Energy for generations

Derrybrien Wind Farm Project

Gort Wind Farms Ltd.

Remedial Environmental Impact Assessment Report Chapter 15- Cultural Heritage Appendices

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Appendices

Appendix 15-1 Archaeological Survey of Ireland site descriptions

(source: www.archaeology.ie)

SMR No.	Class	ASI Description
GA115-007----	Children's burial ground	None
GA124-001----	Ringfort - cashel	Located at the junction of four townlands, in an area of upland bog. Named 'Cashlaundrumlahan' on the OS 6-inch maps. According to local information, a 'double wall' once existed here but it was destroyed when the area was forested. No visible surface trace survives but a curving trackway may respect the circuit of the monument.
GA124-003----	Redundant record	This is a curving field wall. It is not an archaeological monument.
GA124-004----	Enclosure	On a S-facing slope in marshy grassland, overlooking the Owendalulleegh River. This poorly preserved oval enclosure (63m E-W; 42m N-S) is defined by a scarp. It is overlain by a field boundary at NW.
GA124-005----	Burial ground	No description
GA124-005001-	Bullaun stone	In pastureland sloping steeply to the S and overlooking woodland. Aspect is limited to the N. This bullaun lies the E end of a graveyard (GA124-005----). It is set in the ground and comprises an irregularly shaped, moss-covered boulder (1.2m N-S; 0.9m E-W; H 0.4m). Two bowls are visible: the N (diam. 0.4m; D 0.12m) bowl is circular in plan, while the S one (0.45m E-W; 0.35m N-S; D 0.18m), which is filled with water, is oval.
GA124-006----	Monumental structure	No description
GA124-008----	Redundant record	This is a curving field boundary. It is not an archaeological monument.
GA124-009----	Boundary mound	No description

GA124-010-----	Boundary mound	No description
GA124-013-----	Church	No description

Appendix 15-2 Photographic Record

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Plate 15- 20 View of overhead line entering Agannygal substation from north*h*

Appendix 15-3 Archaeological report on 2004-5 phase of construction

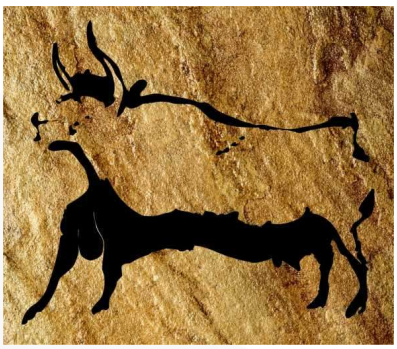
ARCHAEOLOGICAL MONITORING

OF

TURBINE BASE EXCAVATIONS

ON BEHALF OF

ESB INTERNATIONAL



Moore Group

Job Number: G53

Licence Number: 03E1069

Planning Number: 97/3470

Author: Eoghan Kieran

Date: September 2005

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NON TECHNICAL SUMMARY

This report describes the results of an archaeological monitoring carried out at the site of an 89 no. turbine wind farm in Derrybrien, Co. Galway. The programme of monitoring was carried out from 9th December 2004 to 16th August 2005. The work was undertaken by the author for Moore Group (MOORE) on behalf of the Electricity Supply Board International.

The proposed scheme entailed the construction of 71 no. turbines at the above location. The construction of the foundation bases for the turbines necessitated the excavation of large deposits of peat to ensure a stable platform. It was the excavation of these peat deposits that required archaeological monitoring.

As a condition of planning permission from Galway County Council, the Planning Authorities, requested that the project be subject to archaeological monitoring.

Archaeological monitoring was undertaken of two aspects of the project. These were the excavation of the turbine bases and associated crane bases and the excavation of cable trenches throughout the site.

No archaeological material, finds or features were noted throughout the programme of archaeological monitoring.

1 SCOPE OF WORKS

1.1 Introduction

Moore Group were commissioned to carry out a programme of archaeological monitoring as a condition of the granting of planning permission associated with the construction of a wind farm at Derrybrien, Co. Galway (figure 1). The project proposed the construction of 71 Vestas V52 850 kw turbine foundations including excavation, disposal, blinding and reinforced concrete to bases and crushed stone backfill on top of base. The following report documents the proposed project, the existing environment at the site and the predicted impacts and suggested mitigation measures for the proposed scheme.

1.2 Archaeological Monitoring

Archaeological Monitoring can be defined as a 'formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons within a specified area or site on land or underwater, where there is possibility that archaeological deposits may be disturbed or destroyed. The programme will result in the preparation of a report and ordered archive, (IFA, 1994, 1).

