	Cist
Statutory Protection	ME033-028007-
Townland	Fourknocks
Location	710775; 762049
Description	Part of the Fourknocks complex ME033-028- excavated by Hartnett in the 1950's. See Hartnett, P.J. 1957 Excavation of a passage grave at Fourknocks, Co. Meath. Proceedings of the Royal Irish Academy 58C, 197-277.

Archaeological Site Type	Cist
Statutory Protection	ME033-028008-
Townland	Fourknocks
Location	710776; 762049

Description	Part of the Fourknocks complex ME033-028- excavated by Hartnett in the 1950's. See Hartnett, P.J. 1957 Excavation of a passage grave at Fourknocks, Co. Meath. Proceedings of the Royal Irish Academy 58C, 197-277.

Archaeological Site Type	Cist
Statutory Protection	ME033-028009-
Townland	Fourknocks
Location	710776; 762049
Description	Part of the Fourknocks complex ME033-028- excavated by Hartnett in the 1950's. See Hartnett, P.J. 1957 Excavation of a passage grave at Fourknocks, Co. Meath. Proceedings of the Royal Irish Academy 58C, 197-277.

Archaeological Site Type	Pit-burial
Statutory Protection	ME033-028010-
Townland	Fourknocks
Location	710776; 762048
Description	Part of the Fourknocks complex ME033-028- excavated by Hartnett in the 1950's. See Hartnett, P.J. 1957 Excavation of a passage grave at Fourknocks, Co. Meath. Proceedings of the Royal Irish Academy 58C, 197-277.

Archaeological Site Type	Pit-burial
Statutory Protection	ME033-028011-
Townland	Fourknocks
Location	710776; 762050
Description	Part of the Fourknocks complex ME033-028- excavated by Hartnett in the 1950's. See Hartnett, P.J. 1957 Excavation of a passage grave at Fourknocks, Co. Meath. Proceedings of the Royal Irish Academy 58C, 197-277.

Archaeological Site Type	Megalithic structure
Statutory Protection	ME033-029001-
Townland	Fourknocks
Location	710842; 762088

Description	Megalithic Structure Situated some 50m to E of passage-tomb (ME033-028001) this site, on excavation in 1950-2, was shown to be a composite monument. It comprised an ovoid mound (ME033-029003-) with cists and pit burials (ME033-029004- and ME033-029005-) which covered, at SW, a small cairn (ME033-029002-) and, at NE, a megalithic passage with a transverse fosse at its SE end; both passage and transverse fosse contained burials. The primary finds indicate that the monument was constructed by passage-tomb peoples. (PRIA 1971, 35-83). This monument is subject to a preservation order made under the National Monuments Acts 1930 to 2014 (PO no. 18/1976).

Archaeological Site Type	Cairn - unclassified
Statutory Protection	ME033-029002-
Townland	Fourknocks
Location	710842; 762088
Description	Earth and clay cairn (diam. 8m H 1m) surrounded by berm and fosse. covering pit burial (PRIA 1971, 39, 40) Covered by cemetery mound (ME033-029003-). This monument is subject to a preservation order made under the National Monuments Acts 1930 to 2014 (PO no. 18/1976).

Archaeological Site Type	Burial mound
Statutory Protection	ME033-029003-
Townland	Fourknocks
Location	710842; 762088
Description	Cairn (ME033-029002-) and passage-tomb (23) covered by oval sod mound (dims. 25m NE-SW, 22m NW-SE, H 5m) defined by ditch. Carrowkeel ware found in mound material. Burials (ME033-029003-) within mound. (PRIA 1971, 44-47) This monument is subject to a preservation order made under the National Monuments Acts 1930 to 2014 (PO no. 18/1976).

Archaeological Site Type	Cist
Statutory Protection	ME033-029004-
Townland	Fourknocks
Location	710842; 762088
Description	Eight burials found in mound (ME033-029003-) built over passage tomb (ME033-029001-) and round cairn (ME033-029002-). Four burials in cists with both inhumation and cremation rite. Grave goods included two complete Food Vessels and two Urns. (PRIA 1971, 44-74)

Archaeological Site Type	Pit-burial
Statutory Protection	ME033-029005-
Townland	Fourknocks
Location	710842; 762088
Description	Eight burials found in mound (ME033-029003-) built over passage tomb (ME033-029001-) and round cairn (ME033-029002-). Four burials in cists with both inhumation and cremation rite. Grave goods included two complete Food Vessels and two Urns. (PRIA 1971, 44-74)

Archaeological Site Type	Cist
Statutory Protection	ME033-029006-
Townland	Fourknocks
Location	710842; 762088
Description	Part of the Fourknocks complex ME033-029- excavated by Hartnett in the 1950's. See Hartnett, P. J., & O'Sullivan, W. (1971). The Excavation of Two Tumuli at Fourknocks (Sites II and III), Co. Meath. *Proceedings of the Royal Irish Academy. Section C: Archaeology, Celtic Studies, History, Linguistics, Literature*, *71*, 35–89.

Archaeological Site Type	Cist
Statutory Protection	ME033-029007-
Townland	Fourknocks
Location	710842; 762088
Description	Part of the Fourknocks complex ME033-029- excavated by Hartnett in the 1950's. See Hartnett, P. J., & O'Sullivan, W. (1971). The Excavation of Two Tumuli at Fourknocks (Sites II and III), Co. Meath. *Proceedings of the Royal Irish Academy. Section C: Archaeology, Celtic Studies, History, Linguistics, Literature*, *71*, 35–89.

Archaeological Site Type	Cist
Statutory Protection	ME033-029008-
Townland	Fourknocks

Location	710842; 762088
Description	Part of the Fourknocks complex ME033-029- excavated by Hartnett in the 1950's. See Hartnett, P. J., & O'Sullivan, W. (1971). The Excavation of Two Tumuli at Fourknocks (Sites II and III), Co. Meath. *Proceedings of the Royal Irish Academy. Section C: Archaeology, Celtic Studies, History, Linguistics, Literature*, *71*, 35–89.

Archaeological Site Type	Pit-burial
Statutory Protection	ME033-029009-
Townland	Fourknocks
Location	710842; 762088
Description	Part of the Fourknocks complex ME033-029- excavated by Hartnett in the 1950's. See Hartnett, P. J., & O'Sullivan, W. (1971). The Excavation of Two Tumuli at Fourknocks (Sites II and III), Co. Meath. *Proceedings of the Royal Irish Academy. Section C: Archaeology, Celtic Studies, History, Linguistics, Literature*, *71*, 35–89.

Archaeological Site Type	Pit-burial
Statutory Protection	ME033-029010-
Townland	Fourknocks
Location	710842; 762088
Description	Part of the Fourknocks complex ME033-029- excavated by Hartnett in the 1950's. See Hartnett, P. J., & O'Sullivan, W. (1971). The Excavation of Two Tumuli at Fourknocks (Sites II and III), Co. Meath. *Proceedings of the Royal Irish Academy. Section C: Archaeology, Celtic Studies, History, Linguistics, Literature*, *71*, 35–89.

Archaeological Site Type	Pit-burial
Statutory Protection	ME033-029011-
Townland	Fourknocks
Location	710842; 762088
Description	Part of the Fourknocks complex ME033-029- excavated by Hartnett in the 1950's. See Hartnett, P. J., & O'Sullivan, W. (1971). The Excavation of Two Tumuli at Fourknocks (Sites II and III), Co. Meath. *Proceedings of the Royal Irish Academy. Section C: Archaeology, Celtic Studies, History, Linguistics, Literature*, *71*, 35–89.

Archaeological Site Type	Barrow - unclassified
Statutory Protection	ME033-030----
Townland	Fourknocks
Location	710935; 762111
Description	Oval mound (dims. 25m E-W, 21m N-S, H 1.6m) This monument is subject to a preservation order made under the National Monuments Acts 1930 to 2014 (PO no. 17/1976).

Archaeological Site Type	Barrow - unclassified
Statutory Protection	ME033-031----
Townland	Fourknocks
Location	711092; 762103
Description	Oval mound (dims. 15m E-W, 12m N-S, H 2m) of earth and stones covering and containing pit burials (ME033-031001-). (PRIA 1971, 75-81)

Archaeological Site Type	Pit-burial
Statutory Protection	ME033-031001-
Townland	Fourknocks
Location	711092; 762103
Description	Pit with cremation beneath barrow (ME033-031----). A Cordoned Urn with the cremation of a child and a Vase Food Vessel found in body of mound. (PRIA 1971, 75-81)

Archaeological Site Type	Habitation site
Statutory Protection	ME033-032----
Townland	Fourknocks
Location	711357; 762244
Description	Excavation undertaken in 1982 recovered evidence for habitation in the form of pits, an arc of small post-holes and a charcoal spread. Some of the pits contained Grooved Ware, lithics, charcoal and created bone, while others had varying amounts of flint debitage. The plough-soil yielded an archer's bracer and a range

	of struck and worked flint and chert including a tanged arrowhead. Radiocarbon dates for the activity range between 4305 ± 45 BP and 2275 ± 30 BP (King 1999, 157). (Moore 1987, no. 384; King 1999)

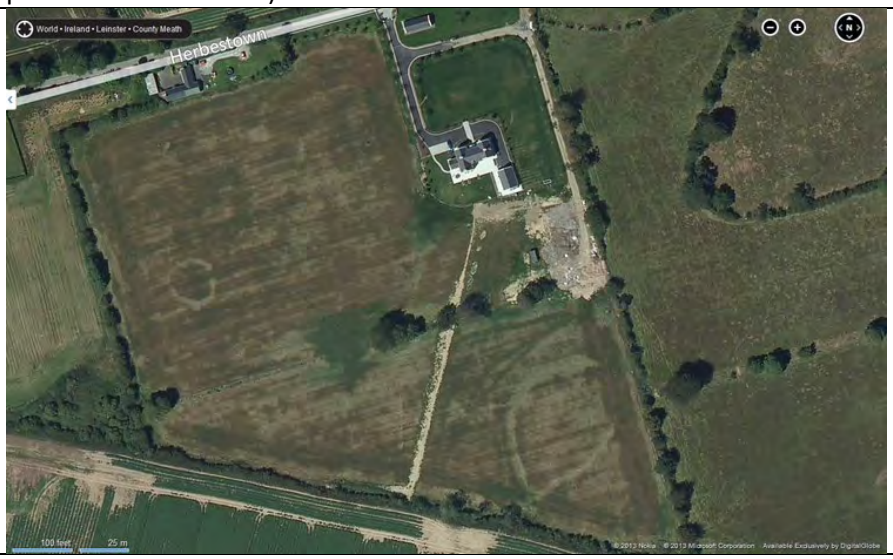
Archaeological Site Type	Enclosure - large enclosure
Statutory Protection	ME033-052----
Townland	Fourknocks
Location	710867; 762091
Description	A possible embanked enclosure (Diam. 90m) identified on Lidar (Dr Steve Davis, UCD. pers. comm.).

Archaeological Site Type	Embanked enclosure
Statutory Protection	ME033-025----
Townland	Fourknocks, Micknanstown (Duleek Upper By., Clonalvy Par.)
Location	710585; 762470
Description	This monument is described by Stout (1991, 259) as: This enclosure, first detected through aerial survey undertaken by Swan, is located on a north-facing slope above the River Delvin. The underlying geology is limestone and shale on which a grey-brown podzolic has developed. The ridge is crowned by the Fourknocks passage tomb (Hartnett 1957, 265). This monument is the smallest of a group of three enclosures 1.5km north-west of Fourknocks passage tomb. Heathtown (ME033-011----) is 1km to the west-north-west and Micknanstown (ME033-013----) is 625m to the north-west. A bank encloses a roughly circular area. It has a maximum overall diameter of 110m, an average height of only 0.5m and is 10-20m wide at its base. The interior is saucer-shaped, probably as a result of using materials scarped from the interior for the construction of the bank. There is no evidence for a ditch. Spot phosphate and magnetic susceptibility readings were high along the inside of the embankment, indicating the presence of burning or burial activity. In the north-north-west segment of the enclosure (283 degrees T) there is a 5m –wide break in the bank which is probably an original opening. (Thornton 1980, 90-1; Moore 1987, 40, No. 305).

Archaeological Site Type	Mound
Statutory Protection	ME034-004----
Townland	Herbertstown (Duleek Upper By.)
Location	712127; 762630

Description	Flat-topped mound (diam. of base 40m, diam. of top 8m, H 5m) surrounded by berm defined by masonry wall (diam. 64m). Tower on summit. (PRIA 1957, 265, No 11)

Archaeological Site Type	Barrow - mound barrow
Statutory Protection	ME034-005----
Townland	Herbertstown (Duleek Upper By.)
Location	712747; 762610
Description	Circular mound (diam. 21m, H 1.8m).

Archaeological Site Type	Ring-ditch
Statutory Protection	ME034-023----
Townland	Herbertstown (Duleek Upper By.)
Location	712360; 762434
Description	A circular ring-ditch visible as a crop mark on an aerial photograph (SMR file; pers. comm. T. Condit).
Image	

Archaeological Site Type	Field system
Statutory Protection	ME034-024----
Townland	Herbertstown (Duleek Upper By.)

Location	712927; 762860
Description	An extensive field system visible as crop marks on an aerial photograph (SMR file; pers. comm. T. Condit).
Image	

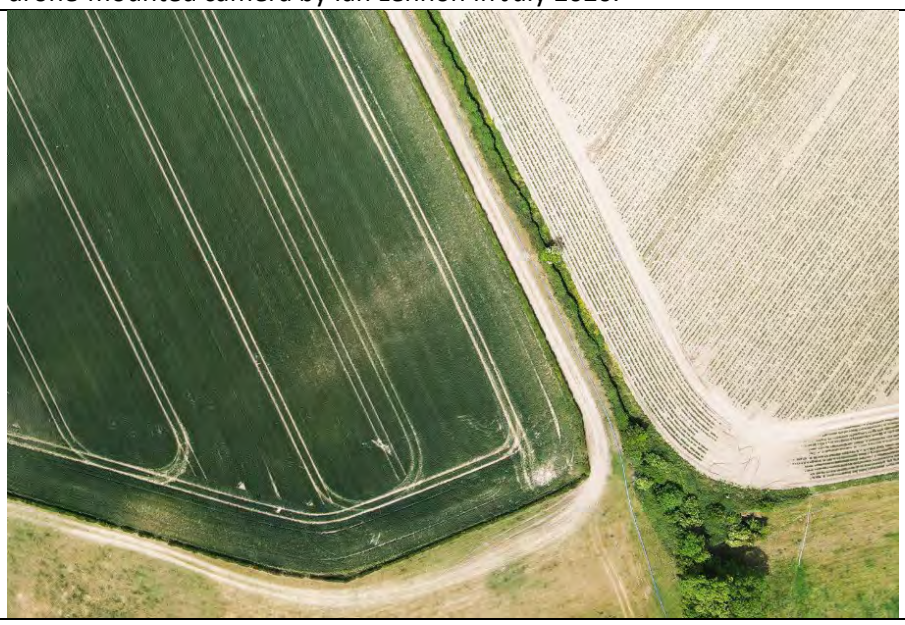
Archaeological Site Type	Ring-ditch
Statutory Protection	ME034-030001-
Townland	Herbertstown (Duleek Upper By.)
Location	712749; 762810
Description	Located towards the top of a N-facing summit at the E end of the ENE-WSW Fourknocks ridge. The cropmark of a circular enclosure (int. diam. c. 5m) defined by a single fosse feature is visible on Google Earth (24/06/2018). It is also visible on Digital Globe. The ring-ditch (ME034-030002-) is c. 10m to the E.
Image	

Archaeological Site Type	Ring-ditch
Statutory Protection	ME034-030002-
Townland	Herbertstown (Duleek Upper By.)
Location	712771; 762811
Description	Located towards the top of a N-facing summit at the E end of the ENE-WSW Fourknocks ridge. The cropmark of a circular enclosure (int. diam. c. 3-4m) defined by a single fosse feature is visible on Google Earth (24/06/2018). The ring-ditch (ME034-030002-) is c. 10m to the W.

Archaeological Site Type	Enclosure
Statutory Protection	ME034-034----
Townland	Herbertstown (Duleek Upper By.)
Location	712564; 762358
Description	Located at the crest of the S-facing slope of the ENE-WSW Fourknocks ridge. An oval enclosure (dims c. 70m NE-SW; c. 45m NW-SE) defined by a wide fosse (Wth c. 4-5m) is visible on Google Earth (17/10/2017; 25/06/2018). It is also visible on Digital Globe c. 2013 and Apple Maps, and it may have been an ornamental wood on the demesne of Herbertstown House.
Image	

Archaeological Site Type	Architectural fragment
Statutory Protection	ME034-035----

Townland	Herbertstown (Duleek Upper By.)
Location	712970; 762522
Description	Located towards the top of the SE-facing slope of Snowtown Hill at the E end of the Fourknocks ridge. Three pieces of dressed stone that might be Dundry are built into a masonry wall at a water trough. One has a chamfered edge that may have come from a window or doorway surround, and there are two small capitals with stiff leaf decoration that may have come from attached pilasters of a reredos. They are probably of thirteenth century date, but where they came from originally is not known.

Archaeological Site Type	Ring-ditch
Statutory Protection	ME034-033----
Townland	Hodgestown
Location	713965; 762180
Description	Situated on a fairly level shelf c. 50m N of the scarp down (H c. 20m) to the valley of a SW-NE portion of the Delvin River. This is a circular enclosure (diam. c. 20m) defined by a fosse and with some evidence of internal pits. It was recorded on a drone-mounted camera by Ian Lennon in July 2020.
Image	

Archaeological Site Type	Architectural fragment
Statutory Protection	ME034-014----
Townland	Tullog

Location	713084; 763106
Description	Located on a NE-facing slope. The head of a window from the church of Tullog (ME034-013----) is now built into the head of a well that was not marked on the 1836 ed. of the OS 6-inch map but was probably present then to serve the village of Tullug. The stone (Wth 0.68; H 0.35m; T 0.15m) has the stepped head of a rectangular window (Wth 0.42m; H 0.22m) with chamfered edges. The centre of the head is raised or stepped upwards (Wth 0.18m; H 7.5cm), and a glazing groove and bar-holes are present. The well is U-shaped (dims 0.7m NW-SE; 0.57m NE-SW) and built into a NE-facing slope with the opening facing NE in a wall (H 0.7m).

Archaeological Site Type	Ring-ditch
Statutory Protection	ME034-026----
Townland	Tullog
Location	714005; 762410
Description	Situated on rise on a shelf towards the bottom of an E and SE-facing slope. A circular ring-ditch is visible as a crop mark on an aerial photograph. An enclosure (ME034-027----) is visible in the same field c. 200m to the north-east. It is also visible (diam. c. 8m) defined by a single fosse feature on Google earth (24/06/2018) and on Google Earth (09/07/2013).
Image	

Archaeological Site Type	Ring-ditch
Statutory Protection	ME034-028----

Townland	Tullog
Location	713940; 762545
Description	Situated on a rise which is on a shelf towards the bottom of an E and SE-facing slope. The cropmark of a small enclosure (diam. c. 10m) defined by a single fosse feature is visible on Google Earth (24/06/2018). Is also visible on Google Earth (09/07/2013). Ring-ditch (ME034-029----) is c. 70m to the NE.

Archaeological Site Type	Ring-ditch
Statutory Protection	ME034-029----
Townland	Tullog
Location	714013; 762573
Description	Situated on a rise which is on a shelf towards the bottom of an E and SE-facing slope. The cropmark of a small enclosure (diam. c. 12-15m) defined by a single fosse feature is visible on Google Earth (24/06/2018). Is also visible on Google Earth (09/07/2013). Ring-ditch (ME034-028----) is c. 70m to the WSW.

Archaeological Site Type	Ring-ditch
Statutory Protection	ME034-036----
Townland	Tullog
Location	714096; 762365
Description	Located on a gentle E-facing slope. The faint cropmark of a circular feature (diam. c. 12m) defined by a single fosse is faintly visible only on Apple Maps (2018).

Image	

Archaeological Site Type	Barrow - unclassified
Statutory Protection	DU004-012004-
Townland	Knockbrack
Location	715419; 759769
Description	Located in tillage on the northern slope of a saddle-backed ridge, to the south of a townland boundary. Extensive views. A circular, slightly round-topped mound (diam 9.5m; H 1.25) formerly encircled by a fosse (Hartnett 1957, 267). Partially overgrown by gorse and appears to have been clipped at the base by machinery along western edge. Considered to be part of an extensive barrow cemetery identified by Keeling (1983, 70, Site I).

Archaeological Site Type	Barrow - ring-barrow
Statutory Protection	DU004-012005-
Townland	Knockbrack
Location	715394; 759779
Description	Located on the northern slope of a saddle-backed ridge to the south of a townland boundary, c.17m east barrow of DU004-012004-. Tillage right up to the base. The site comprises a subcircular, flat-topped mound (diam. 11.5m; H 1.5m) with a shallow depression near the centre of the flattened top. It was formerly enclosed by a fosse (Hartnett 1957, 267). Part of an extensive barrow cemetery identified by Keeling (1983, 70, Site II).

Archaeological Site Type	Ceremonial enclosure
Statutory Protection	DU004-012006-
Townland	Knockbrack
Location	715381; 759481
Description	The domed summit of this saddle-backed ridge contains a barrow cemetery, which is partly enclosed by a levelled bank with a contiguous silted up internal fosse (ext. dims. 330m N-S; 350m E-W). Originally identified from aerial photographs (Keeling 1983, 71-4). More recent aerial coverage of the monument shows evidence for a possible inner palisade trench along the SW and SE quadrants (OS 8/9862). Geophysical survey (Licence no. 13R084) was undertaken at the site by the Discovery Programme as part of the LIARI project. It uncovered a significant enclosure fosse (2-5m in width) that enclosed the summit of the hill a total of 8.5 hectares. A natural spring emanating within an arc-shaped depression that extends from the E side of the enclosure appears to have been deliberately subsumed within the enclosure boundary. There is a significant break is to SW where the fosse is substituted by up to three discontinuous anomalies, which mark the line of a former field division shown on the Ordnance Survey maps (1837, 1938). Extensive previously unknown archaeological features including ring-ditches and pits have been identified by the survey both inside and surrounding the hilltop enclosure (Dowling 2015, 8).

Archaeological Site Type	Barrow - unclassified
Statutory Protection	DU004-012007-
Townland	Knockbrack
Location	715314; 759409
Description	Located on the summit of a saddle-backed ridge under tillage within the site of a hilltop enclosure (DU014-012001-). The site comprises a low circular flat-topped mound (diam.9m; H 0.75m). A trigonometrical pillar (586') was placed on the site by the OS. Charcoal deposits were found near the centre of site during the burial of a sheep (Hartnett 1957, 266-7). This site is part of an extensive barrow cemetery identified by Keeling (1983, 70, Site III). Gorse covered low mound, square shaped around base of mound whihc provides some semblance of a buffer. Amazing views, north to Mourne Mts, south to Dublin and Wicklow Mts, east to Lambay and west as far as the eye can see. Geophysical survey undertaken by The Discovery Programme (13R0084) uncovered extensive remains in the vicinity of the barrow.

Archaeological Site Type	Ring-ditch
Statutory Protection	DU004-012008-

Townland	Knockbrack
Location	715332; 759428
Description	Geophysical survey (Licence no. 13R084) was undertaken at the site by the Discovery Programme as part of the 'Late Iron Age and "Roman" Ireland' project. Located at highest point on the hill at the centre of the hilltop enclosure (DU004-012006-), this circular ring-ditch (18m diam.) encompasses several pit anomalies (Dowling 2015, 8).

Archaeological Site Type	Ring-ditch
Statutory Protection	DU004-012009-
Townland	Knockbrack
Location	715316; 759587
Description	Geophysical survey (Licence no. 13R084) was undertaken at the site by the Discovery Programme as part of the 'Late Iron Age and "Roman" Ireland' project. This site is characterised by a cluster of three ring-ditches (5-12m diam.). Located north of the hilltop enclosure (DU004-012006-) where the line of the enclosure flattens out, possibly to avoid these ring-ditches which visibly overlap indicating multi-phases activity (Dowling 2015, 9).

Archaeological Site Type	Ring-ditch
Statutory Protection	DU004-012010-
Townland	Knockbrack
Location	715183; 759416
Description	Geophysical survey (Licence no. 13R084) was undertaken at the site by the Discovery Programme as part of the 'Late Iron Age and "Roman" Ireland' project. Located within the western quadrant encompassed by hilltop enclosure (DU004-012006-) this is one of the larger (25m diam.) circular ring ditches identified. Internally small circular features and pit type anomalies have been identified (Dowling 2015, 9).

Archaeological Site Type	Ring-ditch
Statutory Protection	DU004-012011-
Townland	Knockbrack
Location	715331; 759284

Description	Geophysical survey (Licence no. 13R084) was undertaken at the site by the Discovery Programme as part of the 'Late Iron Age and "Roman" Ireland' project. Located within the southern quadrant encompassed by hilltop enclosure (DU004-012006-) this is one of the larger (30m diam.) circular ring ditches identified. Internally small circular features and pit type anomalies have been identified (Dowling 2015, 9).

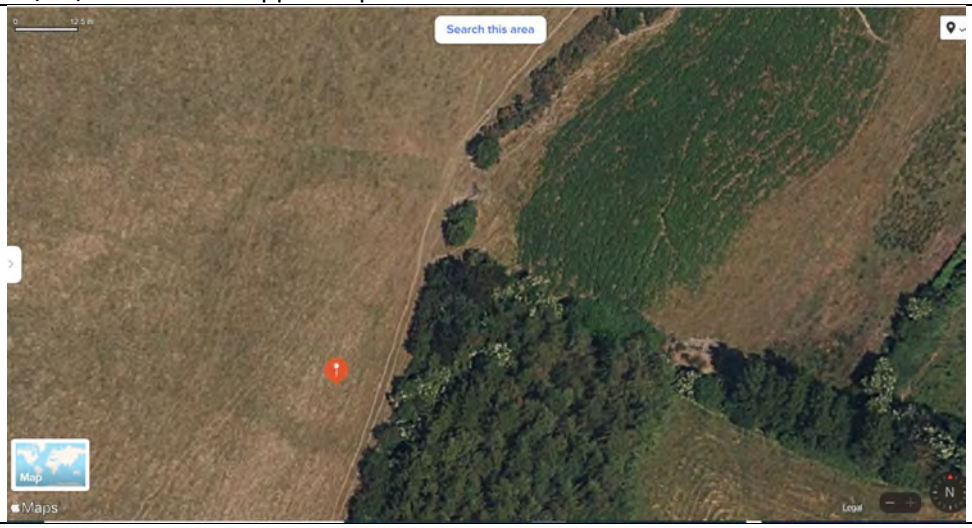
Archaeological Site Type	Enclosure
Statutory Protection	DU004-012012-
Townland	Knockbrack
Location	715352; 759436
Description	Geophysical survey (Licence no. 13R084) was undertaken at the site by the Discovery Programme as part of the 'Late Iron Age and "Roman" Ireland' project. Located c.40m northeast of the summit of the hilltop enclosure (DU004-012006-), this site comprises an oval-shaped setting of post pits forming a small (15m NS x 10mEW) enclosure (Dowling 2015, 9).

Archaeological Site Type	Ring-ditch
Statutory Protection	DU004-082----
Townland	Knockbrack
Location	715276; 759460
Description	Located in a large arable field on Knockbrack Hill, this ring-ditch is part of a palimpsest of field systems and enclosures. The ring-ditch is located within the NW quadrant of the Knockbrack ceremonial enclosure (DU004-012006-), c. 65m NW of the summit of the hill (H 586ft OD) where a barrow (DU004-0120067-) is located. The ring-ditch is clearly visible on Apple Maps (June 2018). It comprises a circular feature (ext. diam. c. 16m) defined by a ditch (Wth. <1m) that is clearly visible along the SE and NW perimeters in the aerial imagery.

Archaeological Site Type	Ring-ditch
Statutory Protection	DU004-083----
Townland	Knockbrack
Location	715358; 759281
Description	Located in a large arable field on Knockbrack Hill, this ring-ditch is part of a palimpsest of field systems and enclosures. The ring-ditch is located within the SE quadrant of the Knockbrack ceremonial enclosure (DU004-012006-), c. 141m SSE

	of the summit of the hill (H 586ft OD) where a barrow (DU004-0120067-) is located. The ring-ditch is clearly visible on Apple Maps (June 2018). It comprises a circular feature (ext. diam. c. 7m) defined by a ditch (Wth <1m) of which only the N half is visible on the aerial photo.

Archaeological Site Type	Ring-ditch
Statutory Protection	DU004-084----
Townland	Knockbrack
Location	715372; 759309
Description	Located in a large arable field on the SW slopes of Knockbrack Hill, this ring-ditch is part of a palimpsest of field systems and enclosures. The ring-ditch is located within the SE quadrant of the Knockbrack ceremonial enclosure (DU004-012006-), c. 113 from the summit of the hill (H 586ft OD) where a barrow (DU004-0120067-) is located. The ring-ditch is clearly visible on Apple Maps (June 2018). It comprises a circular feature (ext. diam. c. 4m) defined by a ditch (Wth <1m).

Archaeological Site Type	Enclosure
Statutory Protection	DU004-094----
Townland	Knockbrack
Location	716024; 759448
Description	Circular-shaped cropmark (diam. c. 50m) visible on Google Earth orthoimage taken 24/06/2018 and on Apple Maps.
Image	

Appendix 2 - Topographical Files

Appendix 2: List of Townlands searched for records of Finds in the National Museum Topographical Files

A search was carried out on the National Museum database under the following Townlands surrounding and including Westown (Moat wood Site)

COUNTY DUBLIN	COUNTY MEATH
1. NAUL	NAUL
2. WESTOWN	GRANGE (DULEEK UPPER BY.)
3. MALLAHOW	FLEMINGTOWN (DULEEK UPPER BY.)
4. GRALLAGH	FOURKNOCKS
5. LOUGHMAIN	MOORESIDES
6. RATH GREAT	BODINGTOWN
7. FLACKETSTOWN	HERBERTSTOWN (DULEEK UPPER BY.)
8. BALDWINSTOWN	TULLOG
9. RATHLITTLE	HODGESTOWN
10. KNOCKBRACK	MICKNANSTOWN
11. HYNESTOWN	
12. LECKLINTOWN	
13. CABINHILL	
14. CURRAGH WEST	
15. TOBEEN	

Townland: Naul, County Dublin		
NMI Register No.	**Object**	**Description**
1883.12	Chisel	Bronze trunnion chisel. Implement. Bronze_Blackish green shaped midway on each side. Somewhat triangular in form.nrrow end. Battered wide. Extemely bevelled. Length 4 1/8 inchesWidth 1 5/8 inches thickness 1/4 inch/.
2270:W31	Stone Object	Oval stone with large depression on one face. Quite regular. Possibly a vessel. 3.5 inches long and 3.25 wide. Hollowed at top into a blowl or cip shaped cavity. Found ina cromelch near the naul.

Townland: Naul, County Meath		
NMI Register No.	**Object**	**Description**
1972:345	Flake	Flint retouched flake. Surface find in vicinity of destroyed cairn.
1972:346	Chunk	Flint struck chunk. Surface find in vicinity of destroyed cairn.
1972:347	Flake	Flint retouched flake. Surface find in vicinity of destroyed cairn.
1972:348	Scraper	Flint scraper fragment. Surface find in vicinity of destroyed cairn.
1972:349	Flake	Flint flake fragment. Surface find in vicinity of destroyed cairn.
1972:350	Blade	Flint tertiary blade. Heat affected. Surface find in vicinity of destroyed cairn.
1972:351	Chunk	Flint struck chunk. Surface find in vicinity of destroyed cairn.
1972:352	Blade	Flint blade fragment. Surface find in vicinity of destroyed cairn.
1972:353	Blade	Flint retouched blade. Surface find in vicinity of destroyed cairn.
P1950:32	Flake	Flint retouched flake. Tertiary butt-trimmed flake, retouched on lateral and distal edges.
R1830	Arrowhead	Flint arrowhead. Found near Naul at Ballygrath Moat parish of ardcastle.

Townland: Fourknocks, County Meath		
NMI Register No.	**Object**	**Description**
1986:84	Axehead	polished stone axehead. surface find close to Fourknocks I passage grave.
P1952:21	Objects	Bronze age burial mound. Excavated assemblage. Stone and ceramic. Ridge at 500 OD foruknocks III.
P1952:20	blank	Bronze age burial mound. Excavated assemblage. Ridge at 500 OD foruknocks II.
P1950: 38	Objects	Passage grave 1. Excavated assemblage. Found in Fourknocks I.

Appendix 3 – Archaeological Investigations

Appendix 3: Archaeological Investigations

A search was carried out on the excavations.ie database under the following Townlands surrounding and including Westown (Moat Wood Site)

COUNTY DUBLIN	COUNTY MEATH
1. NAUL	NAUL
2. WESTOWN	GRANGE (DULEEK UPPER BY.)
3. MALLAHOW	FLEMINGTOWN (DULEEK UPPER BY.)
4. GRALLAGH	FOURKNOCKS
5. LOUGHMAIN	MOORESIDES
6. RATH GREAT	BODINGTOWN
7. FLACKETSTOWN	HERBERTSTOWN (DULEEK UPPER BY.)
8. BALDWINSTOWN	TULLOG
9. RATHLITTLE	HODGESTOWN
10. KNOCKBRACK	MICKNANSTOWN
11. HYNESTOWN	
12. LECKLINTOWN	
13. CABINHILL	
14. CURRAGH WEST	
15. TOBEEN	

Townland	Licence No.	Site Name	Excavation Bulletin No	Licence Holder	Excavations.ie	Link to Report
Westown	15E0045	Westown House, Naul	2016:664	David Sweetman	Monitoring took place of conservation and restoration works on a 19th-century house which was built on a late medieval vault.	https://heritagemaps.ie/documents/Therefore_ArchaeologyReports/15E0045_1.pdf
Westown	02E0938	Westown, Naul	NA	Caroline Powell	Archaeological monitoring took place in advance of the development of two football pitches. Location was the junction of the Garristown and Naul roads in the Naul Village. No archaeological deposits were found.	/https://heritagemaps.ie/documents/Therefore_ArchaeologyReports/02E0938_1.pdf
Westown	04E1261	The Old Mill, Westown, Naul,	2004:0626	Robert O'Hara	Eight test-trenches were mechanically excavated within the site. Stratigraphy in all cases was topsoil/overburden over natural subsoil. No archaeological features were present in any of the trenches and no finds were noted in excavated topsoil deposits. A neatly constructed stone drain was noted in one trench, extending from the main mill building towards the stores/tailrace. This drain was uncovered for a distance of 5m. It was 0.8m wide, with a 0.4m-wide trough. It was constructed of limestone blocks (two to four courses high), with limestone cobbles forming the base. The drain was uncapped and contained no datable material. It had filled with topsoil and building debris and contained a thin deposit of grit at its base.	https://heritagemaps.ie/documents/Therefore_ArchaeologyReports/04E1261.pdf
Naul, Dublin	06E0063	Westown, Naul	2006:679	Eoghan Kieran	Eleven test-trenches were excavated through the development area with a mechanical excavator using a toothless bucket. A number of features of possible archaeological significance were noted but further investigation showed that none were archaeological.	https://heritagemaps.ie/documents/Therefore_ArchaeologyReports/06E0063.pdf
Naul, Meath	08E242	Ford de Fyne	2008:972	Robert O Hara	An extension to a quarry was the subject of an assessment. A total of 26 test-trenches were excavated at this location. Previous geophysical survey had highlighted a number of areas of archaeological potential and the quarry layout was altered to preserve some features in situ. A number of features were identified during the assessment and included a curved ditch containing charcoal and animal	?

					bone. The features were located beneath a proposed berm delimiting the site's southern boundary. It was agreed with the NMS to preserve these features in situ beneath the berm.	
Naul, Meath	08E242 ext.	Ford de Fyne	2010:519	Robert O Hara	Additional testing was carried out at the site of a proposed quarry extension at Ford de Fyne, Naul, Co. Meath. Previous assessments had not conclusively located monument ME033–034, whose area of constraint is sited partially within the quarry area. An Bord Pleanála requested the monument be precisely located prior to any grant of permission to allow proper mitigations to be put in place. The original description of the monument (Harnett 1957, 266, No. 19) recorded that it was a kerbed mound which had already been subject to some disturbance and its original height and extent were uncertain. In 1985 a field inspection associated with the development of the Meath Archaeological Inventory stated that no visible traces of the monument could be identified (Moore 1987). Later fieldwork associated with the quarry development, including a phase of testing (R. O'Hara 08E242), did not locate the site.	?
Naul, Meath	17E0061	Naul	2017:339	Dermot Nelis	Monitoring was confined to the excavation of the western part of the access road and topsoil stripping for one of the permitted houses. No archaeological features or artefacts were revealed during monitoring.	?
Naul, Meath	19E0480	Rear of graveyard, Naul	**2019:298**	Christine Baker	The Naul Community Dig 2019 was carried out to the rear of Naul graveyard, Naul, Co. Dublin. Excavation took place over six days between 17-23 August 2019, as part of Heritage Week 2019. The site is located directly north of Naul graveyard (DU0042-004005) and just over 40m south of the Black Castle (DU004-045009). Approximately 125m to the east is a chalybeate spring known as Lady Well holy well (DU004-045003). The site is situated south of the ravine and River Delvin which form the county boundary between Dublin and Meath.	

					Two trenches were opened as part of the excavation. Trench 1 (10m x 2m) was aligned to ascertain the north-south stratigraphy of the site and reflected the topography sloping down to the north. Trench 1 was excavated to natural subsoil, a maximum depth of 0.6m. Trench 2 was located c.10m north of Trench 1 and was aligned east-west. Trench 2 measured 10m east-west x 2m and was excavated to natural subsoil, a maximum depth of 0.8m. The overall stratigraphy consisted of grey-yellow stony natural subsoil truncated by furrows, the insertion of drainage and overlain by cultivation soils. A high level of modern disturbance was identified. Despite the historic evidence for a medieval manor and a number of previous investigations within the village, no evidence of medieval settlement had been identified through excavation. Although limited to four sherds of medieval pot and a plough pebble the results from the Naul Community Dig suggest that the area excavated had been tilled for arable farming in medieval times. The site can be considered highly disturbed by nineteenth century-cultivation and dumping of building material and its twentieth-century use as a garden.	
Mallahow	**13R0083**	Co Dublin; Mallahow Td; near Naul RURAL		Gerard Dowling	Fluxgate Gradiometer. Survey	https://heritagemaps.ie/documents/Therefore_ArchaeologyReports/GeophysicalReports/13R0083_1.pdf
Flemingtown	**16E0078**	Fourknocks, Stamullin	2016:360	Aidan O'Connell	An assessment was undertaken on the site of a proposed single dwelling house, situated 200m south-east of Fourknocks passage tomb. The assessment took the form of geophysical survey (16R0024; J Leigh) followed by test trenching. Excavated areas and upcast spoil from the test excavations were metal detected under licence 16R0033. No archaeological material was recorded.	?
Fourknocks	**?**	Fourknocks, Meath	1980-84:0149	H.A King	The main investigation produced evidence for occupation on the ridge in the form of a series of post-holes which appeared to define a compacted ‘floor’ area, pits containing	?

					undecorated coarse flat-bottomed pottery, small quantities of cremated bone and substantial amounts of charcoal. Radio carbon dates, kindly supplied by Jan Lanting of Groningen, were as follows; 41100±40 BP. 4250±40 BP 4305±45 BP. A fourth date for a spread of charcoal on the lower end of the site was 2275±30 BP. Finds included part of an archer's wrist guard, a tanged flint arrow-head and a large number of worked flints. The site appears to represent occupation in the Early Bronze Age.	
Knockbrack	**13R0084**	Co Dublin; Knockbrack Td; near Naul. RURAL: Hilltop enclosure & barrow.		Gerard Dowling	Fluxgate Gradiometer & electrical resistance meter	https://heritagemaps.ie/documents/Therefore_ArchaeologyReports/GeophysicalReports/13R0084_1.pdf
Micknanstown	**10E0100**	Micknanstown	2010:527	Roseanne Meehan	A geophysical survey was carried out on the site by Earthsound (licence 10R26), which found four possible ditches across the survey area; they represented either archaeological or agricultural processes. A series of seven trenches tested the site. The topsoil comprised a grey/brown loamy soil which was consistent over the site. It was slightly deeper along the northern side of the field, closer to the hedgerow. Underlying subsoil comprised yellow brown boulder clay which was stone-free in places but stonier elsewhere. Evidence for potato cultivation was present in a layer of rotting potato stalks exposed in the layer of topsoil and in the remains of ploughmarks exposed in the surface of the boulder clay. They survived in small groups around the site. They all ran in the same direction and all of them observed the same orientation as the above-surface potato ridges and furrows. There was no evidence for archaeological material and no artifacts were recovered. The possible ditches, the presence of which was suggested in the geophysical survey, were not observed in the test-trenches.	

Herbertstown	**18E0022**	**Herbertstown, Meath**	**2018:872**	Jon Stirland	An archaeological assessment (test trenching) was carried out on 23 January 2018 at the site of a proposed single dwelling located within the townland of Herbertstown, Stamullen, Co. Meath. The site contains ME033-036, a Mound. Eleven trenches were excavated in the footprint of the development. No archaeological features or deposits were recorded.	

Appendix 4 – Remote Sensing Survey

Investigation of Barrow DU004-005- and surrounding lands, Westown, Naul, Co. Dublin

Archaeological Geophysical Survey

Detection Licence No. 22R0226

Survey undertaken on behalf of

Naul Community Council

H. Gimson BA (Hons) MSc MIAI

EARTHSOUND geophysics

EAG 464

21 September 2022

Prospect House, Drumagh, Claremorris, County Mayo, Ireland

earthsound.ie

Aggie White – The backbone of Three Gates

May she rest in peace

I would like to dedicate this survey to Aggie White. For many years, she was looking at the moat to be investigated. I am delighted that she is getting her wish in this survey.

She would've been delighted to see the lads doing all the tests and examinations.

Christopher White

Table of Contents

Summary of Results

Between the 25th July and 4th August and the 25th and 26th August 2022, a series of geophysical survey were undertaken over Barrow DU004-005 and on lands surrounding the monument as part of investigations into the site by Naul Community Council. The work was funded by the Community Monuments Fund.

The site is situated in Westown, Naul, Co. Dublin. The agricultural land surrounding the monument was investigated using electromagnetic resistivity surveys at a sample resolution of 0.5m x 0.25m. The area within the vicinity of the barrow was investigated using earth resistance at a sample resolution of 0.5m x 1m and a detailed topographical survey was also undertaken on this land as well as over the barrow. The makeup and composition of the barrow was investigated using three lines of electric resistivity tomography and ground penetrating radar.

The survey was conducted upon a bedrock geology consisting of shale, sandstone and limestone, beneath tills. The majority of the survey area was covered in short grass with large field boundaries present, all suitable land was surveyed.

The geophysical surveys undertaken for this report has revealed a series of previously unknown potential archaeological features as well as mapping and categorising the mound present within the site. The land surrounding recorded monument barrow DU004-005 revealed a series of relict multi-period agricultural boundaries as well as the remains of the entranceway for Westown House. To the south a series of arcing ditches and a large oval ditch are present as well as a series of arcing features and central stone deposits to the southeast of the recorded monument site, which could indicate archaeological activity.

The land surrounding the recorded monument was subjected to a series of high resolution surveys. Two distinct mounds were identified, the lower c.23.8m in diameter and 1.2m in height, contains a relatively flat top and is surrounded by a possible enclosure ditch and agricultural features. The second smaller mound has been placed on the centre of the lower, 10m in diameter and over 1m in height, this mound is more bulbous in formation. A circular expression and central topographical expression sit on top of the upper mound.

The internal structure of both mounds indicates that they appear to be built on a natural topographical expression and contain multiple separate deposition events, it was impossible to tell if they represent one building event or are indeed two artificial mounds built at separate times one on top of another. Adjacent to the mounds evidence for arcing ditches, pits, stone deposits and banks were detected. While some of these appear to follow or respect the alignment of the mounds and are suggestive of archaeological remains others represent agricultural boundaries.

Statement of Indemnity

A geophysical survey is a scientific procedure that produces observations of results which are influenced by specific variables. The results and subsequent interpretation of the geophysical survey presented here should not be treated as an absolute representation of the underlying archaeological features, but as a hypothesis that must be proved or disproved. **Direct investigations are recommended to confirm the findings of this report.** Verification can only be provided via intrusive means, such as Test Trench excavations.

1 Introduction

Earthsound Geophysics Ltd. was commissioned by Naul Community Council to execute a series of geophysical surveys over barrow DU004-005 and surrounding lands within the townland of Westown, Naul, County Dublin. The geophysical survey was requested to determine the presence/absence of unknown archaeological features associated with barrow DU004-005, as part of a research project into the site.

The agricultural land surrounding the monument was investigated using electromagnetic resistivity surveys at a sample resolution of 0.5m x 0.25m. The area within the vicinity of the barrow was investigated using earth resistance at a sample resolution of 0.5m x 1m, a detailed topographical survey was also undertaken on this land as well as over the barrow. The makeup and composition of the barrow was investigated using three lines of electric resistivity tomography and ground penetrating radar.

The method was approved by the Archaeological Licensing Section of the National Monuments Service. A Consent to use a Detection Device under Section 2 (2) of the National Monuments (Amendment) Act, 1987, was issued by the Minister for Housing, Local Government and Heritage: Consent No. 22R0226, issued to Heather Gimson. In accordance with the licence conditions a copy of this report will be lodged with the department.

1.1 Geography, Geology, Topography & Climate

Townland	Westown
County	Dublin
Central ITM Co-ordinates of the site	712097 / 760265
Ground Cover	Short Grass
Geology	Shale, sandstone and limestone
Drift / Quaternary Geology	Tills
Topography	Pasture fields has its high point around the mound site and slightly slopes to the southeast. The site provides views overlooking the River Delvin valley as well as the Fourknocks ridge.
Climate	The dry and sunny conditions are likely to have reduced the contrast of anomalies within the earth resistance and electrical resistivity tomography data due to the dry ground present on site. This however was not enough to prevent detection of potential archaeological anomalies. The electromagnetic and topographical surveys will not be affected by the weather conditions present.

1.2 Archaeological Background

Barrow DU004-005---- is located on the western edge of the survey area. The exact nature of the monument is unknown, it is however listed within the records however as:

> *This barrow is situated on a hilltop under pasture beside the Naul to Fourknocks road and near the Ford of Fyne. A circular dome-shaped mound (diam. 15m; H 2.5m) which rests on a circular earthen platform (diam.30m; H2m). Slopes down steeply to north and south to circular tree-lined enclosure. marked on the OS 25" as a 'moat'. Directly to the north on the other side of the Delvin is the Fourknocks ridge. When the grass is down large stones are visible.*

A number of other monuments listed as mounds or barrows exist within the vicinity including 2 mounds across the River Delvin in Co. Meath (ME 033-033—and ME034-012) which are recorded as having possible kerbstones but have subsequently been destroyed.

1.3 Aims & Objectives

The aim of the geophysical survey was to determine the nature of the archaeological resource in advance of the proposed development scheme. Specific objectives were to:

- Determine the presence or absence of archaeological features
- Assess the spatial extent of the archaeological features

Detailed electromagnetic, topographical and earth resistance surveys were undertaken as well as lines of ground penetrating radar and electrical resistivity tomography. The techniques have been used in commercial and research archaeological projects for many years and are considered the most appropriate techniques for a detailed investigation of the underlying archaeology (Clark 1996, Conyers 2004, Schmidt 2013, Scollar *et al.* 1990, Gaffney & Gater 2003).

2 Methodology

Fieldwork Dates	25/07/2022 – 04/08/2022 & 25/08/2022 - 26/08/2022
Survey Area	6.05 Ha
Method / Area	Electromagnetic Resistivity: 6.05 Ha Topographic: 0.2 Ha Earth Resistance: 0.2 Ha Ground Penetrating Radar: 4 lines Electrical Resistivity Tomography: 4 lines

2.1 Electromagnetic Resistivity Survey

EMI Measurement	Apparent Electrical Resistivity (ER_a)
Instrument	GF Instruments CMD-MiniExplorer
Data Acquisition Resolution	0.5m x 0.2s
Coil Configuration / Effective depth range	Vertical Coplanar Coil configuration (VPC) or 'half-depth', effective depth range: 0.25m, 0.5m, 0.9m
Platform	SparrowHawk-1000 cart system, sensor positioned 10cm above the ground
Data Acquisition Method	Continuous mode, Gridless, using a Trimble RTK GPS VRS Now system to an accuracy of 5cm
Measuring Range	ER_a: 1000mS/m, resolution 0.1mS/m
Data Logger	CMD Control Unit
Calibration	According to manufacturers guidelines (GF Instruments 2010)
Data Processing	CMD Data Transfer: conversion to Apparent Electrical Resistivity (ER_a) from Apparent Electrical Conductivity (Quadrature) Process-it: Drift correction using a moving filter, Despike, Low Pass Gaussian Filter, Interpolation
Graphical Display / Dynamic Range	Greyscale -20 mS/m (white) to 20 mS/m (black)

2.2 Topographical Survey

Instrument	Trimble RTK GPS VRS system
Components	R8 RTK GPS antenna, TSC2 controller, VRS corrections
Data Acquisition Resolution	0.5m x 1m increasing to 0.50m x 0.50m over the mound
Platform	Detail pole
Data Acquisition Method	Single point
Accuracy	±5cm
Vertical Exaggeration	1x
Data Processing / Graphical Display	Surfer 8: Contour map Greyscale white 81.5 to black 89.2 O.D. 3D Digital Terrain Model green (Low) to blue (high)

2.3 Earth Resistance Survey

Array	Twin Probe
Instrument	Geoscan Research RM15
Components	MPX15 Multiplexer
Data Acquisition Resolution	0.5m x 1m
Array	PA5 Array
Data Acquisition Method	Gridded, Zig-Zag
Sensitivity	1 Ω
Data Logger	Internal Data logger
Data Processing	Geoplot v.3.00mx: Despike Edge Matching, as required Interpolation (sine wave) to 0.5m x 0.5m
Graphical Display / Dynamic Range	Greyscale 10Ω (white) to 150Ω (black)

2.4 Electrical Resistivity Tomography

Instrument	ABEM Terrameter LS 2 (ABEM 2016)
Data Acquisition Resolution	Lines 1 & 2 0.5m probe separation Lines 3 & 4 1m probe separation
Data Acquisition	Electrical Resistivity Tomography
Array	Dipole Dipole
Processing	ABEM Terrameter LS, RES2DINV, 2D Inverted Model
Display	RES2DINV
Units	Ohms
Vertical Exaggeration	1x
Graphical Display	Colourscale blue (Low) to red (high)

2.5 Ground Penetrating Radar Survey

Instrument	GSSI TerraSIRch SIR System-3000
Antenna	400MHz
Sample Resolution	0.05m
Platform	GSSI Model 623 Survey Cart
Data Acquisition Method	Survey Wheel with Calibrated Odometer
Measuring Range	0-8000nS
Data Logger	SIR-3000
Calibration	According to manufacturers guidelines (GSSI 2003)
Time Window	60nS
Radargram Data Processing	GPR Viewer: Gain, Subtraction of background signal that was formed by averaging all traces of a transect
Graphical Display	Radargrams: Greyscale black (Low) to white (high)

2.6 Reporting, Mapping & Archiving

The geophysical survey and report follow the recommendations outlined by relevant best practice guidance documents as a minimum standard (David *et al*. 2008; Gaffney *et al*. 2002, Schmidt *et al*. 2015). Ordnance Survey of Ireland mapping was supplied by Earthsound.

Geophysical data, the figures presented here and the text have been archived following the recommendations of the Archaeology Data Service (Schmidt & Ernenwein 2011).

3 Results & Discussion

The interpretation figures should not be looked at in isolation but in conjunction with the information below and classification terms contained in the Appendices.

Significant Anomalies *are highlighted in Figures 4, 6, 8 & 10 and are described within the text.*

Number classification for anomalies

M1	Electromagnetic Resistivity anomalies
T1	Topographical anomalies
E1	Earth Resistance anomalies
R1	Electric Resistivity Tomography & Ground Penetrating Radar anomalies

3.1 Electromagnetic Resistivity Survey

Figure 3 – Electromagnetic Resistivity Data

Figure 4 – Electromagnetic Resistivity Interpretation

Along the edges of the fields a number of zones of boundary disturbance were detected. This disturbance is caused by animal and root action and is not archaeologically significant.

Anomaly **M1** comprises of two parallel high resistivity compact earth or stone features which cross the southwest field. The parallel nature of the anomalies suggests that they are most likely agricultural in origin, probably associated with a relict field boundary or cultivation furrows.

M2 represents an area of high resistivity which stretches the width of the field. Measuring 20m by 39m this anomaly could represent near surface geology, tree root activity or be assoicated with a deposit of soil either archaeological or agricultural in origin.

M3 is a linear high resistivity compact earth or stone feature, 22m in length which follows the same alignment as M1. This anomaly is likely to be agricultural in origin.

Anomaly **M4** consists of an area of low resistivity, 9m by 16m in length. This area of disturbed soil could be archaeological or agricultural in origin.

Anomalies **M5** and **M6** represent two linear ditches which run parallel to one another and follow the same alignment as M1 and M3. It is likely that these ditches represent former field divisions and M6 may extend into the adjacent field indicating that this field alignment predates the currently field setup.

M7 is a linear high resistivity possible bank, 11m in length which runs parallel to the extant field boundary. This feature is likely to be agricultural in origin.

M8 comprises three areas of low resistivity which are located on the southern end of the survey area. Measuring between 60m and 10m in length these anomalies could be associated with relict field boundaries, geological processes or disturbed earth of agricultural or archaeological reasons.

Anomaly **M9** consists of two small undulating high resistivity anomalies. Measuring between 15m and 23m in length these compact earth or stone features could be archaeological, agricultural or geological in origin.

M10 is an arcing ditch feature, 14m in length and 5.8m in width which has been overcut by a portion of M9. This ditch could represent possible archaeological activity.

M11 is a curvilinear compact earth or stone feature, 60m in length which is likely to represent agricultural or geological processes.

M12 represents a linear possible ditch or cut feature, 16m in length which crosses M11 and could be archaeological, agricultural or geological in origin.

Anomaly **M13** consists of an area of compact earth or stone which is situated between areas of disturbed earth. Measuring 16m by 9m this anomaly is likely to be associated with M8 and could be archaeological, agricultural or geological in nature.

Anomaly **M14** comprises an arcing ditch or cut feature, 21m in length and c.10m in diameter. This possible archaeological feature is located 24m NW of anomaly 10 which has similar properties.

M15 consists of two parallel ditches 58m and 38m in length which follow the rough alignment of the field and are likely to be agricultural in origin.

M16 comprises a compact earth or stone division which abuts the extant field boundary. Measuring 52m in length this anomaly could present a former field division or boundary feature likely to be agricultural in origin, although an archaeological explanation cannot be ruled out. To the east of M16 an isolated possible pit was detected which could be archaeological or agricultural in origin.

M17 is a linear compacted earth or stone feature, 46m in length which crosses M15 and M16 and disappears into M8. This feature runs parallel to a number of other features detected and is likely to be agricultural in origin.

Anomaly **M18** represents three ditches which cross the central portion of the field. Two of the ditches interconnect while the third appears to run parallel. It is likely that these features present former boundary features and internal divisions which are probably agricultural in origin.

M19 consists of two interconnecting linear compact earth or stone features which follow the same rough alignment as M17 and are likely to be agricultural in nature.

Anomaly **M20** is an oval ditch or cut feature, 24m by 14m which may be archaeological in origin. The possible enclosing ditch has been cut by a number of later features.

M21 represents two compact earth or stone features which cross the survey area in a roughly parallel formation and in alignment with M17 and M19. These features are likely to have similar origins to M19 and are likely to be agricultural.

M22 consists of two interconnecting ditches which are likely to be agricultural in origin and may be associated with M18.

Anomaly **M23** comprises a series of disturbed earth areas which are located in the northern portion of the field. Measuring between 18m and 5m in length these features are likely to be similar in origin to M8 and could be archaeological, agricultural or geological.

Anomaly **M24** is a small arcing compact earth or stone feature which leads from the northern edge of the eastern most anomaly within M23. Measuring 18m in length this compact earth or stone feature could be associated with M23 or indicate a modification to the feature, possibly relating to archaeological activity.

M25 is a linear ditch which runs across the width of the field. It has been truncated or masked by M23 and contains two possible pits at its western end. This anomaly is likely to represent a relict field boundary.

Anomaly **M26** represents two curvilinear compact earth or stone features, 11m and 19m in length and a possible stone filled pit or near surface stone deposit. These features could be archaeological, agricultural or geological in origin.

Anomaly **M27** consists of three interconnecting ditches which are likely to represent relict agricultural boundaries.

M28 comprises two arcing possible ditches or cut features, 11m and 17m in length. The orientation of the anomalies suggests that they may be related and could be archaeological, agricultural or geological in origin.

M29 is an isolated possible stone filled pit or near surface stone deposit, which could be archaeological, agricultural or geological in origin.

Anomaly **M30** represents a right-angled ditch, 70m in length. This feature may cross or interconnect with M27 and is likely to be agricultural in origin.

Anomaly **M31** is a linear compact earth feature which runs parallel to the extant field boundary. Measuring 34m in length this anomaly is likely to be agricultural.

Anomaly **M32** consists of three parallel ditches which are located in the northeast field. The parallel nature of the anomalies indicates that they once represented field divisions. The presence of a possible pit on the northern anomaly could be associated with a tree bowl or planting hole.

M33 is a curvilinear compact earth or stone feature which crosses a portion of M32. Measuring 27m in length this feature is likely to be agricultural or geological in origin.

Anomaly **M34** comprises two parallel ditches with a central area of compact earth. These features are associated with an entranceway shown on the historic 25inch OS map which led from Westown House to the lodge. Boundaries M32 appear to abut this entranceway and are likely to be contemporary. This feature extends into the northwest field.

M35 is a curvilinear linear ditch, 37m in length which probably represents a field division which once led from entranceway M34. It is likely that M35 originally joined with M38.

Anomaly **M36** consists of two areas of compact earth or stone. Measuring 15m and 9m in length these anomalies are likely to be agricultural or geological in origin and could be associated with M37.

M37 is a linear compact earth feature which crosses the width of the field. Following the same alignment as the modern field boundaries is it likely that M37 represents a sub-division within the field system. It overcuts M34 and therefore is not contemporary with the entranceway to Westown House.

M38 represents a series of interconnecting ditches which are likely to have formed a series of field divisions. It is likely that the field system continues in anomalies M35 and M41 and may be contemporary with the entranceway to Westown House (M34).

Anomaly **M39** is an area of disturbed earth which is located on the northern edge of a linear compact earth boundary. Running parallel to M37 these features are agricultural in origin and are likely to represent a boundary bank with a ditch or disturbed soil on its northern edge.

M40 consists of a linear compact earth or stone feature, 54m in length which is truncated by M39 and is likely to be agricultural in origin.

Anomaly **M41** is a curvilinear ditch, 26m in length which crosses M40 and could be associated with M38. This feature is likely to be agricultural in origin.

Anomaly **M42** is a zone of compact earth or stone rich soil which is located on the northern edge of the survey area. This feature is likely to be geological or agricultural in origin.

Anomaly **M43** is a right-angled ditch feature which divides the northwestern corner of the northwest field. Measuring 53m in length this anomaly is likely to be agricultural in origin.

Anomaly **M44** comprises two arcing possible compact earth features, 17m and 11m in length and 9m and 7m in diameter. The eastern of the two features contains a central possible stone deposit. It is possible that these features present archaeological activity, although an agricultural or geological explanation cannot be totally ruled out.

M45 consists of two parallel ditches which cross the field. These relict field boundaries possibly interconnect with M43 and are related to M48.

M46 represents three parallel ditches which run parallel to M32 in the adjacent field and are likely to be agricultural in origin. M46 is crossed by M47, M48, M49 and M50.

Anomaly **M47** consists of an arcing possible compact earth feature, 13m in length and 8m in diameter which is of similar origins to M44. Contained within the centre of M47 is a possible stone deposit. It is possible that M47 represents archaeological activity.

Anomaly **M48** is a linear ditch which runs parallel to M45 and represents a relict field boundary.

M49 consists of three areas of compact earth or stone. Measuring between 29m and 4m in length M49 follows a linear formation and may continue in M36. These anomalies are likely to be agricultural or geological in origin and could be associated with M37.

M50 represents two parallel compact earth features which are likely to be agricultural, however the fact that they appear to lead towards Barrow DU004-005---- could indicate that they have an archaeological origin.

Anomaly **M51** is an area of disturbed earth which is located on the western edge of M34. This disturbed earth could be archaeological in origin, but is more likely to be agricultural.

Anomaly **M52** consists of two arcing compact earth features, c.10m in length and an isolated possible pit. These features could be archaeological in origin.

M53 represents two parallel ditches, 32m and 41m in length. Their parallel nature suggests that they are agricultural in origin.

M54 is a curvilinear possible ditch or cut feature, 18m in length which may be agricultural, geological or archaeological in origin.

M55 consists of two interconnecting compact earth or stone features which cross the northwest corner of the field. These features run parallel to M53 and possibly join N58, they are likely to be agricultural in nature.

M56 is an arcing ditch, 28m in length which could be agricultural, geological or archaeological in origin.

M57 is a linear compact earth or stone feature, 25m in length which may relate to agricultural, geological or archaeological processes.

Anomaly **M58** consists of three parallel compact earth or stone features which measure between 12m and 9m in length. These features could be archaeological or agricultural in origin.

Anomalies **M59, M60** and **M61** are three arcing compact earth or stone features which are associated with barrow DU004-005----, encircling the lower and upper slopes of the mound. It is likely that the compact earth or stone signatures have been caused by the mound structure, however the presence of kerb stones cannot be ruled out.

3.2 Topographical Survey

Figure 5 – Topographical Contour Data

Figure 6 – Topographical Greyscale Data and Interpretation

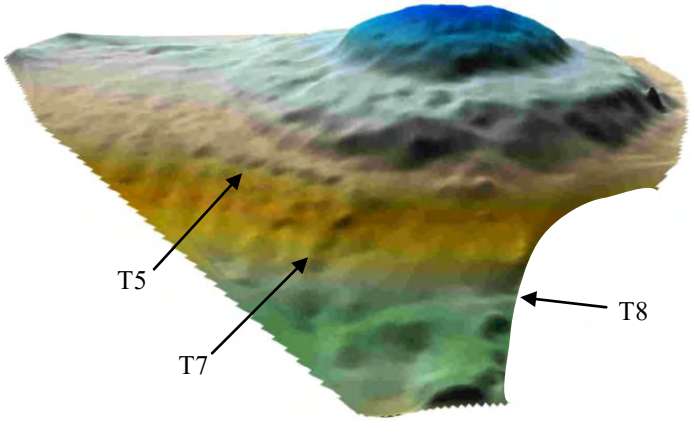


Image 1 Southeast facing low profile topographical model

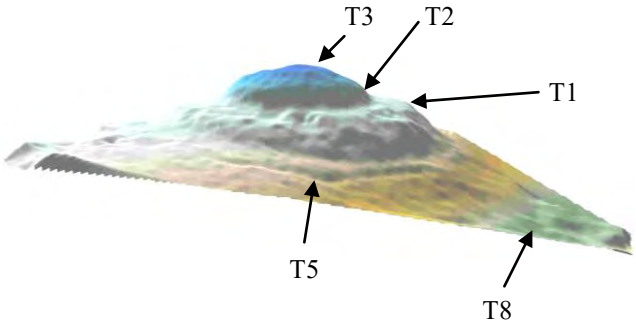
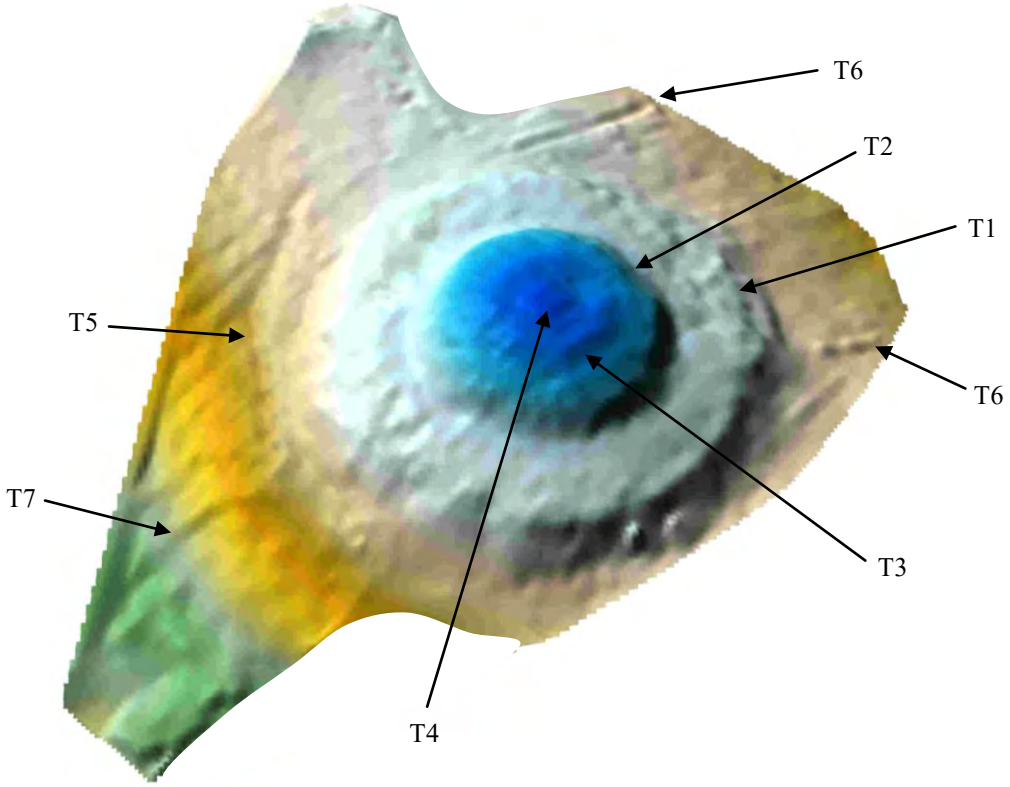


Image 2 Southwest facing very low profile topographical model



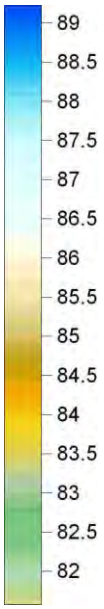


Image 3 East facing topographical model

The micro topographical survey was undertaken on all available land within the detailed area of investigation. The landscape was shown to rise gradually from the northwest. The height range within the survey area was between 81.5 to 89.2m O.D, with the mound being located on the topographical high point or plateau which extends to the east from the mound.

The mound associated with recorded monument barrow DU004-005---- was mapped in great detail which allows its true extent and composition to be revealed. The mound appears to be made up of two distinct levels. The lower mound **T1** measures 23.8m in diameter and its lower break of slope starts at 85.7m O.D., while the upper break of slope measures 86.9m O.D. The height of the lower mound **T1** is therefore 1.2m.

The centre of mound **T1** appears to be relatively flat, with a height difference of less than 0.5m. No discernable formations or features can be seen within this mound and while the western portion of the mound contains a sharp break of slope at the top and bottom this is much more gradual to the east. This may represent an original difference in the mounds construction or may be a product of later animal grazing.

A second discernable mound **T2** was identified located centrally on T1. This mound appears to be a separate feature or addition as it has its own break of slopes and distinctive composition. The lower break in slope of this mound (**T2**) is located at 87.5 O.D. It is more bulbous in formation with no distinctive break in slope at the top and is over 1m in height and 10m in diameter.

Two distinctive features were identified on top of mound T2. Anomaly **T3** is a circular expression c.0.2m in height and c.4m in diameter which appears to sit just off centre on the top of mound T2. The centre T3 appears to dip down suggesting that the external extent of T2 may once have contained a shallow bank or rise and could be part of the original archaeological monument or a later addition.

Anomaly **T4** is located in the centre of T3 and is defined by a small topographical expression, less than 0.2m in height. Measuring c.0.5m in width this feature could represent an archaeological feature or could possibly be associated with vegetation growth. The presence of this central expression indicates that the mound is unlikely to have been investigated in antiquity as any central exploratory shaft usually leaves a central topographical depression.

The presence of four distinctive features contained within the monument previously identified as barrow DU004-005---- is surprising. If the feature is indeed a barrow then one continuous mound would usually be expected. The presence of a wider lower mound (T1) with a relatively flat top which then contains a smaller upper mound (T2) placed upon it is unusual.

Anomaly **T5** is a ditch or cut feature which runs along the northeast portion of mound T1. Measuring c.15m in length this anomaly appears to run parallel to the mound and could suggest an enclosing outer ditch. However it should be noted that anomaly T5 is relatively narrow and shallow and therefore it could be associated with animal tracks or indeed machinery movement.

Anomaly **T6** consists of two possible ditches or cut features which run from the south and terminate at the mound. Measuring 6m and 13m in length these features are likely to represent boundary features either contemporary with the mound or more likely agricultural in origin.

T7 is a linear bank which runs in a north south direction from the field boundary to mound T1. Measuring 12m in length this anomaly is likely to be associated with a boundary or agricultural feature. Surrounding T7 a number of parallel very shallow topographical expressions can be seen. While these are to shallow to be definitely identified as features it is possible that they are associated with cultivation furrows which once may have bounded the mound.

Anomaly **T8** is a linear ditch or break in slope which crosses the eastern portion of the survey area. This may represent an archaeological ditch or may be associated with agricultural processes such as that caused by accessing the field or fencing stock.

3.3 Earth Resistance Survey

Figure 7 – Earth Resistance Data

Figure 8 – Earth Resistance Interpretation

All available land was surveyed with the earth resistance meter within the detailed area of investigation. Areas of high vegetation, straw bails and a tree were present within the survey area and precluded survey in these locations.

Anomaly **E1** is a linear high resistivity feature, 7m in length which runs in a north south direction from the northern field boundary. This bank is likely to be associated with T7 detected in the topographical survey and is most likely agricultural in origin, either representing a relict boundary or cultivation furrows.

E2 is a linear bank, 11m in length which may be archaeological or agricultural in origin.

E3 consists of two linear ditches or cut features which run towards mound T1. These anomalies are likely to represent an agricultural boundary which once divided the survey area.

E4 represents three areas of high resistance. The high resistance nature of the anomalies indicates compact ground or stone rich deposits. The northern of these anomalies is located in flat land and may be archaeological, agricultural or geological in origin. The two anomalies to the south are located on the lower slopes of mound T1 and are likely associated with the composition of the mound structure.

Anomaly **E5** is an isolated near surface stone or stone deposit which is located at the base of mound T1. This anomaly could be archaeological in origin or associated with the construction of the mound.

E6 comprises a linear compact earth or stone feature. This bank is likely to be agricultural in origin and probably runs around the lower slopes of mound T1.

Anomalies **E7**, **E8**, **E9** and **E10** consist of curvilinear compact earth or stone features which are located to the north of the mound. Measuring between 8m and 13m in length these anomalies could be archaeological, agricultural or geological in origin. However given the fact that they appear to terminate at E6 it is most likely that they represent agricultural divisions, possibly associated with cultivation, possibly representing a continuation of those seen surrounding T7.

Anomalies **E11** and **E12** represent two areas of high resistance, which are similar in composition to E4. These features could be archaeological, agricultural or geological in origin

E13 consists of two possible pits which are located on the northern edge of E6. These pits have a separation of 4.3m and could be archaeological in origin, alternatively the pits may be associated with tree holes as the landscape is marked as tree covered on the historic OS maps.

E14 comprises two linear ditches or cut features which crosses the lower slopes of mound T1 and interlink. Measuring 14m and 21m in length these anomalies are likely to be associated with the construction of mound T1.

Anomaly **E15** is a linear ditch or cut feature which crosses the lower slopes of mound T1. This feature is likely to have similar origins to E14 and probably is associated with the construction of mound T1.

Anomalies **E16** and **E17** represent two curvilinear high resistivity features which are located within the lower slopes of mound T1. These features, 9m and 12m in length are associated with the construction of the mound.

E18 consists of two isolated near surface stones or stone deposits which are located within mound T1. These anomalies could be archaeological in origin and are likely to be associated with the construction of the mound.

E19 is a curving ditch which runs close to the edge of mound T2 and within the top of mound T1. Measuring 13m in length this anomaly was not distinguishable in the topographical survey. Its presence within the top of mound T1 and adjacent to mound T2 suggests that it could part of the construction of mound T1 or a central feature on its top or a ditch which surrounded at least a portion of mound T2.

E20 is a sub-circular high resistance feature compact earth or stone feature which matches the lower break of slope for mound T2. The high resistance feature is therefore caused by the construction of this mound and measures 10m in diameter.

Anomaly **E21** consists of two linear high resistance features which cross the southern portion of mound T2. These features are likely to be associated with the construction of the mound and represent differences in mound soil structure.

E22 represents a series of isolated high resistance anomalies which were detected across mound T2. These are likely to represent near surface stones which have been used to form the mound structure. Within the centre of mound T2 a larger area of high resistance was detected. Measuring c. 2.5 in diameter this feature is likely to be associated with the inside of T3 detected in the topographical data. Alternatively E22 could have created topographical expression T4 detected at the top of the mound.

Anomaly **E23** is an arcing high resistance compact earth or stone feature which encircles the upper slopes of mound T2. It is likely that E23 is associated with the construction of the mound, rather than a feature contained within it or on top of it.

3.4 Electrical Resistivity Tomography & Ground Penetrating Radar Survey

Figure 9 – Survey Line Locations

Figure 10 – Data Interpretation

3.4.1 Line 1

0m (E) 31.5m (W)

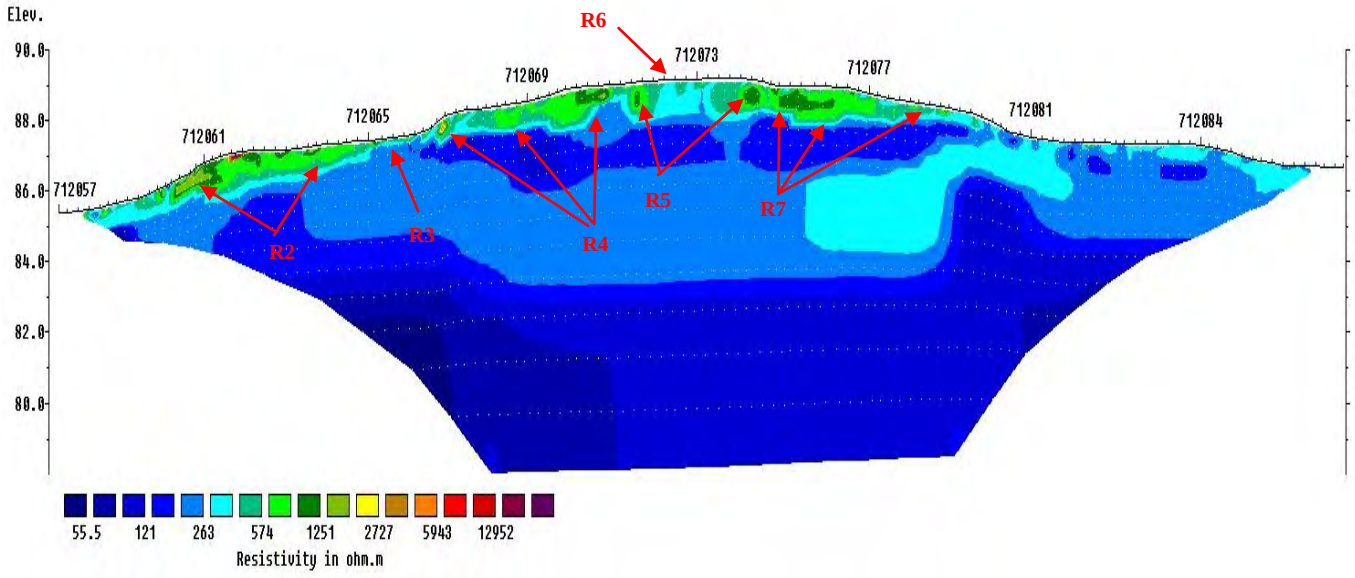


Image 4: Electrical Resistivity Tomography Data – Line 1

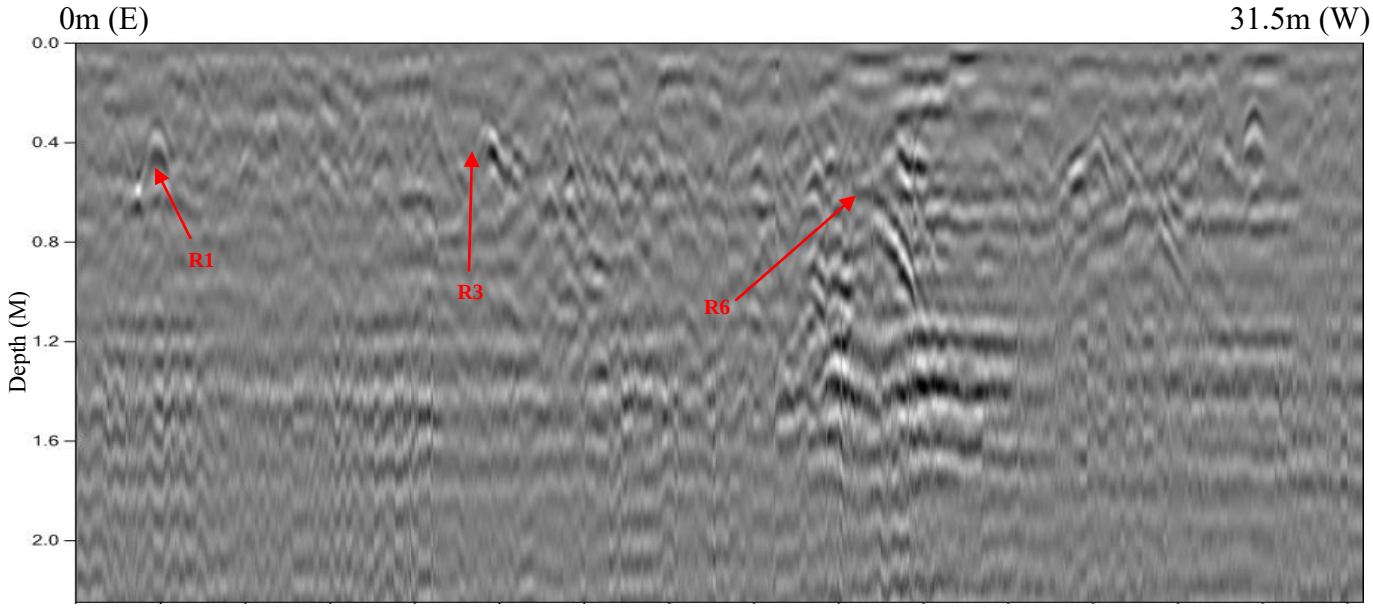


Image 5: Ground Penetrating Radar Data – Line 1

Anomaly **R1** is a narrow compact earth feature, c. 5m deep which coincides with E2 in the earth resistance data.

R2 is an area of compact soil deposition which coincides with the soil within the larger lower mound T1 and the southernmost anomaly within E4 in the earth resistance data. The composition of R2 suggests as expected that the mound comprises multiple deposition events and material of different compositions and densities. The mound material would appear to be around 0.75m to 1m in depth which appears to have been laid on the natural ground surface to form a mound. This feature was also detected in the ground penetrating radar data as a band of higher reflectors near the surface.

Anomaly **R3** is an area of low resistivity and weak amplitude reflections, these signatures indicate a lack of or very little mound material. Given that the anomaly was detected in both the electric resistivity tomography and ground penetrating radar and coincides with the top of the lower mound T1 it suggests that the soil is relatively natural at this location.

R4 relates to a further area of compact soil deposition which forms mound T2. Similar in composition and formation to R2 it suggests that multiple deposition events and material of different compositions and densities has been used in the mound.

R5 comprises of two central breaks within the mound material. These breaks appear to coincide with T3 within the topographical data and E22, E23 within the earth resistance data.

Anomaly **R6** consists of an area of disturbed soil detected in both datasets which is located within the centre of mound T2. This feature corresponds to the largest central feature of high resistance (E22) within the earth resistance data and could indicate the presence of a feature sitting c.0.8m within the centre of the mound.

R7 is an extensive area of compact soil deposition which coincides with the slopes of mounds T2 and T1. It is noticeable that the western edge of this feature appears to peter out suggesting that the mound rejoins the natural soil horizon. This in turn could indicate that the land to the west of R7 is either natural or may have been scarped to enhance the elevation of the mounds.

3.4.2 Line 2

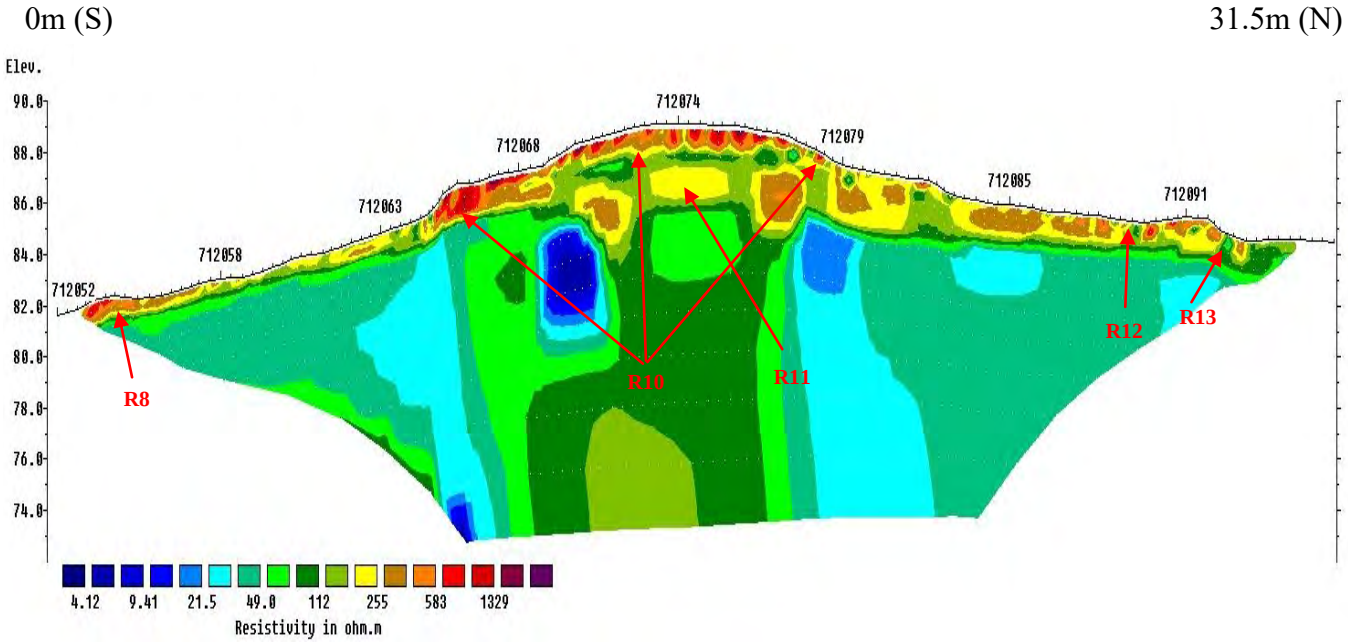


Image 6: Electrical Resistivity Tomography Data – Line 2

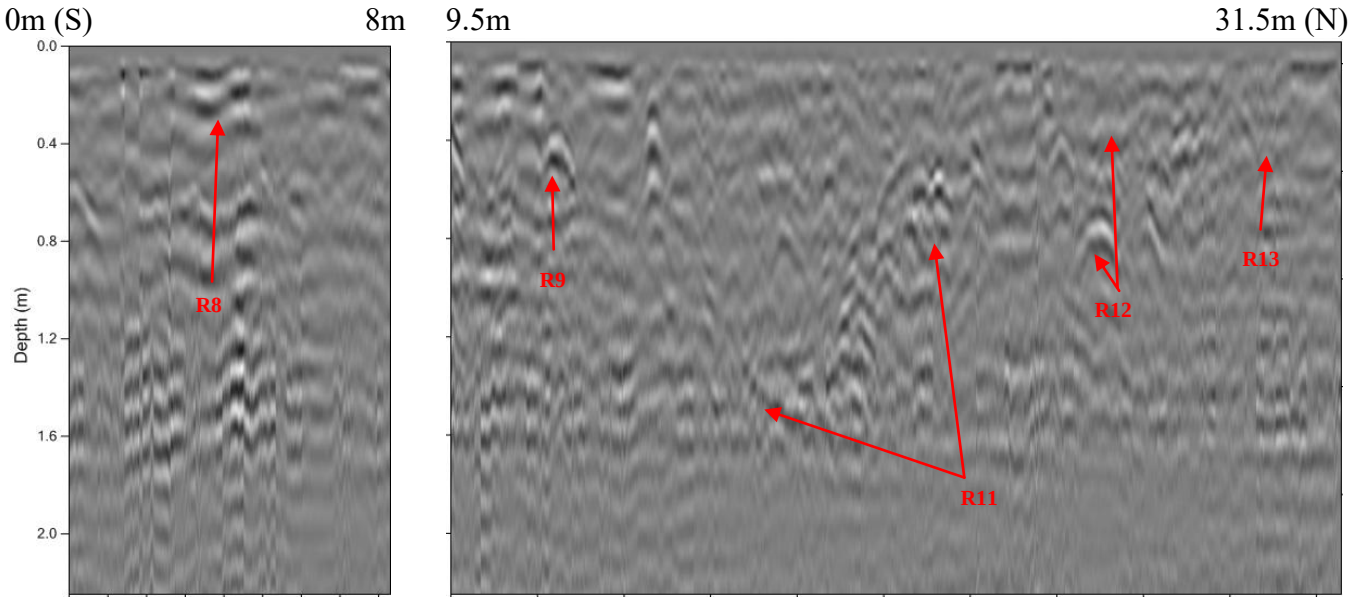


Image 7: Ground Penetrating Radar Data – Line 2

While the electric resistivity tomography data was run as a continuous line the ground penetrating radar data was impacted by vegetation and therefore had to be broken.

Anomaly **R8** is an area of compact soil which is located on the southern edge of the survey line. This feature coincides with an area of high resistance within the earth resistance data. Within the earth resistance data this has been interpreted as boundary disturbance but the electric resistivity tomography and ground penetrating radar results suggest that it could also be attributed to an archaeological deposit.

Anomaly **R9** represents a break in the soil structure and a hard or compact object. The location of this anomaly matches that of E20 the break in slope for the upper mound T2. The ground penetrating radar results suggest that the mound has been formed within this area by the placement of large stones, 0.5m below ground surface, which are possibly used to enclose the mound material.

R10 is an area of compact soil deposition which coincides with mounds T1 and T2. The composition of the material is similar in nature to that detected in line 1 (R2, R4 & R7). The composition of R10 suggests, as expected, that the mound comprises multiple deposition events and material of different compositions and densities which vary in thickness and have been placed on top of a natural topographical rise.

R11 is an area of disturbed stone filled soil which is located at the centre of the survey line. Located c.1.6m below the ground surface this feature could represent natural soil changes or could be archaeological in origin.

R12 represents an area of disturbed ground which appears to be bounded by a ditch, potentially with a stone filled base at 0.7m below ground surface. This feature coincides with the base of the mound and is likely to be associated with the agricultural features detected in the earth resistance data (E6-E10).

Anomaly **R13** is a ditch which is located on the north edge of the survey line. This ditch has a depth of under 0.5m and is likely to be associated with ditch M59 within the electromagnetic resistivity data.

3.4.3 Line 3

0m (NW) 64m (SE)

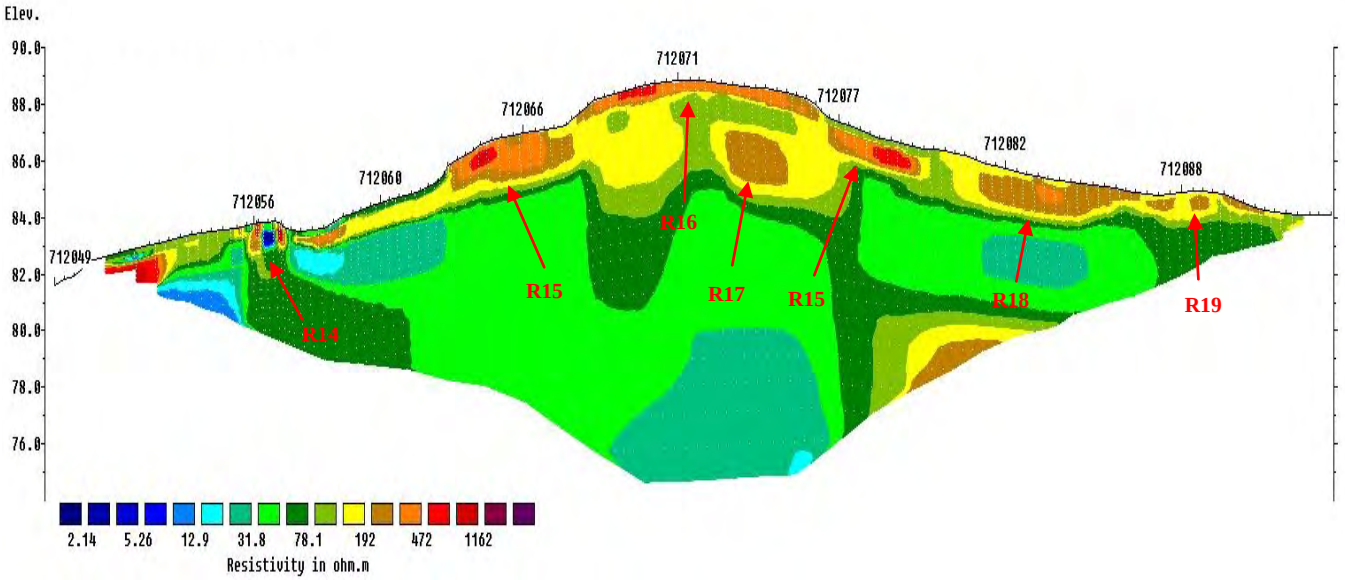


Image 8: Electrical Resistivity Tomography Data – Line 3

0m (NW) 10m 64m (SE)

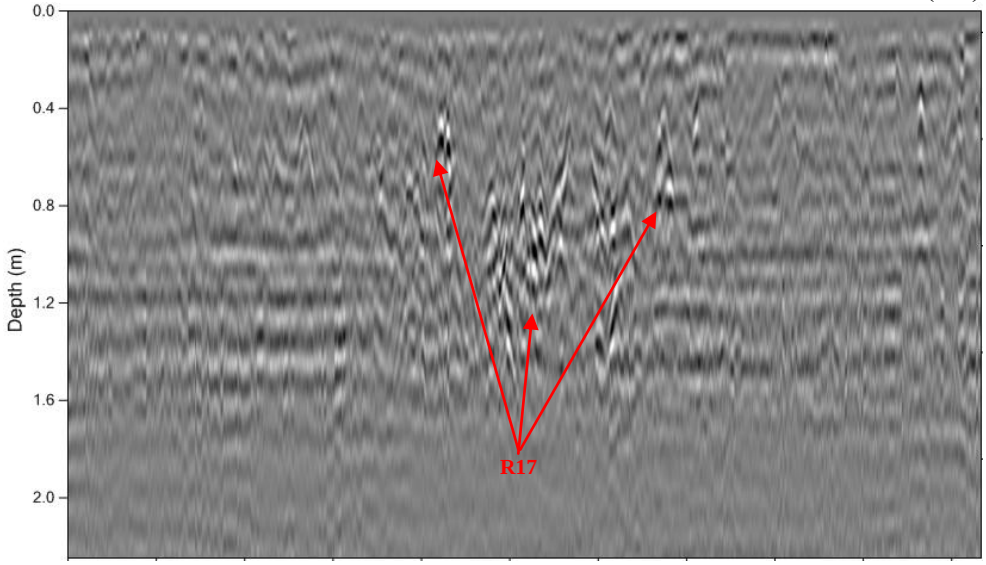


Image 9: Ground Penetrating Radar Data – Line 3

While the electric resistivity tomography data was run as a continuous line the ground penetrating radar data was impacted by vegetation and therefore could only be started 10m along the line.

Anomaly **R14** consists of two banks and a central shallow ditch or area of disturbed soil. This feature coincides with a probable boundary ditch detected in the earth resistance data (E3).

R15 comprises two areas of compact earth which form the slopes of mound M1. Similar in composition to R4, R7 & R10 this layer is made up of multiple deposition events and material of different compositions and densities, which vary in thickness and have been placed on top of a natural topographical rise. It is noticeable that the southern edge of R15 is thicker (c. 1.75m) than to the north (c.1m) suggesting that more material has been used in the mound at this location. This layer of compaction was also picked up the ground penetrating radar results as a general area of ground with multiple deposits within it. This feature corresponds to the largest area of high resistivity within E4 in the earth resistance data.

R16 represents a shallow area of compact earth which has been placed over the top of mound T2. Measuring c.0.5m in thickness this feature represents the top layer of the mound. Beneath it a series of slightly high resistivity values interspersed with low resistivity zones can be seen. These features also represent mound material and suggest that the mound is more susceptible to holding moisture within the low resistivity zones.

Anomaly **R17** is a zone of compact earth which contains numerous small deposits or stones. The anomaly was detected in both the electric resistivity tomography and ground penetrating radar data and is located around 1m in depth and slightly off centre from line 3. This places it close to the northwestern edge of mound T1 in an area not measured by lines 1 or 2 and possibly connected with the largest anomalies within E22 in the earth resistance data. Anomaly R17 could be archaeological in origin or could represent the natural soil surface on which the mound was constructed.

Anomaly **R18** is a zone of compacted earth or stone rich soil which is located on the southeast edge of the mounds. This feature partially corresponds to an area of high resistivity within the earth resistance data (E12) and could represent a natural or archaeological deposit.

R19 represents an area of compact earth which coincides with the southern field boundary.

3.4.4 Line 4

0m (NW) 64m (SE)

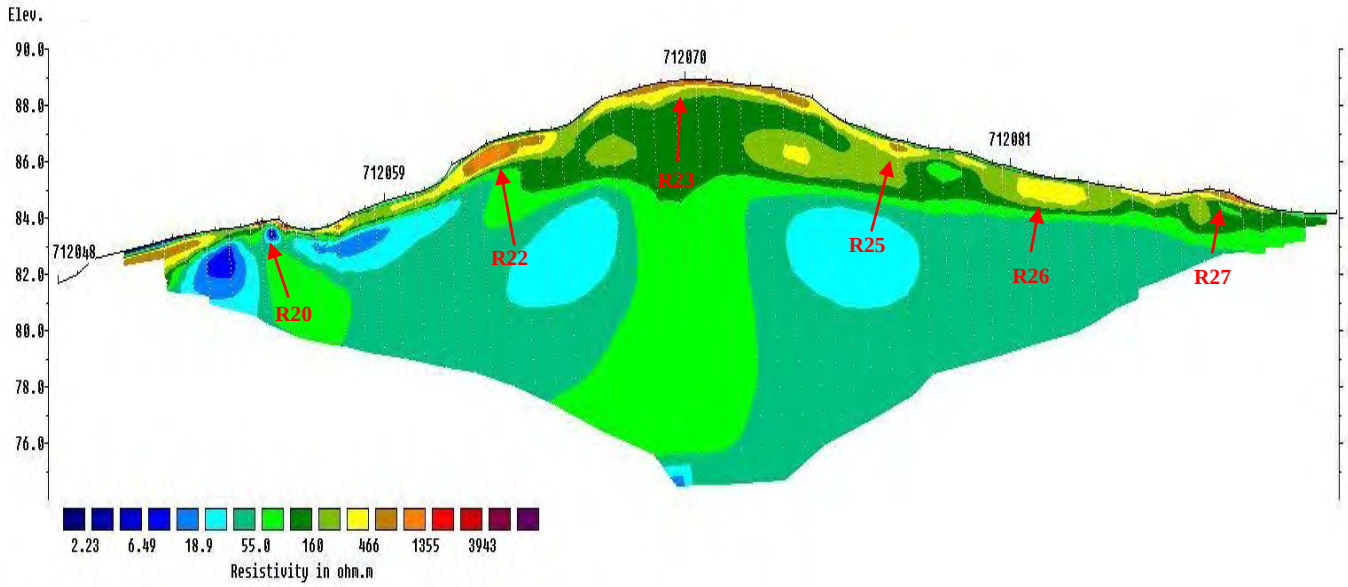


Image 10: Electrical Resistivity Tomography Data – Line 4

0m (NW) 8m 24m 27m 64m (SE)

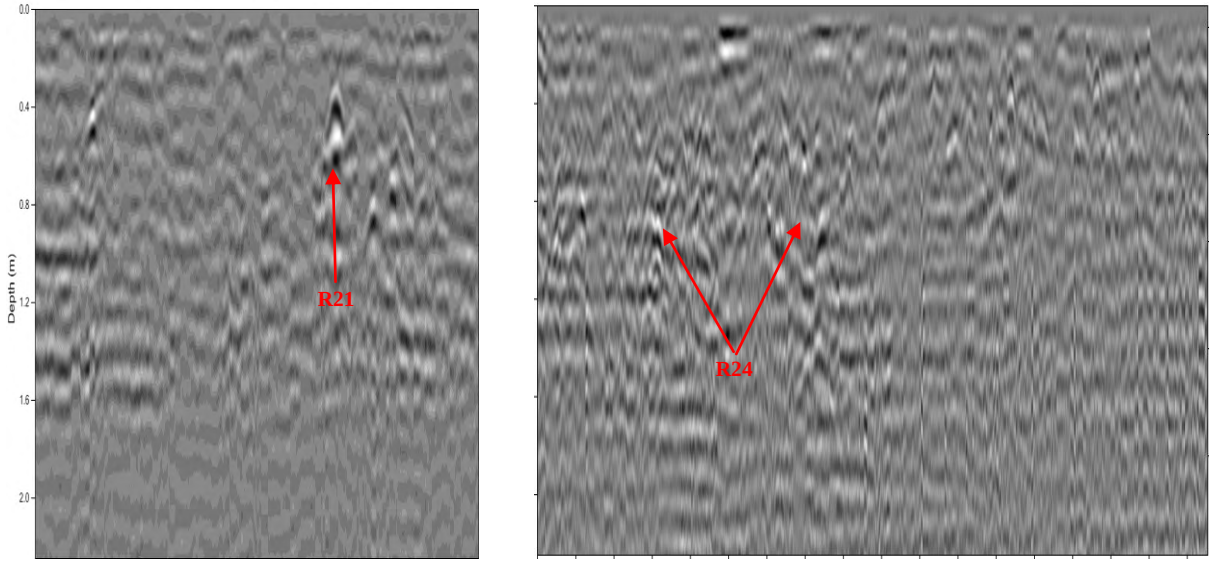


Image 11: Ground Penetrating Radar Data – Line 4

While the electric resistivity tomography data was run as a continuous line the ground penetrating radar data was impacted by vegetation and therefore had to be broken.

Anomaly **R20** is a shallow ditch flanked by two possible banks. This feature matches bank E2 and suggests that there is a ditch associated with the feature (E2) detected in the earth resistance data.

R21 is an isolated small void which was detected in the ground penetrating radar data. This feature could be archaeological in origin or may be associated with a naturally occurring void or soil movement around a large stone. It is located c. 0.5m below topsoil, 18m along line 4.

R22 is a zone of compact or stone rich soil which is located on the northwestern edge of the mound T1. Approximately 1m in depth this feature represents the material used to construct the mound and may also be associated with the largest anomaly within E4 in the earth resistance data.

Anomaly **R23** consists of a shallow layer of stone rich or dry soil which is located over the top of mound T2. Measuring less than 0.3m in depth this feature is likely to relate to natural drying of the soil. R23 combined with the slightly raised resistivity values below it comprise the construction material associated with the mound.

R24 comprises an area of stone rich ground which was detected in the ground penetrating radar data. Located c. 1m below top soil this anomaly is located on the southeastern edge of mound T1 and is likely to be associated with a change in its construction material.

R25 is a small patch of compact earth or stone rich ground which is located near the southeastern edge of mound T2. This feature could be associated with the construction of the mound or M60 within the electromagnetic data.

Anomaly **R26** is an area of compact earth or stone rich ground which is located near the southern edge of the field. It is likely that this anomaly represents a continuation of E12 detected in the earth resistance data and could be archaeological, agricultural or geological in origin.

Anomaly **R27** consists of a shallow area of compact earth which coincides with a slight topographical expression. This feature coincides with the southeastern field boundary.

4 Conclusion

The geophysical surveys undertaken for this report has revealed a series of previously unknown potential archaeological features as well as mapping and categorising the mound present within the site.

The electromagnetic investigations of the land surrounding recorded monument barrow DU004-005 revealed a series of relict agricultural boundaries. These appear to run in multiple directions indicating that the landscape has been heavily cultivated over time. The remains of the entranceway for Westown House was also detected running through the survey area. A number of the relict agricultural boundaries appear to interconnect with this feature suggesting that they are contemporary.

The landscape was also found to contain a series of low and high resistivity areas which could be related to agricultural, geological or archaeological processes. A few potential archaeological features were detected within this wider landscape. On the southern edge of the survey area a series of arcing ditches were identified as well as a larger oval ditch to the north. A series of arcing compact earth features and central stone deposits were also detected to the southeast of the recorded monument site, which could indicate the presence of a wider archaeological landscape.

More details surveys were undertaken on the land surrounding the recorded monument. This detailed area of investigation was subjected to a high resolution topographical and earth resistance surveys as well as lines of electric resistivity tomography and ground penetrating radar. These surveys revealed the true extent and composition of the mound present. A total of two distinct mounds were identified, the lower being c.23.8m in diameter and 1.2m in height and contains a relatively flat top. Surrounding this mound a possible enclosure ditch was detected as well as evidence for agricultural processes.

The second mound marks a smaller structure which has been placed on the centre of the lower. Measuring 10m in diameter and over 1m in height, this mound is more bulbous in formation with no distinctive break in slope at the top. The internal structure of both mounds indicates that they appear to be built on a natural topographical expression and that they appear to contain multiple separate deposition events. While distinctive features were identified within each of the mounds it was impossible to tell if they represent one building event or are indeed two artificial mounds built at separate times one on top of another.

Contained on the top of the upper mound a circular expression c.0.2m in height and c.4m in diameter was identified and within the centre of this a small topographical expression, less than 0.2m in height and c.0.5m in width. These features are likely to be archaeological in origin. No evidence for excavation shafts were detected such as those that may have been dug in antiquity and indeed no distinctive structure could be identified within the mound apart from a slightly off centre zone of compact earth which contains numerous small deposits or stones. Located around 1m in depth this feature may be archaeological in origin or could represent the natural soil surface on which the mound was constructed.

Adjacent to the mounds evidence for arcing ditches, pits, stone deposits and banks were detected. While some of these appear to follow or respect the alignment of the mounds and are suggestive of archaeological remains others represent agricultural boundaries.

4.1 Dissemination

The results of this survey were submitted to Naul Community Council. Additional copies will be distributed in accordance with the Consent to use a Detection Device.

5 Acknowledgements

Report: Heather Gimson BA (Hons) MSc MIAI

Fieldwork: Cian Hogan BSc (Hons) MLit
Darren Regan BSc (Hons) MA

Client: Naul Community Council

Funder: Community Monuments Fund

Landowner: Christopher White

6 Bibliography

ABEM. 2016. *ABEM Instruction Manual: Terrameter LS*. ABEM Instrument AB. Sunbyberg, Sweden.

Clark, A. J. 1996. *Seeing Beneath the Soil*. Revised Edition, London, Routledge.

Conyers, L. B. 2004. *Ground-Penetrating Radar for Archaeologists* Geophysical Methods for Archaeology. Oxford: AltaMira Press.

David, A. Linford, N. & Linford, P. 2008. *Geophysical Survey in Archaeological Field Evaluation*. Second Edition, English Heritage.

Gaffney, C. F., Gater, J. A., Linford, P., Gaffney, V. L. & White, R. 2000. 'Large-scale systematic fluxgate gradiometry at the Roman city of Wroxeter', *Archaeological Prospection* 7: 81–99.

Gaffney, C. & Gater, J. 2003. *Revealing the Buried Past: Geophysics for Archaeologists*. Stroud: Tempus Publishing.

Gaffney, C., Gater, J. & Ovenden, S. 2002. *The use of Geophysical Techniques in Archaeological Evaluations*, IFA Paper No. 6, Institute of Field Archaeologists.

GF Instruments. 2010. *CMD Electromagnetic Conductivity Meter User Manual*. Version 1.5. GF Instruments.

GSSI. 2003. *TerraSIRch SIR System-3000 User's Manual*. Geophysical Survey Systems, Inc.

Schmidt, A. 2013. *Earth Resistance for Archaeologists.* Lanham: AltaMira Press.

Schmidt, A. & Ernenwein, E. 2011. *Guide to Good Practice: Geophysical Data in Archaeology*. 2nd Edition. Archaeology Data Service.

Schmidt, A., Linford, P., Linford, N., David, A., Gaffney, C., Sarris, A. & Fassbinder, J. 2015. *EAC Guidelines for the Use of Geophysics in Archaeology: Questions to Ask and Points to Consider*. EAC Guidelines 2. Europae Archaeologiae Consilium, Belgium.

Scollar, I., Tabbagh, A., Hesse, A. & Herzog, I. 1990. *Archaeological Prospecting and Remote Sensing*, Cambridge, Cambridge University Press. Topics in Remote Sensing Vol. 2.

Websites consulted:

Geological Survey of Ireland Datasets Public Viewer on http://www.gsi.ie/mapping

Archaeological Survey of Ireland on http://www.archaeology.ie

7 Images

8 Figures

Technical Appendix

Appendix 1: Anomaly Classifications

Electromagnetic Apparent Electrical Resistivity

Electromagnetic instruments transmit an alternating current which induces a primary and subsequently a secondary electromagnetic field which interacts with the underlying soils. One of the subsequent responses is the Apparent Electrical Conductivity of the soil, which are subsequently calculated via automated software to Apparent Electrical Resistivity.

Anomaly classification used to interpret data

After Gaffney & Gater (2003) and Gaffney *et al*. (2000).

A known archaeological feature type e.g. Ditch / Wall / Structure etc: An anomaly with a Resistivity that contrasts strongly with the surrounding sub-soil, where the presence of a type of archaeological feature is known from supporting evidence.

Archaeology: A linear, curvilinear or isolated anomaly with an Resistivity that contrasts strongly with the surrounding sub-soil, without any supporting evidence from another source.

- **Ditch / Wall:** A discrete linear, curvilinear, annular or penannular anomaly with an Resistivity that contrasts strongly with the surrounding sub-soil. A low Resistivity suggests a ditch; a high Resistivity suggests a stone-filled ditch or wall.
- **Mound of Stones:** A higher Resistivity than the surrounding sub-oil.
- **Pit:** A small isolated area (>1-2m diameter) of Resistivity that contrasts with the surrounding sub-soil, judged to be caused by a pit-type feature.
- **Cultivation:** Parallel linear responses of high or low Resistivity.
- **Disturbed Soil:** A broad area of moderate Resistivity change that contrasts with the surrounding sub-soil. May represent cultural noise associated with soil disturbance, judged to be of archaeological origin.

High Resistivity Anomalies

Soils comprised of materials of a higher Resistivity than the surrounding soil will exhibit anomalies of 'higher resistivity'. These are likely to include stone walls, masonry, rubble, cobbled or gravel surfaces, as well as near surface geology.

Low Resistivity Anomalies

Soils that are comprised of materials of a lower ER_a than the surrounding soil will exhibit anomalies of 'lower resistivity'. These are likely to include ditches, drainage ditches and pits, as well as palaeochannels, drained soils, a high water table, deep topsoil, springs, boggy areas, areas adjacent to rivers and clay soils.

Modern Disturbance: Area where the ground has been disturbed in the recent past. Characterised by a high level of noise and very large Resistivity gradients.

Modern Pipe: Straight, linear anomaly with an Resistivity contrast.

Geology: Anomalies of possible geomorphological origin.

Absence of Anomalies

It is also possible that archaeological features exist that exhibit no resistivity contrast and hence cannot be identified by Apparent Electrical Resistivity survey.

Topography

Topographic surveys are created using a series of closely spaced readings taken with an RTK GPS. Each datapoint is modelled using its location and height, forming a Digital Terrain Model (DTM).

Earth Resistance

Earth resistance surveys transmit a small electrical current into the soil enabling the soils resistive properties to be calculated.

Anomaly classification used to interpret data

After Gaffney & Gater (2003) and Gaffney *et al*. (2000).

A known archaeological feature type e.g. Ditch / Wall / Structure etc: An anomaly with a resistance that contrasts strongly with the surrounding sub-soil, where the presence of a type of archaeological feature is known from supporting evidence.

Archaeology: A linear, curvilinear or isolated anomaly with an earth resistance that contrasts strongly with the surrounding sub-soil, without any supporting evidence from another source.

- **Ditch / Wall:** A discrete linear, curvilinear, annular or penannular anomaly with an earth resistance that contrasts strongly with the surrounding sub-soil. A low resistance anomaly suggests a ditch (or gully); a high resistance anomaly suggests a stone-filled ditch or wall.
- **Mound of Stones:** A discrete horseshoe or ovoid shaped anomaly with a higher resistance than the surrounding sub-soil.
- **Pit:** A small isolated area (>1-2m diameter) of typically low resistance that contrasts with the surrounding sub-soil, judged to be caused by a pit-type feature. An isolated high resistance anomaly could indicate a stone-filled pit or isolated stone deposits.
- **Cultivation:** Parallel linear responses of high or low resistance.
- **Disturbed Soil:** A broad area of moderate low resistance change that contrasts with the surrounding sub-soil. May represent cultural noise associated with soil disturbance, judged to be of archaeological origin.

High resistance Anomalies

Soils comprised of materials of a higher earth resistance than the surrounding soil will exhibit anomalies of 'higher resistance'. These are likely to include stone walls, masonry, rubble, cobbled or gravel surfaces, as well as near surface geology.

Low resistance Anomalies

Soils that are comprised of materials of a lower earth resistance than the surrounding soil will exhibit anomalies of 'lower resistance'. These are likely to include ditches, drainage ditches and pits, as well as palaeochannels, drained soils, a high water table, deep topsoil, springs, boggy areas, areas adjacent to rivers and clay soils.

Modern Disturbance: Area where the ground has been disturbed in the recent past. Characterised by very large low or high resistance gradients.

Modern Pipe: Straight, linear anomaly with a resistance contrast.

Geology: Usually visible as broad background changes, indicating possible geomorphological origin.

Absence of Anomalies

It is also possible that archaeological features exist that exhibit no earth resistance contrast and hence cannot be identified by an earth resistance survey.

Electrical Resistivity Tomography

Electrical Resistivity Tomography (ERT) is calculated by transmitting small electrical currents into the soil. These currents are passed between a variety of different electrodes and electrode spacings enabling measurements to be taken at different depths and positions.

High Resistivity Anomalies

Soils comprised of materials of a higher resistivity than the surrounding soil will exhibit anomalies of 'higher resistivity'. These are likely to include stone walls, masonry, rubble, cobbled, compacted or gravel surfaces, as well as near surface geology.

Low Resistivity Anomalies

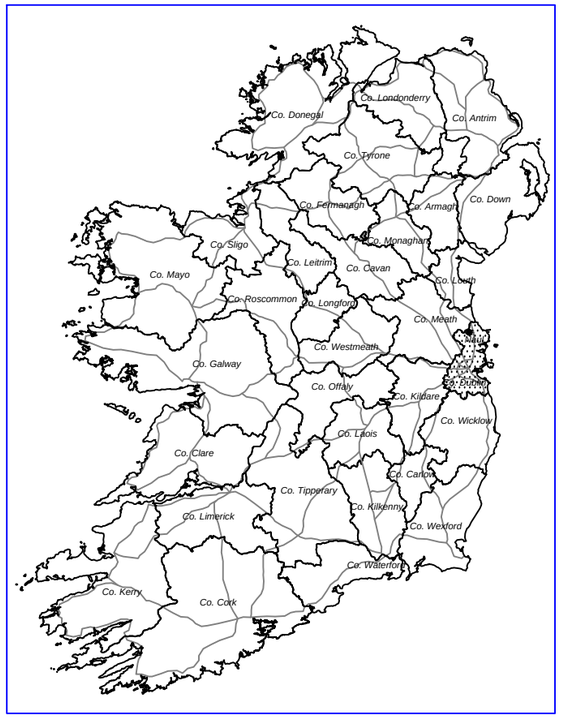
Soils containing ditches, drainage ditches and pits, as well as palaeochannels, drained soils, a high water table, deep topsoil, springs, boggy areas, areas adjacent to rivers and clay soils will exhibit anomalies of 'lower resistivity'.

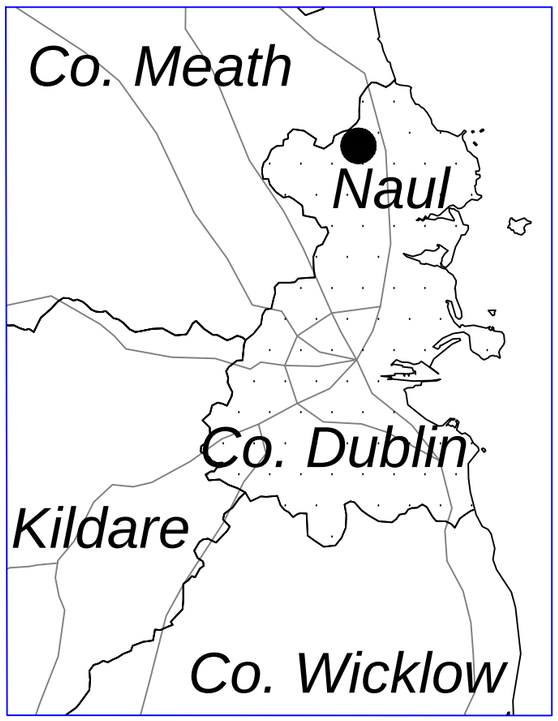
Ground Penetrating Radar

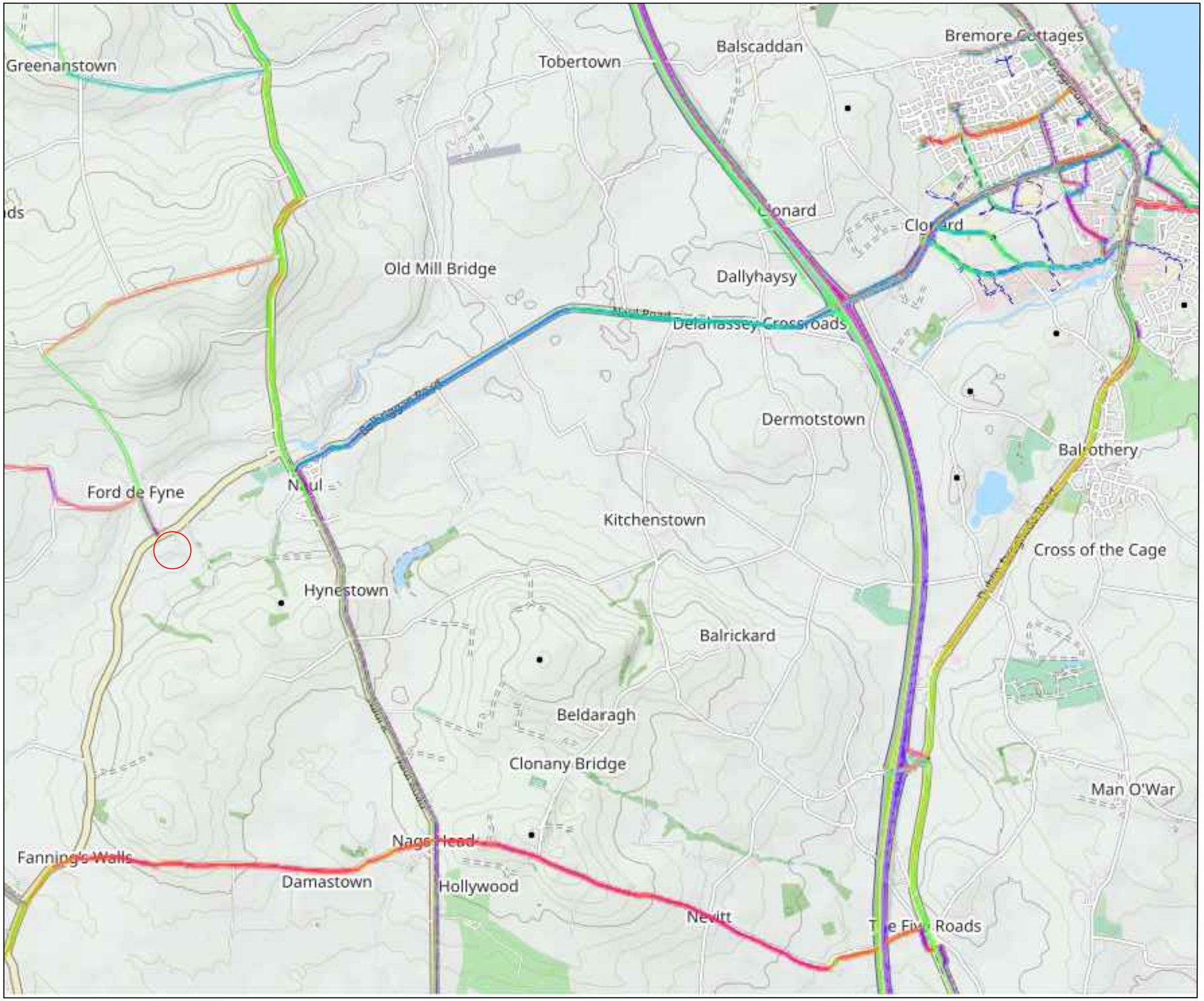
Ground Penetrating Radar (GPR) surveys transmit electromagnetic pulses from a surface antenna into the ground. These radar waves reflect of each interface within the subsoil allowing the detection of buried archaeological features.

Stone Feature: Soils comprised of materials of a higher amplitude than the surrounding soil. These are likely to include stone walls, masonry, rubble, cobbled or gravel surfaces, as well as near surface geology.

Possible Archaeology: A linear, curvilinear or isolated anomaly that contrasts with the surrounding sub-soil, without any supporting evidence from another source. Such categories may represent possible archaeological or geological sources.







Legend

Geophysical Survey Area

Project: Investigation of Barrow DU004-005- and surrounding lands, Westown, Naul, Co. Dublin

Client: Naul Community Council

Figure No. 1: Location Map

EARTHSOUND geophysics

Enclosure
DU004-004----

Barrow
DU004-005----

Tower House
DU004-043001-

Enclosure
DU011-004----

Enclosure
DU004-077----

Legend

- Basemap
- Recorded Monument
- Geophysical Survey Area

Project: Investigation of Barrow DU004-005- and surrounding lands, Westown, Naul, Co. Dublin

Client: Naul Community Council

0m 200m 400m

Figure No. 2: Detailed location Map

EARTHSOUND geophysics

Legend

Basemap

Detailed Area of Investigation

mS/m

-20 0 20

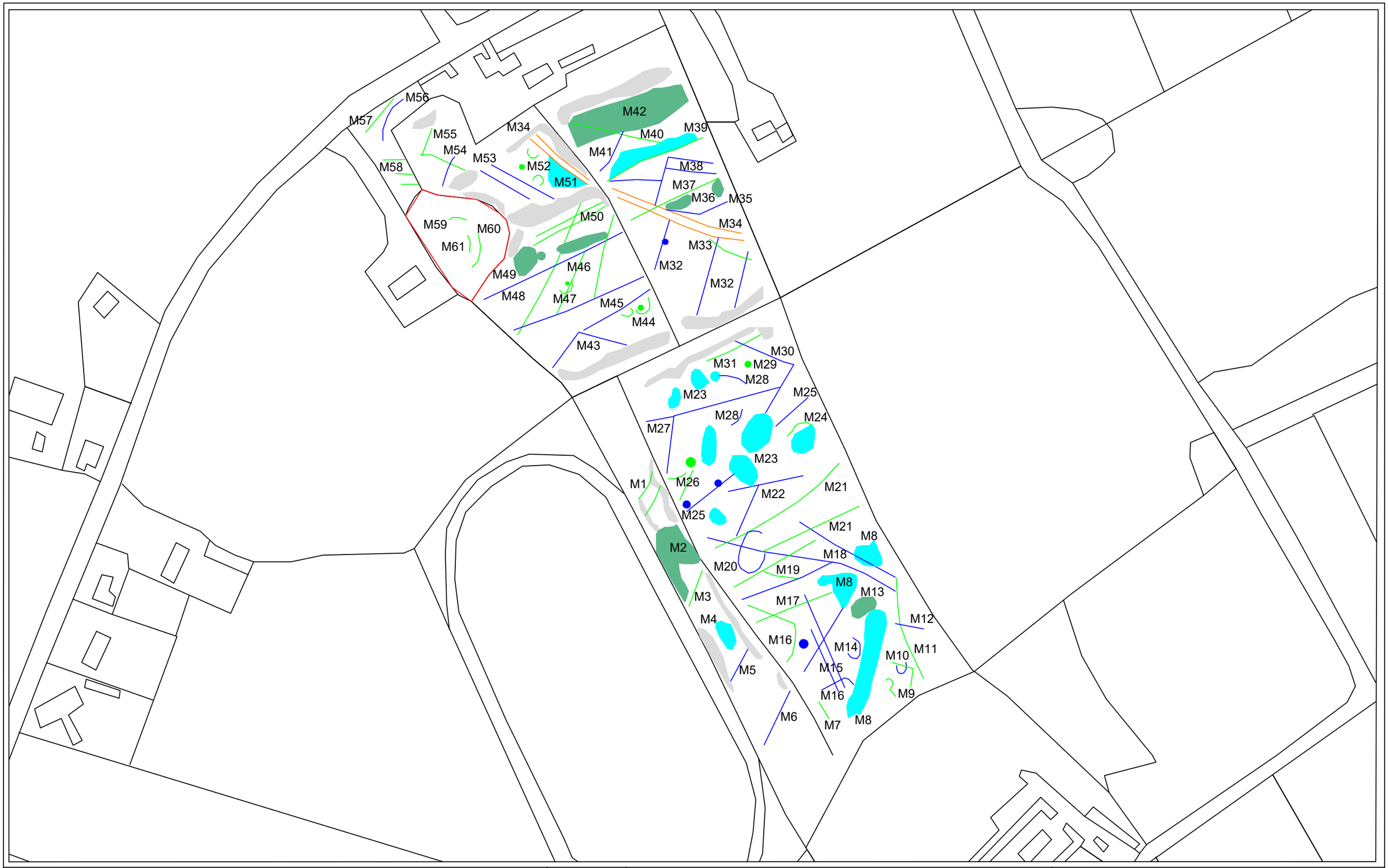
Project: Investigation of Barrow DU004-005- and surrounding lands, Westown, Naul, Co. Dublin

Client: Naul Community Council

0m 100m 200m

Figure No. 3: Electromagnetic Resistivity data

EARTHSOUND geophysics



Legend

- Basemap
- Detailed Area of Investigation
- Possible Archaeology
- Low Resistivity Anomaly
- Low Resistivity Area
- High Resistivity Anomaly
- High Resistivity Area
- Feature on Historic OS
- Boundary Disturbance

N

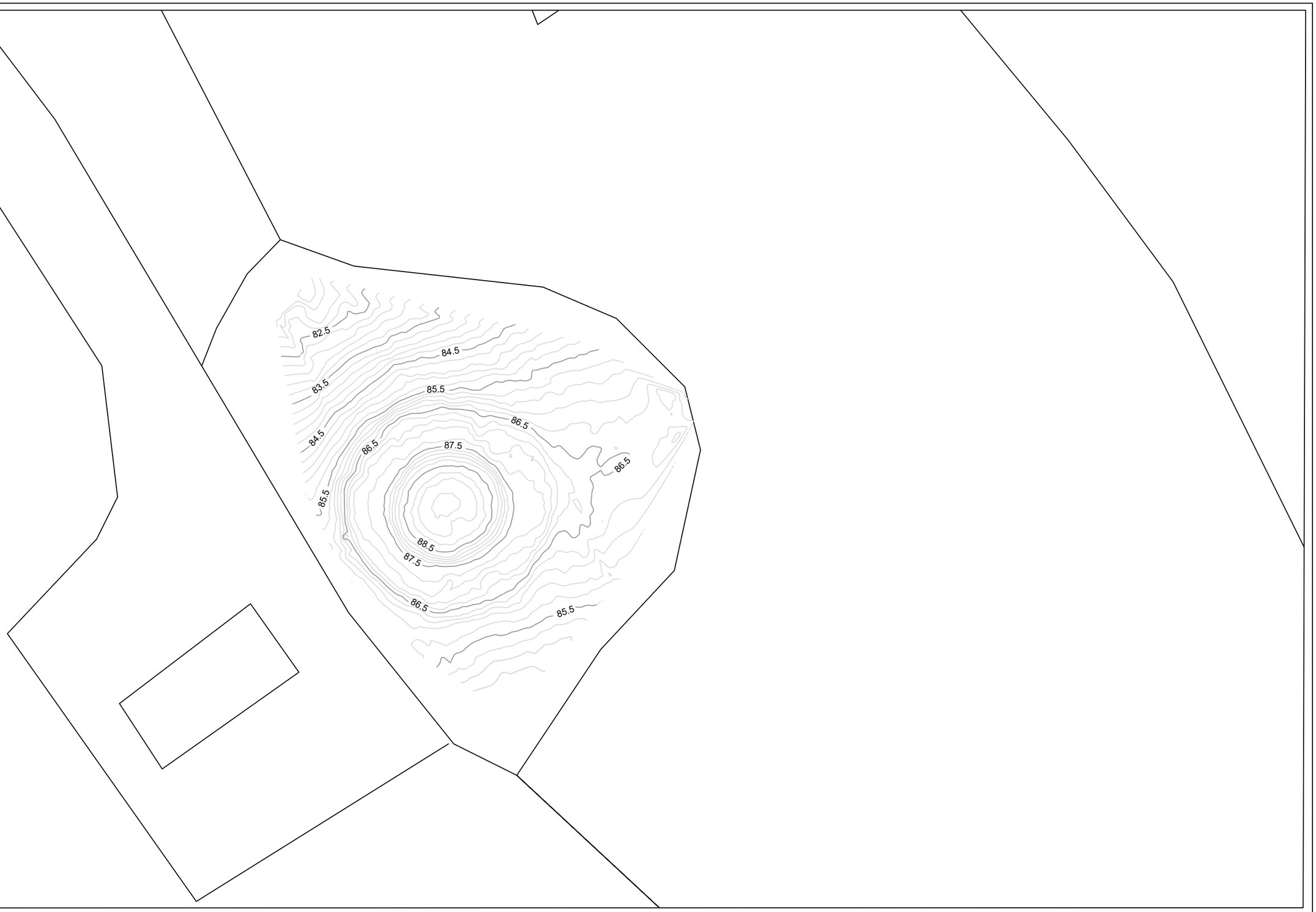
Project: Investigation of Barrow DU004-005- and surrounding lands, Westown, Naul, Co. Dublin

Client: Naul Community Council

0m 100m 200m

Figure No. 4: Electromagnetic Resistivity Interpretation

EARTHSOUND geophysics



Legend

- Basemap
- Minor Contour Line
- Major Contour Line

N

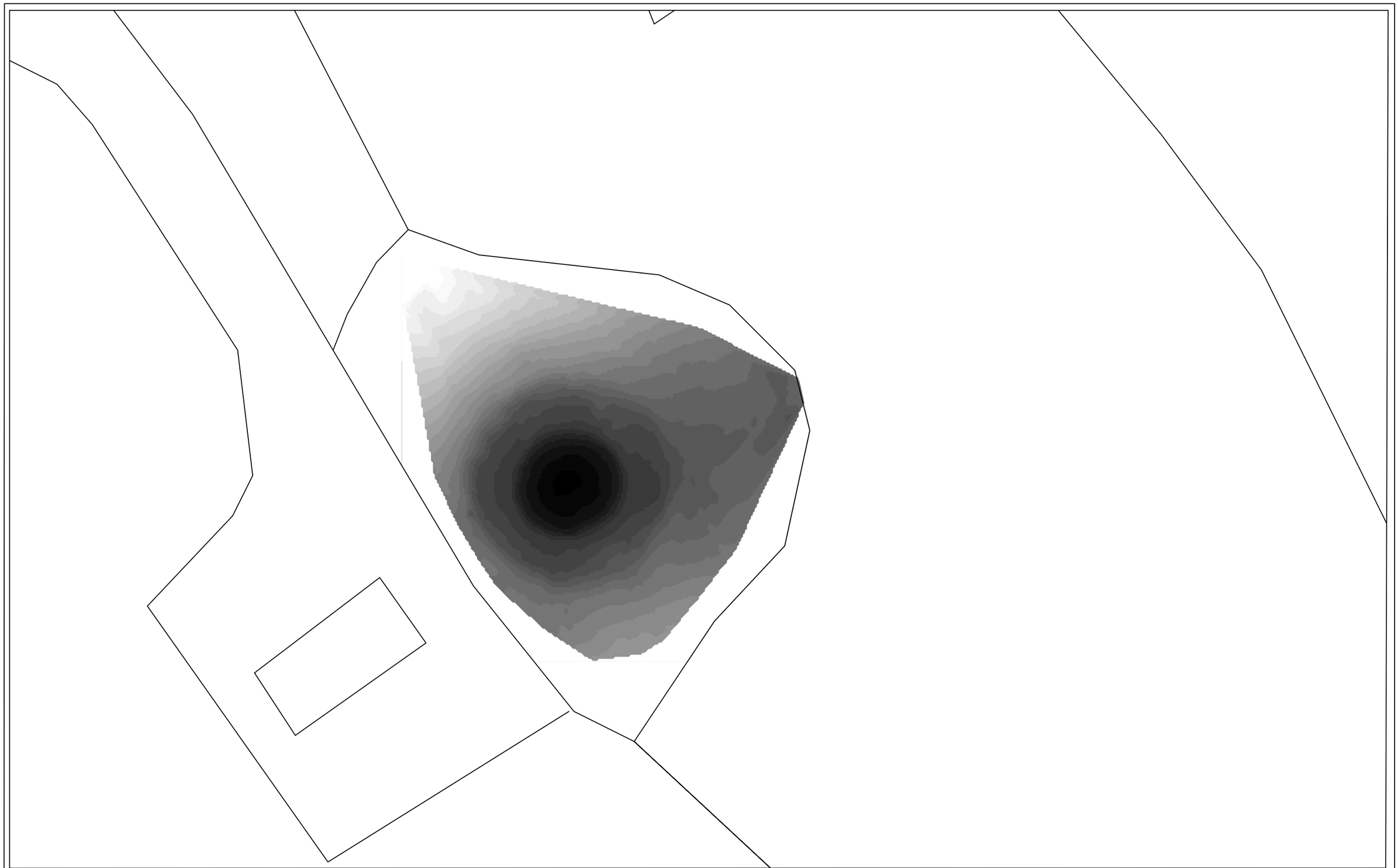
Project: Investigation of Barrow DU004-005- and surrounding lands, Westown, Naul, Co. Dublin

Client: Naul Community Council

0m 22m 44m

Figure No. 5: Topographical Contour data

EARTHSOUND geophysics



Legend

Basemap

O.D.

81.5 89.2

Project: Investigation of Barrow DU004-005- and surrounding lands, Westown, Naul, Co. Dublin

Client: Naul Community Council

0m 22m 44m

Figure No. 6: Topographical Greyscale data

EARTHSOUND geophysics

Legend

Basemap

Ohms

10 — 150

N

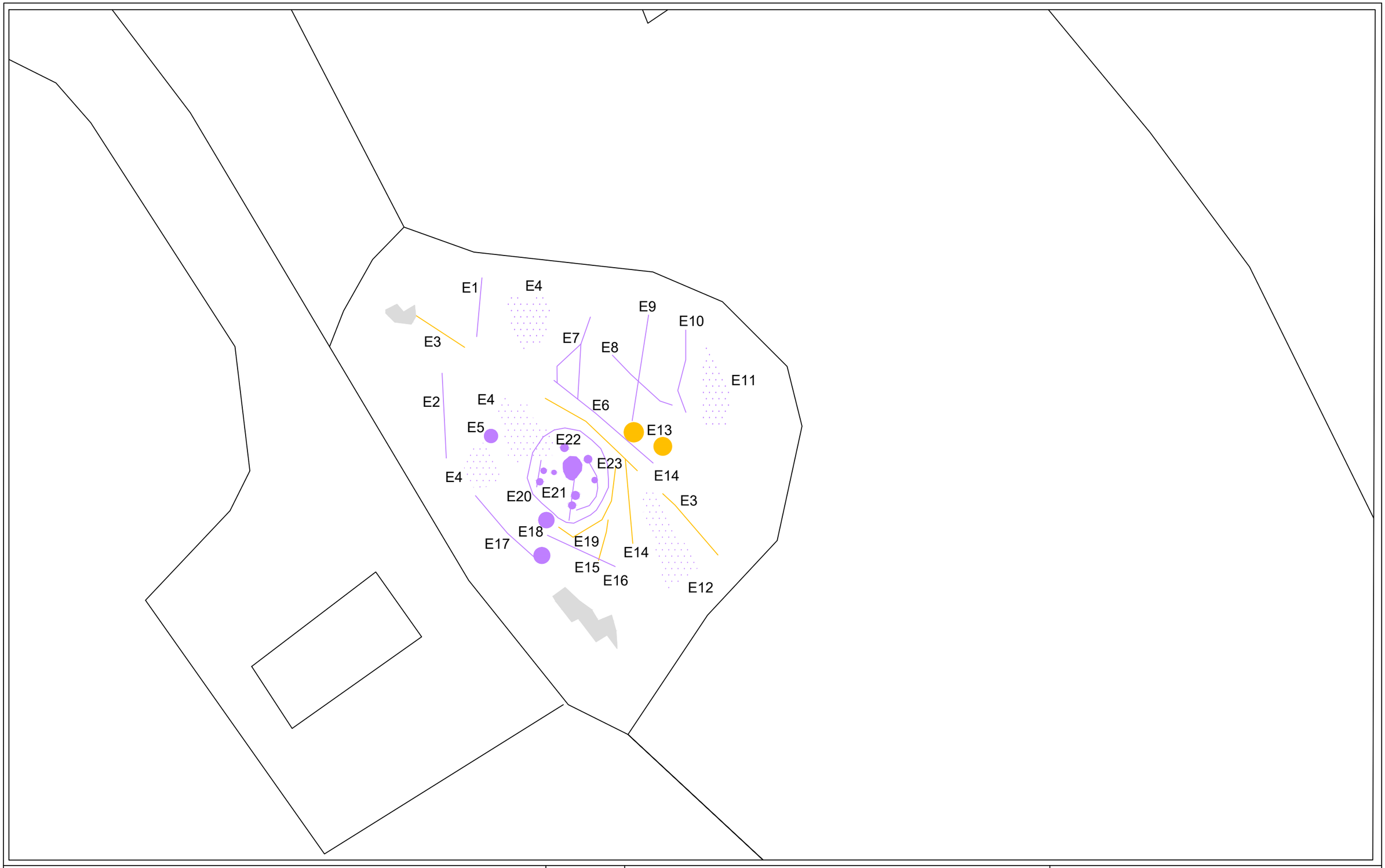
Project: Investigation of Barrow DU004-005- and surrounding lands, Westown, Naul, Co. Dublin

Client: Naul Community Council

0m — 22m — 44m

Figure No. 7: Earth Resistance data

EARTHSOUND geophysics



Legend

Basemap

Possible Archaeology
Low Resistance Anomaly
High Resistance Anomaly
High Resistance Area
Boundary Disturbance

N

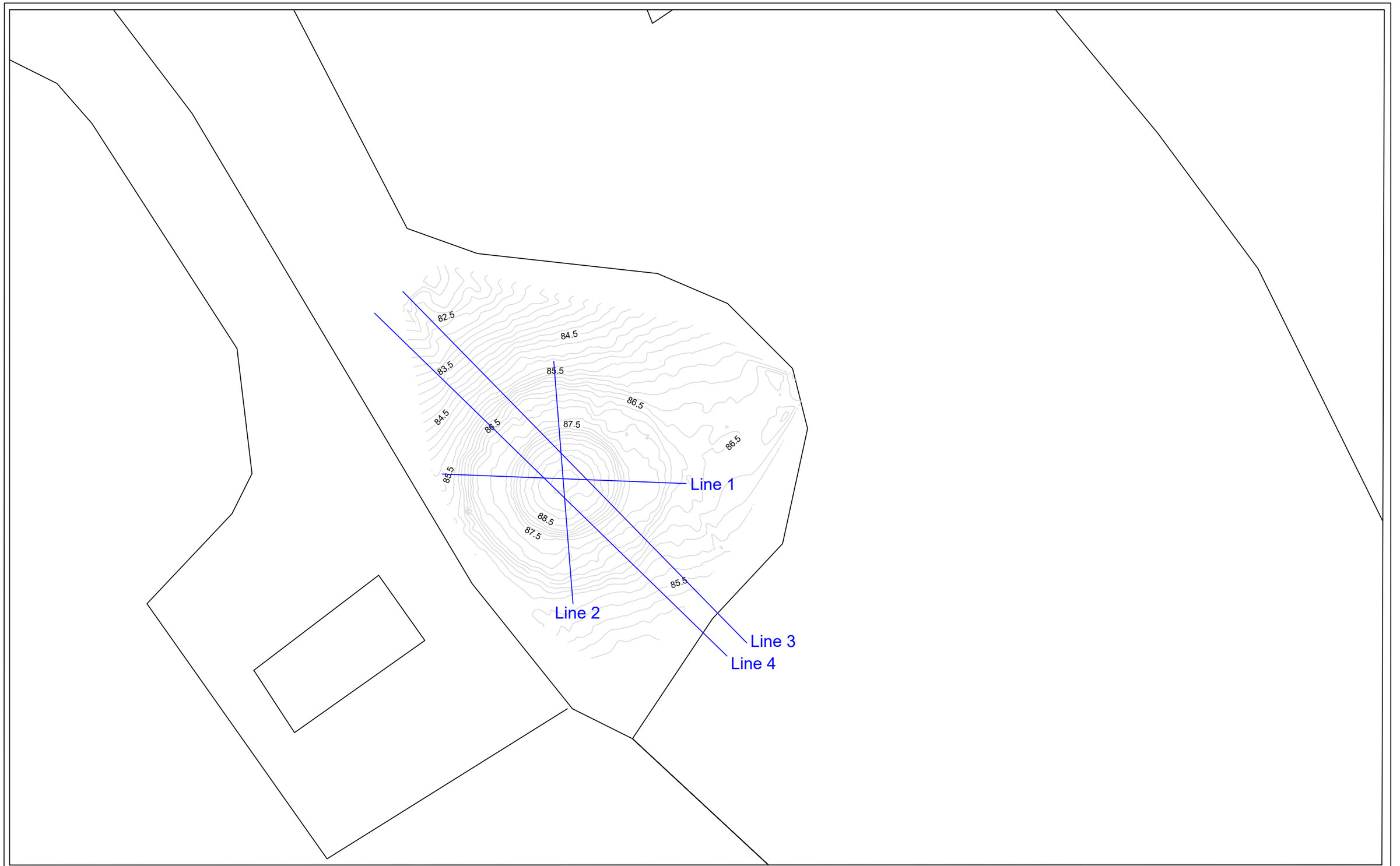
Project: Investigation of Barrow DU004-005- and surrounding lands, Westown, Naul, Co. Dublin

Client: Naul Community Council

0m 22m 44m

Figure No. 8: Earth Resistance interpretation

EARTHSOUND geophysics



Legend

- Basemap
- Contour Line
- Electrical Resistivity Tomography and Ground Penetrating Radar Survey Line

Project: Investigation of Barrow DU004-005- and surrounding lands, Westown, Naul, Co. Dublin

Client: Naul Community Council

0m 22m 44m

Figure No. 9: Electrical Resistivity Tomography & Ground Penetrating Radar Survey Line Locations

EARTHSOUND geophysics

Appendix 5 - Ecological survey and biodiversity Management Plan

Ecological survey and biodiversity Management Plan for The Barrow, Moat Wood, Westown, The Naul, Co Dublin

By Wildlife Surveys Ireland Ltd

Donna Mullen M.P.P.M and Brian Keeley BSc Hons in Zool.

Maio

Tierworker

Kells

Co Meath

Ph 0877454233

www.wildlifesurveys.net

Biodiversity Management Plan

Recommendations

(1)Bat boxes-A bat box scheme should be put in place. A mix of 2FN Schwegler bat boxes and timber boxes (which can be built by the community) should be put in place. It is important that the entrance gaps to the boxes are from 15-18mm wide. These boxes should be placed in dark areas, at least 3m high, with a clear drop below (as bats need to drop to start their flight). They can be attached to trees. Schwegler bat boxes can be purchased from https://www.veldshop.nl/en/bat-box-2fn-custom-built.html. Advice for building timber boxes can be found here –

https://www.batconservationireland.org/wp-content/uploads/2013/09/Leaflet_3_batboxes.pdf

It is important that the entrance gap is no more than 20 mm wide and the wood used is untreated.

(2)Nature Trail -A Nature trail should be put in place, showing the species found, some information on them (see Appendix III) and the importance of dark sky areas. Links on the trail could be given via a QR code which would lead to further

information such as a local person speaking about the wildlife, an expert, or an animation. Information on bats found on the site for the general public is in Appendix V.

(3) Public education - Once a year, there should be an “Ask the expert” public event, where an expert gives a talk and information on the flora and fauna in the area. It would be interesting to get an expert on fungi, as there are several species of fungi on site.

Other experts could include experts from Butterfly Conservation Ireland, Bat Conservation Ireland, and The Irish Wildlife Trust.

(4)Hedgerows -Existing hedgerows should be restored and maintained to achieve biodiverse, dense vegetation with a wide base. Farm animals should be kept away from the hedgerows. Any added plants should be of native species. Guidelines can be found in the following publications:

• How-to-guide Hedgerows for Pollinators, National Biodiversity Data Series No. 7

https://www.biodiversityireland.ie/wordpress/wp-content/uploads/Pollinator-How-to-Guide-3-

• Conserving Hedgerows, The Heritage Council

https://www.heritagecouncil.ie/content/files/conserving_hedgerows_2mb.pdf

(5) Trees

Trees should be regularly checked for disease and damage. If required, they should be pruned by a qualified tree surgeon. It is important to retain cracks, crevices, and hollows. The large Oak tree may be a Leisler's mating perch. If it is safe, dead trees should be left standing, to provide dead wood habitat and provide hollow nesting sites, which are increasingly rare.

(6) Farm animals and equipment access -It is recommended to exclude farm animals and equipment from the site. There were signs of donkeys sheltering under the Oak tree and signs of silage bales kept on the top of the barrow. Trampling and foraging by large farm animals, movement of farm machinery, and keeping fodder leads to changes in the structure of soil and flora.

(7) Ground nesting bees and wasps -With the exclusion of farm animals, the exposed bank hosting ground nesting solitary bees will shortly become overgrown. It is recommended to keep this area bare.

It is important to keep this bare bank for solitary bees

(8)Visitor Access-Visitors should be encouraged to use purposely built walkways to avoid trampling and destroying hedgerows.

(9) Grassland and scrub management-To keep the top and banks of the barrow open, it needs to be cut once or twice a year and managed as a hay meadow. This will encourage growth of more broadleaved herbs and will provide food for pollinators. Recommendations on grassland management can be found here:

• How-to-guide Creation and management of a wildflower meadow, National Biodiversity Data

Series No. 13

https://pollinators.ie/wordpress/wp-content/uploads/2018/04/How-to-guide-Wildflower-Meadows-

2018-WEB.pdf

(10) Barn Owls -A barn owl nest box could be erected on or near to the site. These can be purchased from https://genesisnestboxes.ie/shop/page/2/ or made using instructions - https://birdwatchireland.ie/irelands-birds-birdwatch-ireland/nestbox-designs-for-birds-and-wildlife/

Bat and mammal assessment of The Barrow

Desktop survey

Bat data within 1 km of the site. For Bat data within 10 km of the site see Appendix V

BCIreland data: search results 19 Oct 2022		
Search parameters: Roosts Transects Ad-hoc observation sites with observations of all bats within 1000m of O1213460247.		
Transects		
Name	Grid reference start	Species
O04 (11) 2004-	O118593	Nyctalus leisleri; Pipistrellus pipistrellus Pipistrellus pygmaeus;Pipistrellus spp. (45kHz/55kHz)

Many thanks to Bat Conservation Ireland for this data. All bat data from this report will be logged with them.

Methodology for Bat and Mammal Survey

Bat Survey – Equipment

Exide Lamp

Petzl Tikka Head torch

One Songmeter Mini Bat time expansion detector and analysis software

Two Anabat walkabout time expansion detectors and kaleidoscope analysis software- two surveyors.

One Songmeter Mini Bat, left in place from 13-17 Sept 2022 by the large oak tree
Survey Location: Moat Wood, Westown townland, Naul, Co. Dublin
Coordinates: Latitude: 53°34'48.35"N, Longitude: 6°18'26.18"W
Survey Period Start: 7:30 pm on 13/09/2022
Survey Period End: 7:00 pm on 17/09/2022

A trail camera was placed by the badger track in Moat wood. The camera was installed along a path identified as a commuting track used by badgers to enter and traverse the Moat Wood site.

The trail camera was placed along the badger track

The Song meter Mini Bat recorded overnight along the hedgerow

Date 13 Sept 2022

Complexity of lands and ability to cover ground during surveys – All areas were accessible

Light pollution – There is very little pollution. It is important that this area remains a dark sky area.

Temp- 14°C

Constraints – Survey constraints

(1) Mobility of bats – Bat species are mobile and can move from roost to roost, depending on roost availability, feeding availability and weather conditions. They may move to roosts which have not been identified in this report in order to hibernate or create mating or feeding perches. A bat survey is a snapshot of bat activity over the survey time.

(2) Identification of bats- It can be difficult to differentiate myotis species. For this reason, the sound files are included within the report. Brown long eared bats are very quiet, and their presence can be overlooked in bat surveys as they may not register on bat detectors.

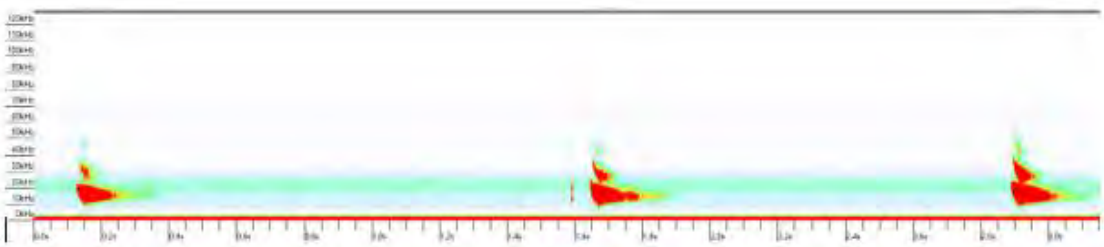
Report

The survey commenced at 18.30. The area was checked for roosting potential for bats. One sweet chestnut tree on the boundary has moderate bat roosting potential. It is ivy clad and has some damage to limbs.

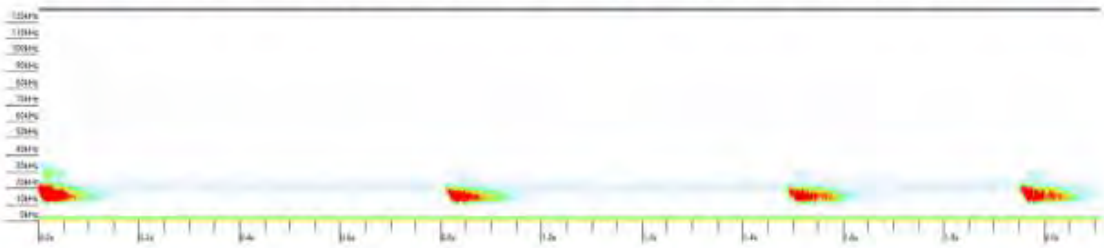
Moderate bat roosting potential

At 20.32, a Leisler's bat was seen to the southwest of the site. It moved along to feed under the elm tree. At 21.00 a common pipistrelle and Leisler's bat was seen feeding along the hedgerow by the road.

A Leisler's bat was calling from the oak to the southeast of the site on two nights. This tree may be a mating perch.



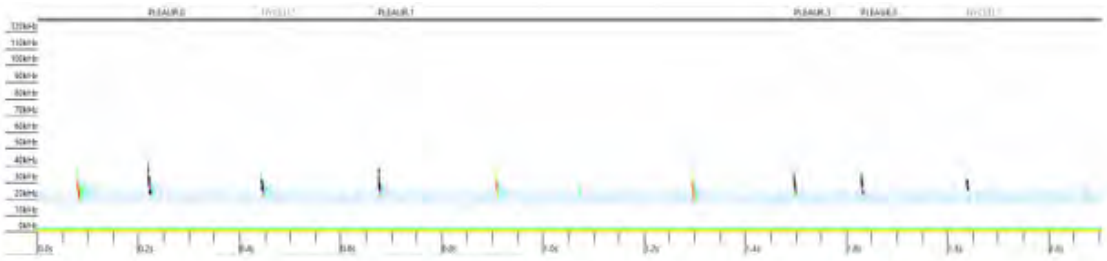
Leisler's bat mating call from a perch (probably the oak) 21.15 hours 13th September 2022



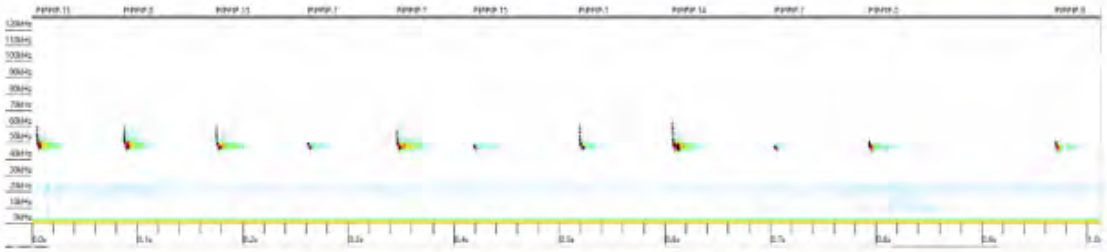
Leisler's bat mating call from a perch (probably the oak) 22.02 hours 14th September 2022

A common pipistrelle was recorded along the south eastern boundary at 21.02, and a common pipistrelle was seen on the eastern boundary at 22.03

A brown long eared bat was recorded by the oak on 14th Sept. A soprano pipistrelle was also recorded here with 10 bat passes recorded on 15 Sept.

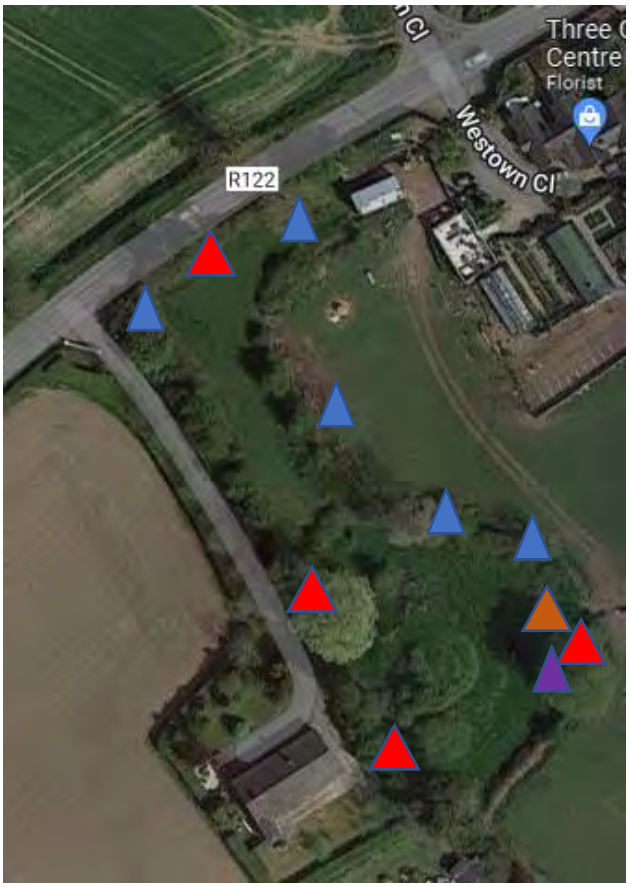


Brown long-eared bat at 20.42 on 14th September 2022



Common pipistrelle at 20.39 hours on 13th September 2022

Map of main bat activity



Red triangle – Leisler's bat
Brown triangle – Brown long eared bat
Blue triangle – Common pipistrelle
Purple triangle – Soprano pipistrelle

Bat activity within the site between 13th September and 17th September 2022

Bat species	**Passes per hour**												
	0	**1**	**2**	**3**	**4**	**5**	**6**	**19**	**20**	**21**	**22**	**23**	**Total**
13/09/2022									**9**	**7**	**1**	**6**	**23**
common pipistrelle									7	2	1	5	15
common pipistrelle soprano pipistrelle									1				1
Leisler's bat									1	4			5
soprano pipistrelle										1		1	2
14/09/2022	**10**	**4**	**6**			**12**	**3**		**9**	**19**	**5**	**4**	**72**
Brown long-eared bat		**1**							1				2
common pipistrelle	**9**	**3**	**2**			**9**			5	2	3	1	34
Leisler's bat						**2**	**2**		3	17	1		25
soprano pipistrelle	**1**		**4**			**1**	**1**				1	2	10
soprano pipistrelle Leisler's bat												1	1
15/09/2022	**1**	**4**	**10**	**3**	**6**	**4**	**16**		**6**	**8**	**4**	**5**	**67**
Brown long-eared bat			1			1					1		3
common pipistrelle			5	2	1		15		2	2	2	3	32
Leisler's bat		3	3	1	1	2	1		3	5			19
Pipistrelle												1	1
soprano pipistrelle	1		1		3	1			1	1	1	1	10
soprano pipistrelle Leisler's bat		1			1								2
16/09/2022	**6**				**1**	**3**	**1**		**6**	**3**	**1**		**21**
common pipistrelle	2					2			1	1	1		7
Leisler's bat	3				1	1	1		1				7
soprano pipistrelle	1								4	2			7
17/09/2022					**2**	**1**							3
Brown long-eared bat							1						1
Leisler's bat					1	1							**2**

Results

Species found

Leisler's bat (Red triangle of Map of Main Activity)

Common pipistrelle (Blue triangle of Map of Main Activity)

Brown long eared bat (Brown triangle of Map of Main Activity)

Soprano pipistrelle (Purple triangle of Map of Main Activity)

Ground mammals

The area was checked for evidence of other mammals both during the bat survey and on a subsequent visit. A badger track crosses through the site and follows an arced / curved trajectory that circles the mound and splits into two tracks at the hedgerow. One track enters the next field while the second track loops around past a number of mature trees, at which place there is a dung pit that contained fresh dung on 13th September 2022. There was also a fresh dung present on 29th September 2022. There was clear evidence of foraging around the site and of the track passing in to neighbouring fields. Unfortunately, the camera was repeatedly triggered by vegetation movement until the storage capacity of the memory card was full. The only mammal noted was a cat.

Badger trail and badger dung pit 13th and 21st September 2022

Map of main badger activity

There were a number of badger tracks through the site (yellow lines) indicating that badgers forage around the mound and enter into and from the adjoining fields. There was a badger dung pit (triangle) that was regularly used based on the observations over the survey period (13th to 29th September).

There were no other signs of mammals observed but it is almost certain that foxes pass through the site as this is one of the most widely encountered mammal. A record exists of a red deer within the 1 km grid square (in the field opposite the site to the north) in 2016.

Birds

The bird species encountered within the site included all common and widespread species including wood pigeon, robin, wren, blackbird, blue tit, great tit, coal tit, long-tailed tit, pied wagtail (in the Garden Centre) goldcrest, starling, magpie, jackdaw, rook, hooded crow. There were nearby sand martins flying over the site but not nesting here. There were ravens and buzzards in a neighbouring field, and these are likely to pass through the site. It is probable that other common species including chaffinch, dunnock, song thrush, mistle thrush, goldfinch, bullfinch etc. are also present but were not seen during this assessment. There is high nesting potential within the trees and with suitable vegetation cover on the ground, there would be opportunities for many more birds.

Botanical Evaluation

By Goska Malgorzata Wilkowska MSc in Envir. Biol.

October 2022

1. Background of Ecological Consultants

Malgorzata Goska Wilkowska is a graduate of Adam Mickiewicz University and undertook further studies to acquire a Masters in Science in Poznan, Poland in Environmental Biology and an Environmental Protection and Shaping Postgraduate Course in Wroclaw University. Goska specialises in habitat and botanical assessment and has undertaken surveys for various projects in addition to extensive ecological work for the Irish Wildlife Trust and Nature's PATCH Network.

2. Methodology

The walkover survey took place on 28-09-2022 which is within the optimum for botanical and habitat surveys. Habitats within the site were surveyed by Goska Wilkowska and were identified in accordance with Fossitt's Guide to Habitats in Ireland (Fossitt, 2000). Plants noted were confirmed using Parnell, and Curtis, T (2012).

Habitats were assessed and evaluated according to their occurrence as protected habitats under Annex I of the EU Habitats Directive (92/43/EEC) and for their capacity to support rare, threatened, and endangered species. Botanical species were assessed in accordance with their occurrence on the Flora Protection Order (2015) and The Irish Red Data Book (Curtis & McGough, 1988).

Publicly available National Biodiversity Data Centre data sets on flora within c. 2 km of the site were consulted (data accessed on 28-09-2022).

3. Site and project description

3.1. Site Location

The site consists of a barrow situated on a hilltop under pasture beside the Naul to Fourknocks road and near the Ford of Fyne.

3.2. Site Characteristics

The barrow is a circular dome-shaped mound (diam. 15 m; H 2.5m) which rests on a circular earthen platform (diam.30m; H2m). It slopes down steeply to the north and south to circular tree-lined enclosure. marked on the OS 25" as a 'moat'. Directly to the north on the other side of the Delvin is the Fourknocks ridge. When the grass is low, large stones are visible. Failed boundary fencing has led to the site's disuse as pasture, and now it is becoming overgrown by brambles. There is some encroachment of scrub or small trees. A neglected hedgerow is bordering the site. Historical maps show that the site was part of a former estate woodland planting, and some mature trees present within the site are survivors from that woodland.

3.3. Project description

It is proposed to develop a Conservation and Management Plan for the site.

3.4. Other developments in the area

There are no other developments in the area which could give rise to cumulative impact.

4. Existing data

Desk study revealed that there were no historical records of Annex II (Habitats Directive) plant species or in the vicinity of the site.

There are no known records of species covered under the Flora Protection Order (2005) or included within The Irish Red Data Book (Curtis & McGough, 1988) in the vicinity of the site.

5. Site Botanical / Habitat Survey

5.1. Constraints

The botany survey was conducted on one date only, therefore the list of recorded species is expected not to be complete. However, due to available data and existing use of the site, it is not expected that any protected or rare plant species could be present.

5.2. Results Flora and Habitats

The list of recorded habitats within and around the proposed project site is given in Table 1 below.

List of plant species recorded during the survey can be found in Appendices.

Table 1. Habitats within and around the proposed project site.

Table 1. Habitats within and around the proposed project site.

Habitat Name	Habitat Code (Fossitt 2000)
Dry calcareous and neutral grassland	GS1
Dry meadows and grassy verges	GS2
Hedgerows	WL1
Treelines	WL2
Scrub	WS1

Habitat Name Habitat Code

(Fossitt 2000)

Dry calcareous and neutral grassland GS1

Dry meadows and grassy verges GS2

Hedgerows WL1

Treelines WL2

Scrub WS1

The main habitat within the site is Dry meadows and grassy verges (GS1). It is characterised by rare fertilisation or grazing, with possible occasional mowing. It contains such grasses as Cock's-foot (Dactylis glomerata), False oats-grass (Arrhenatherum elatius) or Smooth meadow-grass (Poa pratensis). The broadleaved herb component includes Nettle (Urtica dioica), Hogweed (Heracleum sphondylium), Creeping buttercup (Ranunculus repens), Dock species (Rumex crispus and R. obtusifolius), Cleavers (Galium aparine), Common sorrel (Rumex acetosa), Silverweed (Potentilla anserina), Meadow vetchling (Lathyrus pratensis), Bush vetch (Vicia sepium) and others. This habitat provides food plants and living space for numerous invertebrates and depending on them birds and mammals. Therefore, it is considered of medium local importance.

Grassland bordering the site east- and northwards, can be classified as Dry calcareous and neutral grassland (GS1) with fewer tall broadleaved herbs. It is neutral, semi-improved and more regularly grazed. This habitat is common within the vicinity of the site. Therefore, it is considered to be of low ecological importance.

The burrow site is partially encircled by Hedgerows (WL1) and Treelines (WL2) habitats. Hedgerows are also bordering fields adjacent to the site. Hedgerows are of poor conditions and contain few woody species: Hawthorn (Crataegus monogyna), Elder (Sambucus nigra), Dog rose (Rosa canina).

Mature trees include Ash (Fraxinus excelsior), Elm (Ulmus, Scots pine (Pinus sylvestris) and Pedunculate oak (Quercus robur). Parts of the perimeter hedgerow's base, with north-eastern exposure, contains compact bare soil and is used by ground boring solitary bees or wasps as a nesting site. Hedgerow / Treeline enclosure acts as a visual and weather screening, which allows for ground mammals and birds for safe foraging and other activities. Trees and shrubs provide many feeding and nesting opportunities for a variety of fauna. Therefore, these habitats are of high ecological importance.

There is some Scrub (WS1) encroachment on the barrow, with such species as Brambles (Rubus fruticosus agg.), Dog rose (Rosa canina), Elder (Sambucus nigra) and Hawthorn (Crataegus monogyna). Part of it has been recently cut to the ground. This habitat is very limited in its size and therefore its ecological significance is locally low.

The site is also rich in Fungi associated with low input grassland and hedgerows, like Inkcap (Coprinopsis atramentaria) or Giant puffball (Calvatia gigantea).

No habitats protected under Annex I of the EU Habitats Directive (92/43/EEC) were recorded within the site.

None of the recorded species are listed in the Flora Protection Order (1999) and The Irish Red Data Book. Publicly available data sets were consulted, and no rare or protected plant species were found in the vicinity of the study area.

No non-native plant species subject to restrictions listed in the Third Schedule (Regulations 49 and 50, European Communities (Birds and Natural Habitats) Regulations 2011) were recorded within the site.

Appendix 1

References

Creation and management of a wildflower meadow. All-Ireland Pollinator Plan, How-to-Guide 4.

National Biodiversity Data Centre Series No.13, Waterford. April 2017.

Curtis T.G.F. & McGough H.N. (1988) The Irish Red Data Book 1 Vascular Plants. Stationery Office,

Dublin.

Environmental Protection Agency. Appropriate Assessment Tool.

https://gis.epa.ie/EPAMaps/AAGeoTool

Fossitt, J.A. (2000) A Guide to Habitats in Ireland. The Heritage Council

Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal

and Marine. (CIEEM, September 2018. Updated September 2019. Version 1.1)

Hedgerows for Pollinators. All-Ireland Pollinator Plan, How-to-guide 3. National Biodiversity Data

Centre Series No.7, Waterford. May 2016.

National Biodiversity Data Centre. Biodiversity Maps. https://maps.biodiversityireland.ie/

Parnell, J., Curtis, T. (2012) Webb's an Irish Flora. Cork University press

S.I. No. 356/2015 - Flora (Protection) Order (2015)

S.I. No. 477/2011 - European Communities (Birds and Natural Habitats) Regulations 2011

TII / NRA. 2009. Guidelines for Assessment of Ecological Impacts of National Road Schemes. National

Roads Authority.

www.batcoservationireland.org database

www.biodiversityireland.ie

www.invasivespeciesireland.com

www.npws.ie/maps-and-data

Appendix II

List of plant species recorded during the botanical survey on 28-09-2022

No. Scientific name Common name

1. Arrhenatherum elatius False oat-grass
2. Asplenium scolopendrium Hart's-tongue fern
3. Cirsium arvensis Creeping thistle
4. Cirsium vulgare Spear thistle
5. Crataegus monogyna Hawthorn
6. Dactylus glomerata Cock's foot grass
7. Dryopteris filix-mas Male fern
8. Fraxinus excelsior Ash
9. Galium aparine Cleavers
10. Geranium robertianum Herb Robert
11. Geum urbanum Wood avens
12. Hedera helix Ivy
13. Heracleum sphondylium Common hogweed
14. Hypochaeris radicata Cat's-ear
15. Lathyrus pratensis Meadow vetchling
16. Leontodon autumnalis Autumn hawkbit
17. Pilosella officinarum Mouse-ear hawkweed
18. Pinus sylvestris Scots pine
19. Plantago lanceolata Ribwort plantain
20. Plantago major Greater plantain
21. Poa annua Annual meadow-grass
22. Poa pratensis Smooth meadow-grass
23. Potentilla anserina Silverweed
24. Primula vulgaris Primrose
25. Quercus robur Pedunculate oak
26. Ranunculus repens Creeping buttercup
27. Rosa canina Dog rose

28. Rubus fruticosus agg. Bramble
29. Rumex acetosa Common sorrel
30. Rumex crispus Curly dock
31. Rumex obtusifolius Broad-leaved dock
32. Sambucus nigra Elder
33. Senecio jacobaea Ragwort
34. Sonchus oleraceus Smooth sow-thistle
35. Stellaria media Common chickweed
36. Taraxacum officinale agg. Dandelion
37. Trifolium pratense Red clover
38. Trifolium repens White clover
39. Ulmus glabra Wych elm
40. Urtica dioica Nettle
41. Veronica chamaedrys Germander speedwell
42. Vicia sepium Bush vetch
43. Viola sp. Violet

Appendix III

Plates of the site

Recently removed scrub on the perimeter of the site.

Recently removed scrub on the perimeter of the site.

Elm and Scots pine in the western part of the site. Recently removed scrub visible in the centre.

Farming equipment stored under an oak tree.

Food plants for biodiversity –

Bramble, Hawthorn, Ivy, Oak

Ash tree suffering from Ash dieback disease.

View of the grassy slope of the barrow.

Bare bank colonised by

solitary bees.

View of the barrow from the south.

Neglected hedgerow in need of restoration.

Appendix IV

Bat data with Kaleidoscope sound analysis

DATE	TIME	AUTO ID	MANUAL ID
13/09/2022	20:17:13	Brown long-eared bat	common pipistrelle
13/09/2022	20:31:37	Leisler's bat	Leisler's bat
13/09/2022	20:34:29	common pipistrelle	common pipistrelle
13/09/2022	20:35:53	NoID	common pipistrelle
13/09/2022	20:36:19	common pipistrelle	common pipistrelle
13/09/2022	20:36:29	NoID	common pipistrelle
13/09/2022	20:37:22	common pipistrelle	common pipistrelle
13/09/2022	20:37:50	common pipistrelle	common pipistrelle
13/09/2022	20:38:59	common pipistrelle	common pipistrelle soprano pipistrelle
13/09/2022	21:00:12	common pipistrelle	common pipistrelle
13/09/2022	21:15:03	NoID	Leisler's bat
13/09/2022	21:15:13	NoID	Leisler's bat
13/09/2022	21:15:21	NoID	Leisler's bat
13/09/2022	21:15:31	NoID	Leisler's bat
13/09/2022	21:24:09	common pipistrelle	common pipistrelle
13/09/2022	21:27:24	soprano pipistrelle	soprano pipistrelle
13/09/2022	22:00:44	common pipistrelle	common pipistrelle
13/09/2022	23:19:43	Brown long-eared bat	common pipistrelle

13/09/2022	23:20:06	common pipistrelle	common pipistrelle
13/09/2022	23:27:08	common pipistrelle	common pipistrelle
13/09/2022	23:42:50	Brown long-eared bat	soprano pipistrelle
13/09/2022	23:43:00	NoID	common pipistrelle
13/09/2022	23:43:09	common pipistrelle	common pipistrelle
14/09/2022	00:05:54	common pipistrelle	common pipistrelle
14/09/2022	00:06:23	common pipistrelle	common pipistrelle
14/09/2022	00:19:32	common pipistrelle	common pipistrelle
14/09/2022	00:48:45	soprano pipistrelle	soprano pipistrelle
14/09/2022	00:55:20	common pipistrelle	common pipistrelle
14/09/2022	00:55:33	common pipistrelle	common pipistrelle
14/09/2022	00:56:03	common pipistrelle	common pipistrelle
14/09/2022	00:56:22	common pipistrelle	common pipistrelle
14/09/2022	00:56:55	common pipistrelle	common pipistrelle
14/09/2022	00:57:14	common pipistrelle	common pipistrelle
14/09/2022	01:06:33	Brown long-eared bat	Brown long-eared bat
14/09/2022	01:20:01	common pipistrelle	common pipistrelle
14/09/2022	01:20:21	common pipistrelle	common pipistrelle
14/09/2022	01:34:25	common pipistrelle	common pipistrelle
14/09/2022	02:10:02	common pipistrelle	common pipistrelle
14/09/2022	02:22:05	soprano pipistrelle	soprano pipistrelle
14/09/2022	02:34:39	Brown long-eared bat	soprano pipistrelle
14/09/2022	02:34:49	Brown long-eared bat	soprano pipistrelle
14/09/2022	02:34:54	common pipistrelle	common pipistrelle
14/09/2022	02:37:24	soprano pipistrelle	soprano pipistrelle
14/09/2022	05:12:58	Leisler's bat	Leisler's bat
14/09/2022	05:13:08	Leisler's bat	Leisler's bat
14/09/2022	05:35:02	common pipistrelle	common pipistrelle
14/09/2022	05:35:12	common pipistrelle	common pipistrelle
14/09/2022	05:35:46	common pipistrelle	common pipistrelle
14/09/2022	05:35:56	common pipistrelle	common pipistrelle
14/09/2022	05:36:06	common pipistrelle	common pipistrelle
14/09/2022	05:36:25	common pipistrelle	common pipistrelle
14/09/2022	05:36:37	common pipistrelle	common pipistrelle
14/09/2022	05:36:49	common pipistrelle	common pipistrelle
14/09/2022	05:37:01	common pipistrelle	common pipistrelle
14/09/2022	05:53:56	soprano pipistrelle	soprano pipistrelle
14/09/2022	06:08:15	soprano pipistrelle	soprano pipistrelle
14/09/2022	06:39:05	Leisler's bat	Leisler's bat
14/09/2022	06:52:02	Leisler's bat	Leisler's bat
14/09/2022	20:16:52	common pipistrelle	common pipistrelle
14/09/2022	20:35:40	common pipistrelle	common pipistrelle
14/09/2022	20:38:28	common pipistrelle	common pipistrelle
14/09/2022	20:41:42	Leisler's bat	Leisler's bat

14/09/2022	20:41:52	NoID	Leisler's bat
14/09/2022	20:42:19	Brown long-eared bat	Brown long-eared bat
14/09/2022	20:50:47	common pipistrelle	common pipistrelle
14/09/2022	20:51:05	common pipistrelle	common pipistrelle
14/09/2022	20:53:01	Leisler's bat	Leisler's bat
14/09/2022	21:01:06	common pipistrelle	common pipistrelle
14/09/2022	21:01:16	Brown long-eared bat	common pipistrelle
14/09/2022	21:07:13	NoID	Leisler's bat
14/09/2022	21:07:26	NoID	Leisler's bat
14/09/2022	21:07:42	NoID	Leisler's bat
14/09/2022	21:07:52	NoID	Leisler's bat
14/09/2022	21:08:47	NoID	Leisler's bat
14/09/2022	21:09:39	NoID	Leisler's bat
14/09/2022	21:12:59	NoID	Leisler's bat
14/09/2022	21:13:29	NoID	Leisler's bat
14/09/2022	21:14:03	NoID	Leisler's bat
14/09/2022	21:32:02	NoID	Leisler's bat
14/09/2022	21:32:12	NoID	Leisler's bat
14/09/2022	21:32:18	NoID	Leisler's bat
14/09/2022	21:32:30	NoID	Leisler's bat
14/09/2022	21:32:41	NoID	Leisler's bat
14/09/2022	21:35:49	NoID	Leisler's bat
14/09/2022	21:35:55	NoID	Leisler's bat
14/09/2022	21:36:54	NoID	Leisler's bat
14/09/2022	22:02:37	NoID	Leisler's bat
14/09/2022	22:06:38	NoID	common pipistrelle
14/09/2022	22:06:45	common pipistrelle	common pipistrelle
14/09/2022	22:13:40	soprano pipistrelle	soprano pipistrelle
14/09/2022	22:36:20	Brown long-eared bat	common pipistrelle
14/09/2022	23:12:16	soprano pipistrelle	soprano pipistrelle
14/09/2022	23:12:24	NoID	soprano pipistrelle
14/09/2022	23:31:00	NoID	soprano pipistrelle Leisler's bat
14/09/2022	23:48:13	common pipistrelle	common pipistrelle
15/09/2022	00:33:09	soprano pipistrelle	soprano pipistrelle
15/09/2022	01:18:38	NoID	Leisler's bat
15/09/2022	01:31:56	NoID	soprano pipistrelle Leisler's bat
15/09/2022	01:43:48	Leisler's bat	Leisler's bat
15/09/2022	01:54:22	Leisler's bat	Leisler's bat
15/09/2022	02:05:58	Brown long-eared bat	Brown long-eared bat
15/09/2022	02:09:38	soprano pipistrelle	soprano pipistrelle
15/09/2022	02:22:41	Brown long-eared bat	common pipistrelle
15/09/2022	02:22:51	common pipistrelle	common pipistrelle
15/09/2022	02:22:56	common pipistrelle	common pipistrelle
15/09/2022	02:30:03	common pipistrelle	common pipistrelle

15/09/2022	02:30:10	common pipistrelle	common pipistrelle
15/09/2022	02:38:52	Leisler's bat	Leisler's bat
15/09/2022	02:54:41	NoID	Leisler's bat
15/09/2022	02:58:35	Leisler's bat	Leisler's bat
15/09/2022	03:38:52	Leisler's bat	Leisler's bat
15/09/2022	03:52:04	common pipistrelle	common pipistrelle
15/09/2022	03:59:19	NoID	common pipistrelle
15/09/2022	04:09:36	common pipistrelle	common pipistrelle
15/09/2022	04:09:59	soprano pipistrelle	soprano pipistrelle
15/09/2022	04:33:06	Brown long-eared bat	soprano pipistrelle
15/09/2022	04:41:23	Leisler's bat	soprano pipistrelle Leisler's bat
15/09/2022	04:41:33	Leisler's bat	Leisler's bat
15/09/2022	04:59:24	soprano pipistrelle	soprano pipistrelle
15/09/2022	05:30:48	Leisler's bat	Leisler's bat
15/09/2022	05:30:58	Leisler's bat	Leisler's bat
15/09/2022	05:37:43	soprano pipistrelle	soprano pipistrelle
15/09/2022	05:52:11	Brown long-eared bat	Brown long-eared bat
15/09/2022	06:03:47	common pipistrelle	common pipistrelle
15/09/2022	06:03:57	common pipistrelle	common pipistrelle
15/09/2022	06:04:06	common pipistrelle	common pipistrelle
15/09/2022	06:07:35	common pipistrelle	common pipistrelle
15/09/2022	06:07:42	common pipistrelle	common pipistrelle
15/09/2022	06:07:52	common pipistrelle	common pipistrelle
15/09/2022	06:08:06	common pipistrelle	common pipistrelle
15/09/2022	06:08:15	common pipistrelle	common pipistrelle
15/09/2022	06:08:33	common pipistrelle	common pipistrelle
15/09/2022	06:08:43	common pipistrelle	common pipistrelle
15/09/2022	06:08:58	common pipistrelle	common pipistrelle
15/09/2022	06:09:06	common pipistrelle	common pipistrelle
15/09/2022	06:10:02	common pipistrelle	common pipistrelle
15/09/2022	06:10:24	common pipistrelle	common pipistrelle
15/09/2022	06:11:10	common pipistrelle	common pipistrelle
15/09/2022	06:56:23	Leisler's bat	Leisler's bat
15/09/2022	20:06:49	Leisler's bat	Leisler's bat
15/09/2022	20:09:57	soprano pipistrelle	soprano pipistrelle
15/09/2022	20:16:13	common pipistrelle	common pipistrelle
15/09/2022	20:27:06	common pipistrelle	common pipistrelle
15/09/2022	20:33:02	Leisler's bat	Leisler's bat
15/09/2022	20:40:04	Leisler's bat	Leisler's bat
15/09/2022	21:15:19	NoID	Leisler's bat
15/09/2022	21:15:25	NoID	Leisler's bat
15/09/2022	21:16:36	NoID	Leisler's bat
15/09/2022	21:16:54	NoID	Leisler's bat
15/09/2022	21:24:45	common pipistrelle	common pipistrelle

15/09/2022	21:26:04	NoID	Leisler's bat
15/09/2022	21:32:38	common pipistrelle	common pipistrelle
15/09/2022	21:46:09	NoID	soprano pipistrelle
15/09/2022	22:10:06	NoID	Brown long-eared bat
15/09/2022	22:25:31	common pipistrelle	common pipistrelle
15/09/2022	22:37:21	soprano pipistrelle	soprano pipistrelle
15/09/2022	22:53:37	common pipistrelle	common pipistrelle
15/09/2022	23:10:54	common pipistrelle	common pipistrelle
15/09/2022	23:12:02	common pipistrelle	common pipistrelle
15/09/2022	23:40:30	common pipistrelle	common pipistrelle
15/09/2022	23:41:48	Brown long-eared bat	PIP
15/09/2022	23:56:18	soprano pipistrelle	soprano pipistrelle
16/09/2022	00:26:12	Brown long-eared bat	common pipistrelle
16/09/2022	00:26:20	NoID	soprano pipistrelle
16/09/2022	00:29:08	Brown long-eared bat	common pipistrelle
16/09/2022	00:29:56	Leisler's bat	Leisler's bat
16/09/2022	00:31:22	Leisler's bat	Leisler's bat
16/09/2022	00:49:12	Leisler's bat	Leisler's bat
16/09/2022	04:48:50	Leisler's bat	Leisler's bat
16/09/2022	05:19:11	NoID	Leisler's bat
16/09/2022	05:37:33	common pipistrelle	common pipistrelle
16/09/2022	05:38:15	common pipistrelle	common pipistrelle
16/09/2022	06:32:08	Leisler's bat	Leisler's bat
16/09/2022	20:00:13	NoID	Leisler's bat
16/09/2022	20:08:27	soprano pipistrelle	soprano pipistrelle
16/09/2022	20:18:05	common pipistrelle	common pipistrelle
16/09/2022	20:31:57	soprano pipistrelle	soprano pipistrelle
16/09/2022	20:49:59	soprano pipistrelle	soprano pipistrelle
16/09/2022	20:53:43	soprano pipistrelle	soprano pipistrelle
16/09/2022	21:26:33	soprano pipistrelle	soprano pipistrelle
16/09/2022	21:28:51	soprano pipistrelle	soprano pipistrelle
16/09/2022	21:43:34	common pipistrelle	common pipistrelle
16/09/2022	22:09:53	NoID	common pipistrelle

BCIreland data: search results 19 Oct 2022					
Search parameters: Roosts Transects Ad-hoc observation sites with observations of all bats within 10000 m of O1213460247.					
Roosts					
Name	Grid reference	Grid ref easting	Grid ref northing	Address	Species observed
Annesbrook House	O043661	304300	266100	Duleek; County Meath	Nyctalus leisleri; Pipistrellus pipistrellus (45kHz); Pipistrellus pygmaeus; Plecotus auritus

Ardgillan Castle Roost	O2188861214	321888	261214	Balbriggan; Co. Dublin	Plecotus auritus
Balrothery	O202609	320200	260900	County Dublin	Nyctalus leisleri
Balscadden House	O168266456	316826	264456	Balscadden Fingal	Plecotus auritus
Brady Residence	O132554	313200	255400	Newtown Road; Ballyboughal; County Dublin	Pipistrellus spp. (45kHz/55kHz)
Farm building Newtowncorduff	O1996453628	319964	253628	Farmyard next to old N1 (R132)Newtowncorduff; Lusk	Plecotus auritus
Fieldstown House	O1140750479	311407	250479	Fieldstown House Fieldstown Rolestown	Nyctalus leisleri; Pipistrellus pipistrellus (45kHz); Pipistrellus pygmaeus
Haybarn; Fingal Co. Council Depot	O209507	320900	250700	Fingal; County Dublin	Pipistrellus spp. (45kHz/55kHz)
Hilltown Demesne Courtyard	O0910067900	309100	267900	Hilltown Great; Bellewstown; Dundalk; Co. Meath	Myotis spp.; Pipistrellus spp. (45kHz/55kHz); Plecotus auritus
House	O2212756385	322127	256385	Collinstown.Lusk	Pipistrellus pipistrellus (45kHz)
Prioryland	O0567	305000	267000	Dyleck; County Meath	Unidentified bat
Robertstown House	O084511	308400	251100	Robertstown; Ashbourne; County Meath	Plecotus auritus
Roncallic House	O2254	322000	254000	Richardstown; County Dublin	
Skidoo House	O1513550814	315135	250814	Skidoo House;Ballyboughal;Co. Dublin	Pipistrellus pygmaeus
Skidoo House stable	O1513250844	315132	250844	Skidoo House;Ballyboughal;Co. Dublin	Pipistrellus pygmaeus
Unoccupied bungalow	O149656	314900	265600	Stamullen; County Meath	Nyctalus leisleri; Pipistrellus pipistrellus (45kHz)
Unused Building; fingal Council Depot	O206506	320600	250600	Fingal; County Dublin	Pipistrellus spp. (45kHz/55kHz)
Transects					
Name	Grid reference start	Grid ref start easting	Grid ref start northing	Species	
Annesbrook Townland Transect	O0355565525	303555	265525	Myotis daubentonii;Unidentified bat	
Ashbourne Town Transect	O0639752231	306397	252231	Unidentified bat	
Bellewstown Bridge Transect	O0731769153	307317	269153	Myotis daubentonii;Pipistrellus pygmaeus;Unidentified bat	
Dardistown Bridge Transect	O1038069783	310380	269783	Myotis daubentonii;Pipistrellus pipistrellus (45kHz);Pipistrellus pygmaeus;Pipistrellus spp. (45kHz/55kHz);Unidentified bat	

Dardistown Bridge Transect spot 1	O1038069783	310380	269783	Myotis daubentonii;Unidentified bat
Dardistown Bridge Transect spot 10	O1116670170	311166	270170	Myotis daubentonii;Unidentified bat
Dardistown Bridge Transect spot 2	O1047069797	310470	269797	Myotis daubentonii;Myotis mystacinus;Unidentified bat
Dardistown Bridge Transect spot 3	O1058969807	310589	269807	Myotis daubentonii;Unidentified bat
Dardistown Bridge Transect spot 4	O1069769850	310697	269850	Myotis daubentonii;Unidentified bat
Dardistown Bridge Transect spot 5	O1079569884	310795	269884	Myotis daubentonii;Unidentified bat
Dardistown Bridge Transect spot 6	O1089169903	310891	269903	Myotis daubentonii;Unidentified bat
Dardistown Bridge Transect spot 7	O1098869956	310988	269956	Myotis daubentonii;Unidentified bat
Dardistown Bridge Transect spot 8	O1105670012	311056	270012	Myotis daubentonii;Unidentified bat
Dardistown Bridge Transect spot 9	O1114870073	311148	270073	Myotis daubentonii;Unidentified bat
Gormanstown Bridge Transect	O1707665774	317076	265774	Myotis daubentonii;Nyctalus leisleri;Pipistrellus pipistrellus (45kHz);Pipistrellus pygmaeus;Pipistrellus spp. (45kHz/55kHz);Unidentified bat
Milltown Bridge on Broadmeadow Transect	O0721051770	307210	251770	Myotis daubentonii;Pipistrellus nathusii
O04 (10) 2004-	O104614	310400	261400	Nyctalus leisleri;Pipistrellus pipistrellus (45kHz);Pipistrellus pygmaeus;Pipistrellus spp. (45kHz/55kHz);Unidentified bat
O04 (11) 2004-	O118593	311800	259300	Nyctalus leisleri;Pipistrellus pipistrellus (45kHz);Pipistrellus pygmaeus;Pipistrellus spp. (45kHz/55kHz)
O04 (12) 2004-	O072587	307200	258700	Nyctalus leisleri;Pipistrellus pipistrellus (45kHz);Pipistrellus pygmaeus;Pipistrellus spp. (45kHz/55kHz)
O04 (15) 2004-	O0351	303000	251000	Nyctalus leisleri;Pipistrellus pipistrellus (45kHz);Pipistrellus pygmaeus;Pipistrellus spp. (45kHz/55kHz);Plecotus auritus
O04 (18) 2004-2008	O096524	309600	252400	Nyctalus leisleri;Pipistrellus nathusii;Pipistrellus pipistrellus (45kHz);Pipistrellus spp. (45kHz/55kHz)
O04 (19) 2004-2008	O165508	316500	250800	Nyctalus leisleri;Pipistrellus pipistrellus (45kHz);Pipistrellus pygmaeus;Pipistrellus spp. (45kHz/55kHz)
O04 (2) 2004-	O198613	319800	261300	Nyctalus leisleri;Pipistrellus nathusii;Pipistrellus pipistrellus (45kHz);Pipistrellus pygmaeus;Pipistrellus spp. (45kHz/55kHz)
O04 (20) 2004-2008	O2052	320000	252000	Nyctalus leisleri;Pipistrellus pipistrellus (45kHz);Pipistrellus spp. (45kHz/55kHz)
O04 (3) 2004-	O177643	317700	264300	Nyctalus leisleri;Pipistrellus pipistrellus (45kHz);Pipistrellus pygmaeus;Pipistrellus spp. (45kHz/55kHz);Unidentified bat

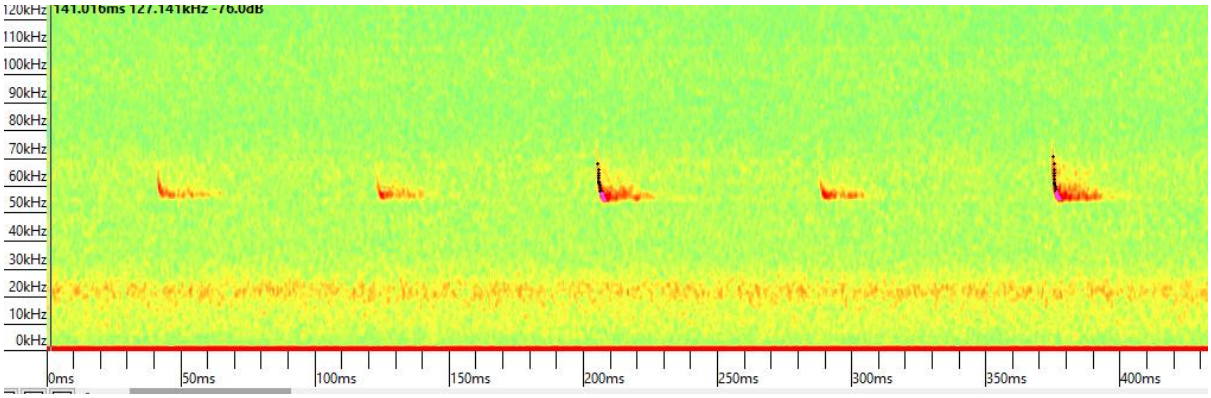
O04 (4) 2004-	O153685	315300	268500	Myotis spp.;Nyctalus leisleri;Pipistrellus pipistrellus (45kHz);Pipistrellus pygmaeus;Pipistrellus spp. (45kHz/55kHz)	
O04 (5) 2004-	O093676	309300	267600	Nyctalus leisleri;Pipistrellus pipistrellus (45kHz);Pipistrellus pygmaeus;Pipistrellus spp. (45kHz/55kHz);Unidentified bat	
O04 (6) 2004-	O024688	302400	268800	Nyctalus leisleri;Pipistrellus pipistrellus (45kHz);Pipistrellus pygmaeus;Pipistrellus spp. (45kHz/55kHz)	
O04 (9) 2004-	O053613	305300	261300	Nyctalus leisleri;Pipistrellus nathusii;Pipistrellus pipistrellus (45kHz);Pipistrellus pygmaeus;Pipistrellus spp. (45kHz/55kHz);Unidentified bat	
Ad-hoc observations					
Survey	Grid reference	Grid ref easting	Grid ref northing	Date	Species
Bat Survey - Scott Cawley	O185592	318500	259200	########	Pipistrellus pipistrellus (45kHz)
Bat Survey - Scott Cawley	O149656	314900	265600	2008-08-00	Myotis daubentonii; Pipistrellus pipistrellus (45kHz); Pipistrellus pygmaeus
Bat Surveys - Tina Aughney	O0670	306000	270000	########	Myotis natterreri; Myotis spp.; Nyctalus leisleri; Pipistrellus pipistrellus (45kHz); Pipistrellus pygmaeus; Pipistrellus spp. (45kHz/55kHz)
BATLAS 2010	O1850	318000	250000	########	Pipistrellus pipistrellus (45kHz); Pipistrellus pygmaeus
BATLAS 2010	O0721051770	307210	251770	########	Myotis spp.; Nyctalus leisleri
BATLAS 2010	O1118470163	311184	270163	########	Pipistrellus pygmaeus
BATLAS 2010	O1069	310000	269000	########	Myotis spp.; Nyctalus leisleri; Pipistrellus pipistrellus (45kHz); Pipistrellus pygmaeus; Pipistrellus spp. (45kHz/55kHz)
BATLAS 2020	O0312151550	303121	251550	########	Myotis natterreri; Myotis spp.; Pipistrellus pipistrellus (45kHz); Pipistrellus pygmaeus
BATLAS 2020	O0325955764	303259	255764	########	Nyctalus leisleri; Pipistrellus pygmaeus
BATLAS 2020	O1065150317	310651	250317	########	Myotis daubentonii; Myotis natterreri; Pipistrellus pipistrellus (45kHz); Pipistrellus pygmaeus
BATLAS 2020	O0926459652	309264	259652	########	Pipistrellus pipistrellus (45kHz)
BATLAS 2020	O0312151550	303121	251550	########	Pipistrellus spp. (45kHz/55kHz)
BATLAS 2020	O1112370179	311123	270179	########	Myotis natterreri; Myotis spp.; Pipistrellus pygmaeus
BATLAS 2020	O0312151550	303121	251550	########	
BATLAS 2020	O0716951782	307169	251782	########	
BATLAS 2020	O0684856094	306848	256094	########	Pipistrellus pipistrellus (45kHz); Pipistrellus pygmaeus
BATLAS 2020	O0834351047	308343	251047	########	Nyctalus leisleri; Pipistrellus pipistrellus (45kHz); Pipistrellus pygmaeus
BATLAS 2020	O0433468370	304334	268370	########	Myotis daubentonii; Nyctalus leisleri; Pipistrellus pygmaeus
BATLAS 2020	O0312151550	303121	251550	########	
Brown long-eared Roost Monitoring Scheme	O2100060000	321000	260000	########	Nyctalus leisleri; Pipistrellus pipistrellus (45kHz); Pipistrellus pygmaeus

EIS and Road Surveys - Conor Kelleher	O2200059000	322000	259000	########	Myotis daubentonii; Myotis mystacinus/brandtii; Nyctalus leisleri; Pipistrellus pipistrellus (45kHz); Pipistrellus pygmaeus
EIS surveys - Brian Keeley	O2200061300	322000	261300	########	Nyctalus leisleri; Pipistrellus pipistrellus (45kHz); Pipistrellus pygmaeus; Plecotus auritus
EIS surveys - Brian Keeley	O0999653937	309996	253937	########	Nyctalus leisleri; Pipistrellus pipistrellus (45kHz); Pipistrellus pygmaeus; Plecotus auritus
EIS surveys - Brian Keeley	O1680066000	316800	266000	########	Myotis daubentonii; Pipistrellus pipistrellus (45kHz); Pipistrellus pygmaeus
EIS surveys - Brian Keeley	O2080054500	320800	254500	########	Pipistrellus pipistrellus (45kHz)
EIS surveys - Brian Keeley	O1947253805	319472	253805	########	Nyctalus leisleri; Pipistrellus pipistrellus (45kHz); Plecotus auritus
EIS surveys - Brian Keeley	O1650057900	316500	257900	########	Myotis natterreri; Nyctalus leisleri; Pipistrellus pipistrellus (45kHz); Pipistrellus pygmaeus; Plecotus auritus
EIS surveys - Brian Keeley	O1169651225	311696	251225	########	Myotis daubentonii; Pipistrellus pipistrellus (45kHz); Pipistrellus pygmaeus; Plecotus auritus
EIS surveys - Brian Keeley	O2180062100	321800	262100	########	Myotis mystacinus/brandtii; Pipistrellus pipistrellus (45kHz); Pipistrellus pygmaeus; Plecotus auritus
EIS surveys - Brian Keeley	O1510065600	315100	265600	########	Myotis spp.; Nyctalus leisleri; Pipistrellus pipistrellus (45kHz); Pipistrellus pygmaeus; Plecotus auritus
EIS surveys - Brian Keeley	O1680064401	316800	264401	########	Nyctalus leisleri; Pipistrellus pipistrellus (45kHz); Pipistrellus pygmaeus
EIS surveys - Brian Keeley	O1699254274	316992	254274	########	Nyctalus leisleri; Pipistrellus pipistrellus (45kHz); Pipistrellus pygmaeus
EIS Surveys - Niamh Roche	O210515	321000	251500	########	Nyctalus leisleri
EIS Surveys - Niamh Roche	O208506	320800	250600	########	Nyctalus leisleri
Faith Wilson	O220504	322000	250400	########	Unidentified bat
Niamh Roche	O210510	321000	251000	########	Myotis spp.; Pipistrellus pygmaeus

Appendix III

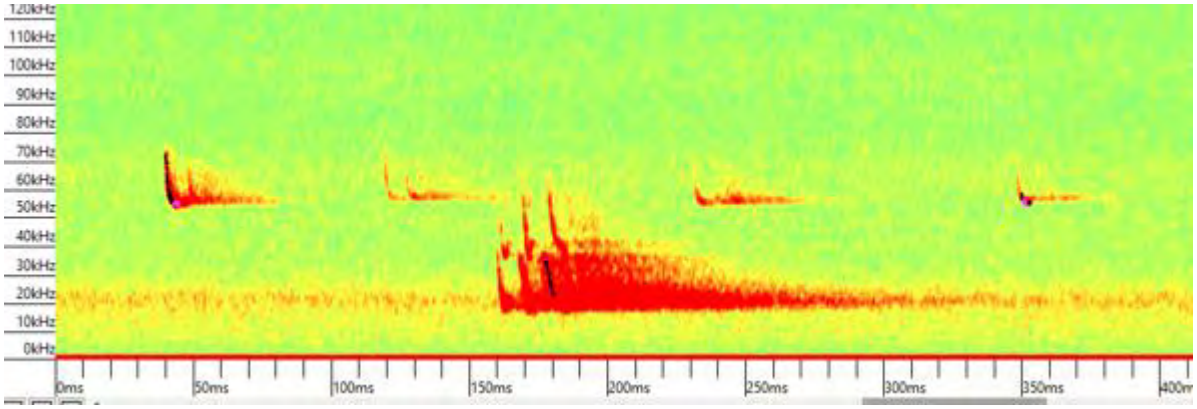
Guide to bats found on site for the general public

(1) **Soprano pipistrelle –** *Pipistrellus pygmaeus* **-** This little bat often has its young inside houses and likes to live with a big group of girls in a large roost. Each bat eats up to 3000 insects per night. They have a pinkish lumpy face as they have a lot of glands in their noses. They echolocate at 55kHz, and you will hear them all over Ireland. You will often see them in pairs, shouting or chasing each other.



Soprano pipistrelle.

(2) **Common pipistrelle** -*Pipistrellus pipistrellus* – This is a small bat which is sometimes called the bandit bat, as it has a black face and looks as if it is wearing a mask. The females often move into attics in houses in the summertime to have their young, and they form small roosts, usually under 30 bats. The echolocate at a peak frequency of 45kHz, so are easy to tell apart on a bat detector.



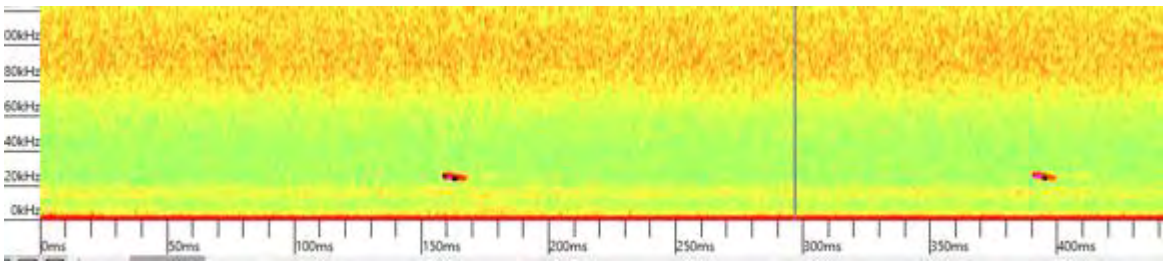
Common pipistrelle with social calls.

(3) Leisler's bat – *Nyctalus leisleri* **-** The Leisler's bat is our biggest, furriest, and loudest bat. The male Leisler's bat has appears to have a mane – a shaggy piece of fur across its shoulders.

A Leisler's bat is strong. It can fly high in the air and because of its size, it can eat bigger insects such as dung beetles. It has a rounded lumpy tragus (in its rounded lumpy ear). Leisler's bats are found in small numbers throughout Europe, but are found in high numbers in Ireland, so Ireland is especially important for this species. Bat workers come from abroad just to record this bat, and it happily turns up everywhere for them.

In summertime it often roosts in houses and has also been found roosting in trees. We frequently find male Leisler's bats setting up mating perches in autumn in trees. It can also fly in the open, and you will see it over fields and parks.

It is a big bat and has a deep loud voice, so you will find it on your bat detector around 25 kHz



Leisler's bat

(4) Brown long eared bat – *Plecotus auritus*

This bat loves to live in the large attics of churches and mansions, but if that is not available, it will roost in stonework in farm buildings

These are probably the prettiest bats in Ireland, with large, long, rabbit like ears. Perhaps you can wriggle your ears, but the long-eared bat has perfected this and

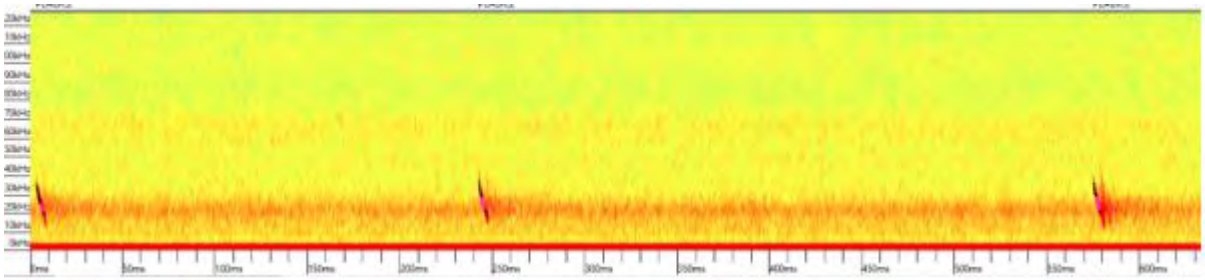
can move each ear independently backwards and forwards. It is a wonderful trick to use when you are listening to rustling and sneaking up on an unsuspecting moth.

When it comes to eating moths and butterflies, they spit out the bits which taste horrible. Clearly the wings of these insect's taste disgusting, and as the bat hangs up for dinner, it spits a little pile of wings on the floor. This is an easy way to find long eared bats – just search an old building for leftover dinner remains on the floor. A small stack of wings is a giveaway.

Brown long eared bats are very conservative. Females like to stay close to home, rarely travelling more than 1.5km from their roost. Males might go a little further, but this species is very home loving. They are also very suspicious of anything new – one study showed that it took 4 years before a long-eared bat investigated a bat box. Perhaps the secret of their success is that they are a cautious, conservative bat which knows what it likes.

If you see a bat and can't see anything on your bat detector, it is probably a long-eared bat. They are really quiet. Their top frequency is around 55kHz and drops down to about 25kHz,

If you enter a roost after dusk and see lots of bats just flying about inside a building, you could be watching long eared bats light sampling. The bats whizz around inside the roost, looking out the entrance now and again to see if it's time to go out. When they decide that it is dark enough outside, off they go.



Brown long eared bat

Data from the National Biodiversity Data Centre from Grid square (1km) O1260 (the barrow is denoted by a yellow square)

Species group	Species name	Record count	Date of last record	Title of dataset	Designation
acarine (Acari)	Acari	3	16/06/2017	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	
annelid	Erpobdella	2	16/06/2017	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	
annelid	Hirudinea	1	16/06/2017	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	

annelid	Lumbricidae	2	10/08/2010	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	
annelid	Lumbriculidae	1	17/07/2014	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	
annelid	Tubificidae	4	16/06/2017	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	
crustacean	Asellus	2	10/08/2010	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	
crustacean	Gammarus	3	16/06/2017	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	
crustacean	Gammarus duebeni	1	10/06/2008	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	
flatworm (Turbellaria)	flatworms (Tricladida)	2	17/07/2014	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	

flatworm (Turbellaria)	Planaria	1	16/06/2017	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	
flowering plant	Ash (Fraxinus excelsior)	1	10/06/2008	River Biologists' Database (EPA)	
flowering plant	Common Duckweed (Lemna minor)	1	10/06/2008	River Biologists' Database (EPA)	
flowering plant	Reed Canary-grass (Phalaris arundinacea)	1	10/06/2008	River Biologists' Database (EPA)	
flowering plant	Unbranched Bur-reed (Sparganium emersum)	1	10/06/2008	River Biologists' Database (EPA)	
insect - beetle (Coleoptera)	Dytiscidae	2	16/06/2017	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	
insect - beetle (Coleoptera)	Elmis aenea	5	16/06/2017	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	
insect - beetle (Coleoptera)	Haliplidae	1	16/06/2017	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	
insect - caddis fly (Trichoptera)	Hydropsyche	1	10/06/2008	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	
insect - caddis fly (Trichoptera)	Hydropsychidae	1	10/08/2010	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	

insect - caddis fly (Trichoptera)	Lepidostomatidae	1	16/06/2017	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	
insect - caddis fly (Trichoptera)	Sericostoma	2	17/07/2014	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	
insect - mayfly (Ephemeroptera)	Baetis	3	16/06/2017	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	
insect - mayfly (Ephemeroptera)	Baetis rhodani	1	10/06/2008	River Biologists' Database (EPA)	
insect - mayfly (Ephemeroptera)	Serratella ignita	3	16/06/2017	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	
insect - true fly (Diptera)	Chironomidae	1	17/07/2014	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	
insect - true fly (Diptera)	Diptera larva (Diptera)	2	10/08/2010	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	
insect - true fly (Diptera)	Simuliidae	3	16/06/2017	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	

insect - true fly (Diptera)	Tipulidae	1	17/07/2014	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	
liverwort	Blueish Veilwort (Metzgeria violacea)	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	Threatened Species: Least concern
liverwort	Conocephalum conicum s.l.	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	
liverwort	Crescent-cup Liverwort (Lunularia cruciata)	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	Threatened Species: Least concern
liverwort	Dilated Scalewort (Frullania dilatata)	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	Threatened Species: Least concern
liverwort	Endive Pellia (Pellia endiviifolia)	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	Threatened Species: Least concern
liverwort	Even Scalewort (Radula complanata)	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	Threatened Species: Least concern
mollusc	Bithynia	1	10/06/2008	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	
mollusc	Jenkins' Spire Snail (Potamopyrgus antipodarum)	1	10/06/2008	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
mollusc	Pisidium	1	10/06/2008	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	

mollusc	Sphaeriidae	1	10/08/2010	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	
mollusc	Sphaerium	1	17/07/2014	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	
mollusc	Valve Snail (Valvata (Cincinna) piscinalis)	2	10/06/2008	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	
moss	Bird's-claw Beard-moss (Barbula unguiculata)	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	Threatened Species: Least concern
moss	Capillary Thread-moss (Bryum capillare)	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	Threatened Species: Least concern
moss	Common Feather-moss (Eurhynchium praelongum)	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	Threatened Species: Least concern
moss	Common Pocket-moss (Fissidens taxifolius)	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	
moss	Common Tamarisk-moss (Thuidium tamariscinum)	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	Threatened Species: Least concern
moss	Cypress-leaved Plait-moss (Hypnum cupressiforme)	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	
moss	Fallacious Beard-moss (Didymodon fallax)	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	Threatened Species: Least concern
moss	Fatfoot Pocket-moss (Fissidens crassipes)	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	Threatened Species: Least concern
moss	Fern-leaved Hook-moss (Cratoneuron filicinum)	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	Threatened Species: Least concern

moss	Flat Neckera (Neckera complanata)	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	Threatened Species: Least concern
moss	Fox-tail Feather-moss (Thamnobryum alopecurum)	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	Threatened Species: Least concern
moss	Glittering Wood-moss (Hylocomium splendens)	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	Threatened Species: Least concern
moss	Grey-cushioned Grimmia (Grimmia pulvinata)	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	Threatened Species: Least concern
moss	Hart's-tongue Thyme-moss (Plagiomnium undulatum)	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	Threatened Species: Least concern
moss	Lateral Cryphaea (Cryphaea heteromalla)	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	Threatened Species: Least concern
moss	Lesser Bird's-claw Beard-moss (Barbula convoluta)	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	Threatened Species: Least concern
moss	Long-beaked Water Feather-moss (Rhynchostegium riparioides)	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	
moss	Neat Feather-moss (Scleropodium purum)	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	Threatened Species: Least concern
moss	Pointed Spear-moss (Calliergonella cuspidata)	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	Threatened Species: Least concern
moss	Rambling Tail-moss (Anomodon viticulosus)	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	Threatened Species: Least concern
moss	Rigid Beard-moss (Didymodon rigidulus)	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	Threatened Species: Least concern
moss	Rough-stalked Feather-moss (Brachythecium rutabulum)	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	Threatened Species: Least concern
moss	Schistidium apocarpum sensu lato	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	
moss	Silky Wall Feather-moss	1	04/10/2013	Bryophytes of Ireland : Data	Threatened Species:

	(Homalothecium sericeum)			Compiled Post-Atlas	Least concern
moss	Springy Turf-moss (Rhytidiadelphus squarrosus)	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	Threatened Species: Least concern
moss	Ulota crispa sensu lato	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	
moss	Wall Screw-moss (Tortula muralis)	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	Threatened Species: Least concern
moss	Wood Bristle-moss (Orthotrichum affine)	1	04/10/2013	Bryophytes of Ireland : Data Compiled Post-Atlas	Threatened Species: Least concern
terrestrial mammal	Red Deer (Cervus elaphus)	1	27/07/2016	Mammals of Ireland 2016-2025	Protected Species: Wildlife Acts

Appendix 6 – Public Consultation Survey

COMMUNITY CONSULTATION

MOAT WOOD CMP

CMF22-2-DF002

Evaluation and Summary of Questionnaire

31/09/2022

Introduction

On the 29th of October 2022 a community Open Day took place at Moat Wood, Three Gates Garden Centre, Westown, Naul. The open day consisted of a series of talks, walks, social gathering over refreshments and lunch followed by a community consultation element at the end of the day.

The first talk took place shortly after 12pm and was given by the ecological consultants, Donna Mullen, Brian Keeley and Goska Wilkowska (botanist) on the Biodiversity Management Plan which was prepared for the site. Unique aspects of the site and findings of the ecological survey were described and viewed by the group. 23 attendees took part in the morning talk.

Following these teas, coffees, scones, snacks and sandwiches were provided to attendees. Attendees gathered around the fire in the floral demonstration workshop at The Three Gates Garden Centre and socialised for an hour. Many attendees were from the Ardcath/Clonalvy Heritage Society, others involved in groups at Garristown, Oldtown and Gormanston and others were from the hinterland of the north Fingal area and had a general interest in heritage. The event was an opportunity for local residents and groups to meet up and discuss heritage and initiatives in the region.

The second walk and talk took place at 2pm and was given by Finola O'Carroll of TAP archaeology. Finola discussed the archaeological context of the area and the relationship between the site at Moat Wood to other sites such as Fourknocks and Knockbrack. The results of the survey work were discussed and the conservation management plan was also discussed. Finola's talk was a highly engaging and several questions were put to Finola throughout the tour.

At the end of the day a community consultation took place in the form of a questionnaire. The aim of this was to inform the Conservation Management Plan through community input. 14 questionnaires were completed, containing 20 questions and are attached following the summary of the results of the survey.

Summary of Questionnaire results

Q1 – When asked if they were aware of archaeological monuments in the area 86% (12) of respondents indicated that they were, while 14% (2) indicated they were not.

Q2 – When asked if they had visited any monuments in Naul before, 86% (12) respondents indicated that they had, 7% (1) indicated that they had not and 7% (1) indicated that they did not know.

Examples of monument sites which respondents had visited include: Naul Graveyard – visited by 38% (5) of respondents, Knockbrack – visited by 21.5% of respondents, Fourknocks Passage Tomb – visited by 57% (8) of respondents, Westown House – visited by 7% (1) respondents.

Q3 – When asked if they had visited Moat Wood before, 86% (12) of respondents indicated that they had not, while 14% (2) indicated that they had visited the site before.

Q4 – When asked if they were aware of the archaeological landscape in the district of Naul, 86% (12) of respondents indicated that they were, while 14% (2) indicated that they were not.

Q5 - When asked if they were aware of the general history and heritage of the Naul area, 57% (8) respondents indicated they were, 28% (4) indicated they were not and 14% (2) indicated that they did not know.

In the comments section some respondents indicated that they were interested in local history and heritage and have undertaken extensive research through resources such as Archaeology.ie to find sites in the area. Some respondents indicated that they have knowledge on the history of Westown Estate. Other respondents indicated that they just had knowledge on the generalities of the area, while some indicated they had a low degree of knowledge on the heritage of the area.

Q6 – When asked if there is sufficient interpretative information available on and at heritage sites in Naul, 100% (14) of/all respondents indicated that they thought there was not.

Q7 - When asked if respondents would like to know more about heritage sites in Naul, 86% (12) of respondents indicated that they would, while 14% (2) indicated that they would not.

Q8 – When asked if there was greater scope for interpreting the heritage of the district, 93% (13) indicated that there is, while 7% (1) indicated that they did not know.

In the comments section 21.5% (3) of respondents indicated that they felt there should be more information available at sites e.g. notice boards, some felt there was a god social media heritage presence, however now that we have come through the pandemic that more in person social gatherings should take place.

Another respondent suggested that an information booth might be located in Naul Village during the holiday season. A respondent highlighted that there was a need to link across the wider area's socio-cultural context. Another respondent commented that interpretation breeds more interest, more interest leads to better management of the sites.

Q9 - When asked what form of methods they think heritage sites in the district may be interpreted, respondents made the following comments: More signage (79%/11 respondents) and information boards, including wildlife education signs, dedicated websites, Youtube videos, social media, local history groups, leaflets on heritage sites, more community walks 'like today', make use of the Seamus Ennis Centre to raise awareness, Living history (21.5%/3 respondents), QR codes (36%/5 respondents) and a respondent suggested an open air museum in Naul.

Q10 – When asked if they would support a walking and cycling heritage trail in the Naul area, 93% (13) of respondents indicated that they would, while 7% (1) respondent indicated that they would not support such initiatives.

Q11 – When asked if they would support organised seasonal tours and arranged visits to heritage sites in the Naul district, 93% (13) of respondents indicated that they would, while 7% (1) respondent indicated that they would not support such an initiative.

Q12 – When asked, in their opinion, what do you think the district has to offer visitors and locals, respondents made the following comments: A respondent noted that they "*…believe that the area has so much to offer, there is so much history, culture and archaeology – e.g Seamus Ennis Centre, Knockbrack Passage Tombs, Fourknocks, Westown House and the Black Castle."*

Another respondent noted similar comments, that Naul is a *"…heritage village with a lot of local history…"* and that the *"…SEAC is a huge point to the area…"* along with the monthly Naul Farmer's Market in the village sqare. The respondent noted *"…Fourknocks is massive for archaeologists & school tours, if other sites could be emphasised, more can be brought to the village…".* A respondent noted that a heritage centre promoting the rural aspect of Dublin may be an opportunity.

36% (5) of respondents noted that local produce was an asset, a further 36% (5) of respondents noted that local craft was an asset and also another 36% (5) of respondents noted that the heritage sites in the area were an asset.

A respondent noted that Naul is a *"…Beautiful Village with so much to offer!."*, while another respondent noted that an asset of the area is its tranquillity.

Q13 – When asked in what ways do you think access to heritage sites in Naul may be improved, respondents made the following comments: There is a need for better parking at sites such as Fourknocks. Trails may be included to avoid damage to crops and land (57%/8 respondents) e.g. at Knockbrack *"..more signage at monuments so that visitors know what they are looking at, more road signs so that visitors can find sites easier"*(71%/10 respondents). The need for public access to sites was also mentioned.

Q14 – When asked what they feel is important about our heritage sites, respondents made the following comments: *"They connect us to our past and make us appreciate our environment and historic landscape", "..we need to protect our heritage for the next generation, as we are in grave danger of losing it", "…Putting ourselves in the shoes of past people provides better understanding for future generation."*

Other respondents listed 'Preservation', 'National History', 'Knowledge & History' as important aspects of our local heritage sites. "..Links to a Leinster Trail" was also suggested.

Q15 – When asked if they felt there was sufficient heritage offering for visitors and locals to the area at present, 57% (8) of respondents indicated that there was not, while 21.5% (3) of respondents indicated that there was and a further 21.5% (3) of respondents indicated that they did not know.

Q16 – When asked how the local heritage offering may be improved and enhanced, respondents made the following comments: *"Broadcasting knowledge about heritage sites to the general public through social media, websites, blogs, YouTube, community groups, talks etc. Improve access to heritage sites e.g. better/more parking, designated clear pathways to sites. More information boards at sites and around the village"* and *"There should be key information, tourist booths containing information about all the heritage sites in area e.g. Naul etc…"*.

Other respondents noted that 'education', 'curation', 'walks and talks', the 'local paper' and notices may be opportunities to improve the local heritage offering.

Q17 – When asked what they think makes the area special in terms of its character and heritage, respondents made the following comments: *"It is a tight-knit community in a county that has seen some large urban centres. It has numerous fascinating heritage sites that need to be recognised on a national scale. It has heritage sites spanning all periods from the neolithic e.g. Fourknocks to modern times e.g. Seamus Ennis Centre. There is also some brilliant natural heritage sites e.g. Delvin River".*

Some respondents also noted the remoteness of Naul and how as an area it has retained its character *"Up to now the village of the Naul and the surrounding area has been protected and kept by the local people", "..So near urban areas, yet feels miles away – feels like we're deep in a rural area, very unspoiled + an area where nature + biodiversity can thrive…".*

Another respondent noted that aspects of the area which are special, is dependant ('relative to') on each person's own interpretation of the area's qualities. A respondent noted that the "Sense of Community" was a special quality. Another respondent noted that "*Heritage is abundant throughout Ireland but is in increasing danger of disappearing"*.

Q18 – When asked do they think that there is a need to conserve archaeological monuments in the Naul area, 86% of respondents (12) indicated that there was, while 14% (2) indicated that they did not know.

Q19 – When asked do they think climate change poses a risk to archaeological monuments in the Naul area, 86% of respondents (12) indicated that they did think climate change poses risks to the archaeological monument resource in the area, while 14% (2) indicated that they did not know.

Q20 – When asked if they thought there was opportunities to enhance biodiversity on heritage sites, 93% (13) of respondents indicated that there was, while 7% (1) indicated that they did not know. A respondent that this has to be done carefully as it is hard to stop human influence.

At the end of the survey there was space for the public to make any additional comments. The following are the comments left by the respondents:

"It is up to the government to provide funding to local areas all over the country, be it through the local councils, to enhance and improve heritage sites, with the focus on speed of these projects, or parts of our heritage will be lost forever."

"Keep up the good work".

Ian Lennon,

Secretary, Naul Community Council

Please see the 14 returned questionnaires attached overleaf

Community Consultation Moat Wood CMF 2022

Questionnaire

	Y	N
1. **Are you aware of archaeological monuments in the area?**	☑	☐
2. **Have you visited any monument sites in Naul before?**	☑	☐

*If yes, where? *E.g. Naul Graveyard, Fourknocks Passage Tomb, Knockbrack*

Naul graveyard, Knockbrack, Fourknocks Passage Tomb, Westown House

3. **Have you visited Moat Wood previously?**	☐	☑
4. **Are you aware of the archaeological landscape in the district of Naul?**	☑	☐
5. **Are you aware of the general history and heritage of the Naul area?** **Please comment on what degree of knowledge you may have below*	☑	☐

I'm very interested in local history and heritage and have researched this exclusively using websites such as archaeology.ie to find sites in the area

6. **~~Do you think there is sufficient interpretative information available on~~ & at heritage sites in Naul?**	☐	☑
7. **Would you like to know more about heritage sites in Naul?**	☑	☐
8. **Do you feel there is greater scope for interpreting the heritage of the district?**	☑	☐

*Please Include any additional comments you may have

If I feel more information should be available at the sites eg. notice information boards

9. **In what ways do you think heritage sites in the district may be interpreted?**

E.g. QR Codes, Signage, living history, art etc...

Signage and information boards
websites, blogs and Youtube videos, social media
Local heritage groups

10. **Would you support a walking and cycling heritage trail in the Naul area?**	☑	☐
11. **Would you support organised seasonal tours and arranged visits to heritage sites in the Naul district?**	☑	☐
12. **In your opinion, what do you think the district has to offer visitors and locals?** *E.g. Amenities, fresh produce, craft products, food trails, heritage sites*	☑	☐

I believe the district has so much to offer. There is so much history culture and archaeology - eg. Seamus Ennis centre, Knockbrack passage tombs, Fourknocks, Westown house, Black castle

13. **In what ways do you think access to heritage sites in Naul may be improved? E.g. wayfinding signage, trails, schemes etc..** Y N

Better Parking at heritage sites eg. Fourknocks. Trails to avoid damage to crops on private land eg. at Knockbrack. More Signage at the monuments so visitors know what they are looking at. More road signs so visitors can find sites easier

14. **What do you feel is important about our heritage sites?**

They connect us to our past and make us appreciate our environment and historic landscapes

15. **Do you feel Naul there is sufficient heritage offering for visitors and locals to the area at present?** ☑ ☐

16. **How may this offering be improved and enhanced?**

Broadcasting knowledge about heritage sites to the general public through social media, websites, blogs, Youtube, community groups, talks etc. Improve access to heritage sites eg. better/more parking, designated clear pathways to sites. More information boards at the sites and around the village.

17. **What do you think makes the area special in terms of its character and heritage?**

It is a rural tight-knit community in a county that has some large urban centres. It has numerous fascinating heritage sites that need to be recognised on a national scale. It has heritage sites spanning all periods from the neolithic eg. Fourknocks to modern times eg. Seamus Ennis Centre. There is also some brilliant natural heritage sites eg. Delvin River

18. **Do you think there is a need to conserve archaeological monuments in the Naul area?** ☑ ☐

19. **Do you think climate change poses a risk to the archaeological monuments In the Naul area?** ☑ ☐

20. **Do you think there are opportunities to enhance biodiversity on heritage sites?** ☑ ☐

Please Provide any additional Comments on the Next page:

Community Consultation Moat Wood CMF 2022

Questionnaire

	Y	N
1. **Are you aware of archaeological monuments in the area?**	☑	☐
2. **Have you visited any monument sites in Naul before?**	☐	☑
*If yes, where? *E.g. Naul Graveyard, Fourknocks Passage Tomb, Knockbrack*		
3. **Have you visited Moat Wood previously?**	☐	☑
4. **Are you aware of the archaeological landscape in the district of Naul?**	☑	☑
5. **Are you aware of the general history and heritage of the Naul area?** **Please comment on what degree of knowledge you may have below*	☐	☐
6. **Do you think there is sufficient interpretative information available on & at heritage sites in Naul?**	☐	☑
7. **Would you like to know more about heritage sites in Naul?**	☑	☐
8. **Do you feel there is greater scope for interpreting the heritage of the district?** **Please Include any additional comments you may have* Moto Signage	☑	☐
9. **In what ways do you think heritage sites in the district may be interpreted?** *E.g. QR Codes, Signage, living history, art etc...* Signage		
10. **Would you support a walking and cycling heritage trail in the Naul area?**	☑	☐
11. **Would you support organised seasonal tours and arranged visits to heritage sites in the Naul district?**	☑	☐
12. **In your opinion, what do you think the district has to offer visitors and locals?** *E.g. Amenities, fresh produce, craft products, food trails, heritage sites*	☐	☐

13. In what ways do you think access to heritage sites in Naul may be improved?
E.g. wayfinding signage, trails, schemes etc..

14. What do you feel is important about our heritage sites?

15. Do you feel Naul there is sufficient heritage offering for visitors and locals to the area at present? ☑ ☐

16. How may this offering be improved and enhanced?

17. What do you think makes the area special in terms of its character and heritage?

18. Do you think there is a need to conserve archaeological monuments in the Naul area? ☑ ☐

19. Do you think climate change poses a risk to the archaeological monuments In the Naul area? ☑ ☐

20. Do you think there are opportunities to enhance biodiversity on heritage sites? ☑ ☐

Please Provide any additional Comments on the Next page:

Community Consultation Moat Wood CMF 2022

Questionnaire

	Y	N
1. **Are you aware of archaeological monuments in the area?**	☑	☐
2. **Have you visited any monument sites in Naul before?**	☐	☐
*If yes, where? *E.g. Naul Graveyard, Fourknocks Passage Tomb, Knockbrack*		
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8. **Do you feel there is greater scope for interpreting the heritage of the district?** **Please Include any additional comments you may have*	☑	☐
9. **In what ways do you think heritage sites in the district may be interpreted?** *E.g. QR Codes, Signage, living history, art etc...* SINAGE WILDLIFE EDUCATION SIGNS		
10. **Would you support a walking and cycling heritage trail in the Naul area?**	☑	☐
11. **Would you support organised seasonal tours and arranged visits to heritage sites in the Naul district?**	☑	☐
12. **In your opinion, what do you think the district has to offer visitors and locals?** *E.g. Amenities, fresh produce, craft products, food trails, heritage sites* TRANQUILITY, CRAFT.	☐	☐

13. In what ways do you think access to heritage sites in Naul may be improved? E.g. wayfinding signage, trails, schemes etc..

Y N

SINAGE & WALKING TRAILS.

14. What do you feel is important about our heritage sites?

PRESERVATION

15. Do you feel Naul there is sufficient heritage offering for visitors and locals to the area at present?

☐ ☑ N

16. How may this offering be improved and enhanced?

EDUCATION

17. What do you think makes the area special in terms of its character and heritage?

SENSE OF COMMUNITY

18. Do you think there is a need to conserve archaeological monuments in the Naul area?

☑ ☐

19. Do you think climate change poses a risk to the archaeological monuments In the Naul area?

☑ ☐

20. Do you think there are opportunities to enhance biodiversity on heritage sites?

☑ ☐

Please Provide any additional Comments on the Next page:

Community Consultation Moat Wood CMF 2022

Questionnaire

	Y	N
1. Are you aware of archaeological monuments in the area?	☐	☒
2. Have you visited any monument sites in Naul before?	☑	☐
*If yes, where? *E.g. Naul Graveyard, Fourknocks Passage Tomb, Knockbrack*		
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**Please comment on what degree of knowledge you may have below*	☐	☑
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7. Would you like to know more about heritage sites in Naul?	☑	☐
8. Do you feel there is greater scope for interpreting the heritage of the district?	☑	☐
**Please Include any additional comments you may have*		
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10. Would you support a walking and cycling heritage trail in the Naul area?	☑	☐
11. Would you support organised seasonal tours and arranged visits to heritage sites in the Naul district?	☑	☐
12. In your opinion, what do you think the district has to offer visitors and locals? *E.g. Amenities, fresh produce, craft products, food trails, heritage sites*	☐	☐

Beautiful Village with so much to offer!

13. In what ways do you think access to heritage sites in Naul may be improved? E.g. wayfinding signage, trails, schemes etc..

Y N

14. What do you feel is important about our heritage sites?

15. Do you feel Naul there is sufficient heritage offering for visitors and locals to the area at present? ☐ ☐

16. How may this offering be improved and enhanced?

17. What do you think makes the area special in terms of its character and heritage?

18. Do you think there is a need to conserve archaeological monuments in the Naul area? ☐ ☐

19. Do you think climate change poses a risk to the archaeological monuments In the Naul area? ☐ ☐

20. Do you think there are opportunities to enhance biodiversity on heritage sites? ☐ ☐

Please Provide any additional Comments on the Next page:

Community Consultation Moat Wood CMF 2022

Questionnaire

	Y	N
1. **Are you aware of archaeological monuments in the area?**	☑	☐
2. **Have you visited any monument sites in Naul before?**	☑	☐
*If yes, where? *E.g. Naul Graveyard, Fourknocks Passage Tomb, Knockbrack* FOUR KNOCKS, KNOCKBRACK.		
3. **Have you visited Moat Wood previously?**	☐	☑
4. **Are you aware of the archaeological landscape in the district of Naul?**	☑	☐
5. **Are you aware of the general history and heritage of the Naul area?** **Please comment on what degree of knowledge you may have below*	☑	☐
6. **Do you think there is sufficient interpretative information available on & at heritage sites in Naul?**	☐	☑
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8. **Do you feel there is greater scope for interpreting the heritage of the district?** **Please Include any additional comments you may have*	☑	☐
9. **In what ways do you think heritage sites in the district may be interpreted?** *E.g. QR Codes, Signage, living history, art etc...* SIGNAGE, LEAFLETS ECT		
10. **Would you support a walking and cycling heritage trail in the Naul area?**	☑	☐
11. **Would you support organised seasonal tours and arranged visits to heritage sites in the Naul district?**	☑	☐
12. **In your opinion, what do you think the district has to offer visitors and locals?** *E.g. Amenities, fresh produce, craft products, food trails, heritage sites*	☐	☐

13. In what ways do you think access to heritage sites in Naul may be improved? Y N
E.g. wayfinding signage, trails, schemes etc..

SIGNAGE ; WALKING TRAILS

14. What do you feel is important about our heritage sites?

NATIONAL HISTORY

15. Do you feel Naul there is sufficient heritage offering for visitors and locals to the area at present? ☐ ☑

16. How may this offering be improved and enhanced?

17. What do you think makes the area special in terms of its character and heritage?

18. Do you think there is a need to conserve archaeological monuments in the Naul area? ☑ ☐

19. Do you think climate change poses a risk to the archaeological monuments In the Naul area? ☑ ☐

20. Do you think there are opportunities to enhance biodiversity on heritage sites? ☑ ☐

Please Provide any additional Comments on the Next page:

Community Consultation Moat Wood CMF 2022

Questionnaire

	Y	N
1. **Are you aware of archaeological monuments in the area?**	☐	☒
2. **Have you visited any monument sites in Naul before?**	☑	☐
*If yes, where? *E.g. Naul Graveyard, Fourknocks Passage Tomb, Knockbrack*		
3. **Have you visited Moat Wood previously?**	☐	☒
4. **Are you aware of the archaeological landscape in the district of Naul?**	☐	☒
5. **Are you aware of the general history and heritage of the Naul area?**	☑	☐
**Please comment on what degree of knowledge you may have below* — low		
6. **Do you think there is sufficient interpretative information available on & at heritage sites in Naul?**	☐	☒
7. **Would you like to know more about heritage sites in Naul?**	☑	☐
8. **Do you feel there is greater scope for interpreting the heritage of the district?**	☐	☐
**Please Include any additional comments you may have* — Yes - on Social Media, have social gatherings now that Covid is over		
9. **In what ways do you think heritage sites in the district may be interpreted?** *E.g. QR Codes, Signage, living history, art etc...* — Walks like today		
10. **Would you support a walking and cycling heritage trail in the Naul area?**	☐	☐
11. **Would you support organised seasonal tours and arranged visits to heritage sites in the Naul district?**	☐	☐
12. **In your opinion, what do you think the district has to ~~offer visitors~~ and locals?** *E.g. Amenities, fresh produce, craft products, food trails, heritage sites*	☐	☐

13. In what ways do you think access to heritage sites in Naul may be improved? E.g. wayfinding signage, trails, schemes etc.. Public Access

Y N

14. What do you feel is important about our heritage sites? to

15. Do you feel Naul there is sufficient heritage offering for visitors and locals to the area at present? ☐ ☒

16. How may this offering be improved and enhanced? Information. Education,

17. What do you think makes the area special in terms of its character and heritage? So near urban areas yet feels miles away ~ feels like we're deep in a rural area, very unspoiled + an area where nature + biodiversity can thrive.

18. Do you think there is a need to conserve archaeological monuments in the Naul area? ☑ ☐

19. Do you think climate change poses a risk to the archaeological monuments In the Naul area? ☑ ☐

20. Do you think there are opportunities to enhance biodiversity on heritage sites? ☑ ☐

Please Provide any additional Comments on the Next page:

Community Consultation Moat Wood CMF 2022

Questionnaire

	Y	N
1. **Are you aware of archaeological monuments in the area?**	☑	☐
2. **Have you visited any monument sites in Naul before?**	☐	☑
*If yes, where? *E.g. Naul Graveyard, Fourknocks Passage Tomb, Knockbrack*		
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7. **Would you like to know more about heritage sites in Naul?**	☑	☐
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11. **Would you support organised seasonal tours and arranged visits to heritage sites in the Naul district?**	☑	☐
12. **In your opinion, what do you think the district has to offer visitors and locals?** *E.g. Amenities, fresh produce, craft products, food trails, heritage sites*	☐	☐

13. In what ways do you think access to heritage sites in Naul may be improved? E.g. wayfinding signage, trails, schemes etc..

Y N

14. What do you feel is important about our heritage sites?

15. Do you feel Naul there is sufficient heritage offering for visitors and locals to the area at present?

☐ ☑

16. How may this offering be improved and enhanced?

17. What do you think makes the area special in terms of its character and heritage?

18. Do you think there is a need to conserve archaeological monuments in the Naul area?

☑ ☐

19. Do you think climate change poses a risk to the archaeological monuments In the Naul area?

☑ ☐

20. Do you think there are opportunities to enhance biodiversity on heritage sites?

☑ ☐

Please Provide any additional Comments on the Next page:

Community Consultation Moat Wood CMF 2022

Questionnaire

	Y	N
1. **Are you aware of archaeological monuments in the area?**	☑	☐
2. **Have you visited any monument sites in Naul before?**	☑	☐

*If yes, where? *E.g Naul Graveyard, Fourknocks Passage Tomb, Knockbrack*

	Y	N
3. **Have you visited Moat Wood previously?**	☐	☑
4. **Are you aware of the archaeological landscape in the district of Naul?**	☑	☐
5. **Are you aware of the general history and heritage of the Naul area?** **Please comment on what degree of knowledge you may have below*	☑	☐
6. **Do you think there is sufficient interpretative information available on & at heritage sites in Naul?**	☐	☑
7. **Would you like to know more about heritage sites in Naul?**	☑	☐
8. **Do you feel there is greater scope for interpreting the heritage of the district?**	☑	☐

**Please Include any additional comments you may have*

More Sinage

9. **In what ways do you think heritage sites in the district may be interpreted?**
E.g. QR Codes, Signage, living history, art etc...

Sinage use Slaney Ennis centre' to create awarenes

	Y	N
10. **Would you support a walking and cycling heritage trail in the Naul area?**	☑	☐
11. **Would you support organised seasonal tours and arranged visits to heritage sites in the Naul district?**	☑	☐
12. **In your opinion, what do you think the district has to offer visitors and locals?** *E.g. Amenities, fresh produce, craft products, food trails, heritage sites*	☐	☐

13. In what ways do you think access to heritage sites in Naul may be improved? E.g. wayfinding signage, trails, schemes etc..

Y N

14. What do you feel is important about our heritage sites?

15. Do you feel Naul there is sufficient heritage offering for visitors and locals to the area at present? ☐ ☐

16. How may this offering be improved and enhanced?

17. What do you think makes the area special in terms of its character and heritage?

18. Do you think there is a need to conserve archaeological monuments in the Naul area? ☑ ☐

19. Do you think climate change poses a risk to the archaeological monuments In the Naul area? ☑ ☐

20. Do you think there are opportunities to enhance biodiversity on heritage sites? ☑ ☐

Please Provide any additional Comments on the Next page:

Community Consultation Moat Wood CMF 2022

Questionnaire

	NO	YES
1. Are you aware of archaeological monuments in the area?	☐	☑
2. Have you visited any monument sites in Naul before?	☐	☑
*If yes, where? *E.g. Naul Graveyard, Fourknocks Passage Tomb, Knockbrack*		
3. Have you visited Moat Wood previously?	☑	☐
4. Are you aware of the archaeological landscape in the district of Naul?	☐	☑
5. Are you aware of the general history and heritage of the Naul area? *Please comment on what degree of knowledge you may have below*	☐	☑
6. Do you think there is sufficient interpretative information available on & at heritage sites in Naul?	☑	☐
7. Would you like to know more about heritage sites in Naul?	☐	☑
8. Do you feel there is greater scope for interpreting the heritage of the district?	☐	☑

Please Include any additional comments you may have

Maybe an information booth in Naul Village during busy holiday season.

9. In what ways do you think heritage sites in the district may be interpreted?

E.g. QR Codes, Signage, living history, art etc...

Signage and QR Codes

10. Would you support a walking and cycling heritage trail in the Naul area?	☐	☑
11. Would you support organised seasonal tours and arranged visits to heritage sites in the Naul district?	☐	☑
12. In your opinion, what do you think the district has to offer visitors and locals? *E.g. Amenities, fresh produce, craft products, food trails, heritage sites*	☐	☐

Heritage Sites, Craft products, fresh produce.

13. In what ways do you think access to heritage sites in Naul may be improved? NO. YES
E.g. wayfinding signage, trails, schemes etc..

Signage, Trails

14. What do you feel is important about our heritage sites?

We need to protect our heritage for the next generation as well are in grave danger of losing it.

15. Do you feel Naul there is sufficient heritage offering for visitors and locals to the area at present? ☑ ☐

16. How may this offering be improved and enhanced?

There Should be key information. Tourist Booths containing information about all the heritage sites in areas eg. Naul etc.

17. What do you think makes the area special in terms of its character and heritage?

Up to now the Village of the Naul and Surrounding area has been protected and kept by the local people

18. Do you think there is a need to conserve archaeological monuments in the Naul area? ☐ ☑

19. Do you think climate change poses a risk to the archaeological monuments In the Naul area? ☐ ☑

20. Do you think there are opportunities to enhance biodiversity on heritage sites? ☐ ☑

Please Provide any additional Comments on the Next page:

It is up to the government to provide funding to local areas all over the country be it through the local councils to enhance and improve heritage sites. With the focus on speed of these projects on parts of our heritage will be lost forever.

Community Consultation Moat Wood CMF 2022

Questionnaire

	Y	N
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2. **Have you visited any monument sites in Naul before?**	☒	☐
*If yes, where? *E.g. Naul Graveyard, Fourknocks Passage Tomb, Knockbrack*		
3. **Have you visited Moat Wood previously?**	☒	☐
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5. **Are you aware of the general history and heritage of the Naul area?** **Please comment on what degree of knowledge you may have below*	☐	☒
6. **Do you think there is sufficient interpretative information available on & at heritage sites in Naul?**	☐	☒
7. **Would you like to know more about heritage sites in Naul?**	☒	☐
8. **Do you feel there is greater scope for interpreting the heritage of the district?** **Please Include any additional comments you may have*	☒	☐
9. **In what ways do you think heritage sites in the district may be interpreted?** *E.g. QR Codes, Signage, living history, art etc...* living history is a great idea for Site.		
10. **Would you support a walking and cycling heritage trail in the Naul area?**	☒	☐
11. **Would you support organised seasonal tours and arranged visits to heritage sites in the Naul district?**	☒	☐
12. **In your opinion, what do you think the district has to offer visitors and locals?** *E.g. Amenities, fresh produce, craft products, food trails, heritage sites* Heritage Centre, Rural aspect of Dublin	☐	☐

13. In what ways do you think access to heritage sites in Naul may be improved? E.g. wayfinding signage, trails, schemes etc..

Y N

Signage for Trails

14. What do you feel is important about our heritage sites?

Links to a Leinster trail

15. Do you feel Naul there is sufficient heritage offering for visitors and locals to the area at present?

☐ ☒

16. How may this offering be improved and enhanced?

17. What do you think makes the area special in terms of its character and heritage?

18. Do you think there is a need to conserve archaeological monuments in the Naul area?

☒ ☐

19. Do you think climate change poses a risk to the archaeological monuments In the Naul area?

☐ ☐ Don't know

20. Do you think there are opportunities to enhance biodiversity on heritage sites?

☒ ☐

Please Provide any additional Comments on the Next page:

Keep up the good work

Community Consultation Moat Wood CMF 2022

Questionnaire

	Y	N
1. **Are you aware of archaeological monuments in the area?**	☑	☐
2. **Have you visited any monument sites in Naul before?**	☑	☐
*If yes, where? *E.g. Naul Graveyard, Fourknocks Passage Tomb, Knockbrack* Fewhnocn		
3. **Have you visited Moat Wood previously?**	☐	☑
4. **Are you aware of the archaeological landscape in the district of Naul?**	☑	☐
5. **Are you aware of the general history and heritage of the Naul area?** **Please comment on what degree of knowledge you may have below* West Plunn Estate	☐	☐
6. **Do you think there is sufficient interpretative information available on & at heritage sites in Naul?**	☐	☑
7. **Would you like to know more about heritage sites in Naul?**	☐	☑
8. **Do you feel there is greater scope for interpreting the heritage of the district?** **Please Include any additional comments you may have*	☑	☐
9. **In what ways do you think heritage sites in the district may be interpreted?** *E.g. QR Codes, Signage, living history, art etc...* Signage — living history		
10. **Would you support a walking and cycling heritage trail in the Naul area?**	☑	☐
11. **Would you support organised seasonal tours and arranged visits to heritage sites in the Naul district?**	☑	☐
12. **In your opinion, what do you think the district has to offer visitors and locals?** *E.g. Amenities, fresh produce, craft products, food trails, heritage sites* heritage site, fresh. products	☐	☐

13. In what ways do you think access to heritage sites in Naul may be improved? E.g. wayfinding signage, trails, schemes etc..

Y N

Signage, trails

14. What do you feel is important about our heritage sites?

knowledge + history

15. Do you feel Naul there is sufficient heritage offering for visitors and locals to the area at present?

☒ ☐

16. How may this offering be improved and enhanced?

Notices.

17. What do you think makes the area special in terms of its character and heritage?

18. Do you think there is a need to conserve archaeological monuments in the Naul area?

☒ ☐

19. Do you think climate change poses a risk to the archaeological monuments In the Naul area?

☐ ☐

20. Do you think there are opportunities to enhance biodiversity on heritage sites?

☒ ☐

Please Provide any additional Comments on the Next page:

Community Consultation Moat Wood CMF 2022

Questionnaire

Y N

1. **Are you aware of archaeological monuments in the area?** ☑ ☐
2. **Have you visited any monument sites in Naul before?** ☑ ☐

   *If yes, where? *E.g. Naul Graveyard, Fourknocks Passage Tomb, Knockbrack*

   Naul, Fourknocks P.S.
3. **Have you visited Moat Wood previously?** ☐ ☑
4. **Are you aware of the archaeological landscape in the district of Naul?** ☑ ☐
5. **Are you aware of the general history and heritage of the Naul area?**

   **Please comment on what degree of knowledge you may have below* ☑ ☐

   _____
6. **Do you think there is sufficient interpretative information available on & at heritage sites in Naul?** ☐ ☑
7. **Would you like to know more about heritage sites in Naul?** ☑ ☐
8. **Do you feel there is greater scope for interpreting the heritage of the district?** ☐ ☐

   **Please Include any additional comments you may have*

   Link across the wider area to be placed in socio-cultural context.
9. **In what ways do you think heritage sites in the district may be interpreted?**

   E.g. QR Codes, Signage, living history, art etc...

   All of the above.
10. **Would you support a walking and cycling heritage trail in the Naul area?** ☑ ☐
11. **Would you support organised seasonal tours and arranged visits to heritage sites in the Naul district?** ☑ ☐
12. **In your opinion, what do you think the district has to offer visitors and locals?** ☐ ☐

    E.g. Amenities, fresh produce, craft products, food trails, heritage sites

    Needs to be worked.

13. In what ways do you think access to heritage sites in Naul may be improved? E.g. wayfinding signage, trails, schemes etc..

Y N

all of the above.

14. What do you feel is important about our heritage sites?

15. Do you feel Naul there is sufficient heritage offering for visitors and locals to the area at present? ☐ ☑

16. How may this offering be improved and enhanced?

Conservation

17. What do you think makes the area special in terms of its character and heritage?

18. Do you think there is a need to conserve archaeological monuments in the Naul area? ☑ ☐

19. Do you think climate change poses a risk to the archaeological monuments In the Naul area? ☑ ☐

20. Do you think there are opportunities to enhance biodiversity on heritage sites? ☑ ☐

Please Provide any additional Comments on the Next page:

Bat, Veg. etc.

Community Consultation Moat Wood CMF 2022

Questionnaire

	Y	N
1. **Are you aware of archaeological monuments in the area?**	☒	☐
2. **Have you visited any monument sites in Naul before?**	☒	☐
*If yes, where? *E.g. Naul Graveyard, Fourknocks Passage Tomb, Knockbrack*		
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8. **Do you feel there is greater scope for interpreting the heritage of the district?** **Please Include any additional comments you may have*	☒	☐
9. **In what ways do you think heritage sites in the district may be interpreted?** *E.g. QR Codes, Signage, living history, art etc...* ALL OF THE ABOVE		
10. **Would you support a walking and cycling heritage trail in the Naul area?**	☒	☐
11. **Would you support organised seasonal tours and arranged visits to heritage sites in the Naul district?**	☒	☐
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13. In what ways do you think access to heritage sites in Naul may be improved? E.g. wayfinding signage, trails, schemes etc..

Y N

14. What do you feel is important about our heritage sites?

15. Do you feel Naul there is sufficient heritage offering for visitors and locals to the area at present? ☐ ☐

16. How may this offering be improved and enhanced?

17. What do you think makes the area special in terms of its character and heritage?

HERITAGE IS ABUNDANT ARCHITECT IRELAND BUT IS INCREASING DANGER OF DISAPPEARING

18. Do you think there is a need to conserve archaeological monuments in the Naul area? ☐ ☒

19. Do you think climate change poses a risk to the archaeological monuments In the Naul area? ☒ ☐

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Please Provide any additional Comments on the Next page:

Community Consultation Moat Wood CMF 2022

Questionnaire

	Y	N
1. **Are you aware of archaeological monuments in the area?**	☑	☐
2. **Have you visited any monument sites in Naul before?**	☑	☐

*If yes, where? *E.g. Naul Graveyard, Fourknocks Passage Tomb, Knockbrack*

Graveyard + Fourknocks

3. **Have you visited Moat Wood previously?**	☑	☐
4. **Are you aware of the archaeological landscape in the district of Naul?**	☑	☐
5. **Are you aware of the general history and heritage of the Naul area?**	☑	☐

**Please comment on what degree of knowledge you may have below*

Just the generalities of the area

6. **Do you think there is sufficient interpretative information available on & at heritage sites in Naul?** ~~too~~ Naul Heritage is good!	☐	☑ Need more info
7. **Would you like to know more about heritage sites in Naul?**	☑	☐
8. **Do you feel there is greater scope for interpreting the heritage of the district?**	☑	☐

**Please Include any additional comments you may have*

More interpretation breeds more interest - more interest leads to better management of the sites

9. **In what ways do you think heritage sites in the district may be interpreted?**

E.g. QR Codes, Signage, living history, art etc...

QR codes at sites best also signs, talks, heritage walks.
Fêtes + living history + interpretations.
Open air Museums

10. **Would you support a walking and cycling heritage trail in the Naul area?**	☑	☐
11. **Would you support organised seasonal tours and arranged visits to heritage sites in the Naul district?** Definitely!	☑	☐
12. **In your opinion, what do you think the district has to offer visitors and locals?**	☐	☐

E.g. Amenities, fresh produce, craft products, food trails, heritage sites

Heritage village w/ a lot of local history. SEAC is a huge part to the area. Also monthly markets.

Fourknocks is massive for archaeologists & school tours, if other site could be emphasised, more can be brought to the village.

13. In what ways do you think access to heritage sites in Naul may be improved? Y N
E.g. wayfinding signage, trails, schemes etc..

More signage - Most record is generally unknown but signs about other important features in the area would emphasises them.

14. What do you feel is important about our heritage sites?

History + sense of place
Putting ourselves in the shoes of past people provides better understanding for future generations.

15. Do you feel Naul there is sufficient heritage offering for visitors and locals to the area at present? Basically unknown for an outsiders perspective ☐ ☑

16. How may this offering be improved and enhanced?

Walks, talks, campaigns, signage & social media + local papers.

17. What do you think makes the area special in terms of its character and heritage?

Relative depending on the person
Information on the interpretation of the site.

18. Do you think there is a need to conserve archaeological monuments in the Naul area? Yes! ☑ ☐

19. Do you think climate change poses a risk to the archaeological monuments In the Naul area? 100% ☑ ☐

20. Do you think there are opportunities to enhance biodiversity on heritage sites? ☑ ☐

Please Provide any additional Comments on the Next page:

has to be done carefully. Hard to stop human influence