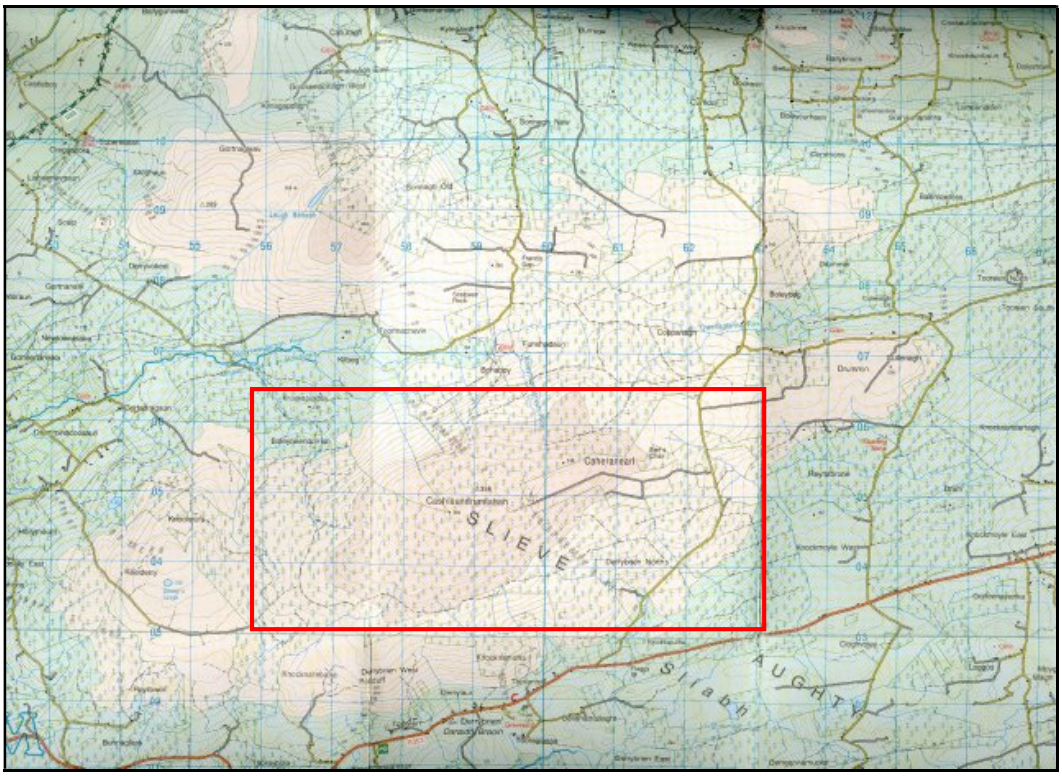

Figure 1: Project location as represented on Discovery Series # 52

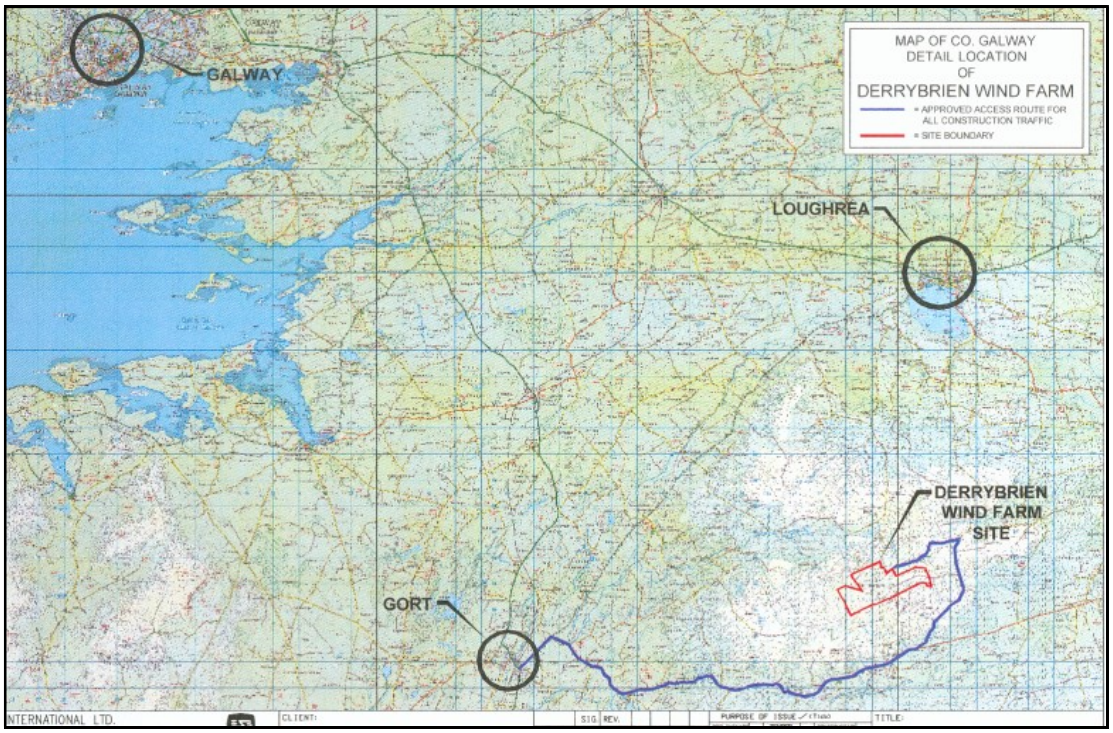

Figure 2. Project location in relation to surrounding large towns

1.3 Description of the Site

The proposed development is located between Cashlaundrumlahan and Caheranearl hilltops at Derrybrien, in the Slieve Aughty Mountains. The Slieve Aughty range measures approximately 4.5km (N-S) x 2.5km (E-W) is located approximately equidistant between the towns of Loughrea and Gort. The Wind farm site is located between the two highest points of the range (358 & 344m), and is approximately 10.5km south of Loughrea and 13km east of Gort, Co. Galway.

Access to the site from Loughrea is via a third class road, known as the Black Road. This road travels south from Killeenadeena, it passes the site entrance and continues for a further 2.5 km where it meets with the R353 Gort to Abbey Road. The development site lies approximately 2km west of the Black Road and is accessed through a specifically designed rubble stone road network.

The development area is remote and sparsely populated. The landscape comprises completely of blanket bog and plantation coniferous forestry. Much of the forestry in the development area has been removed to facilitate turbine construction and erection.

1.4 Site Layout/Locational details

The approach road to the subject site is a third class road off the R353. The site itself is a hilltop location in the Slieve Aughty Mountains. The land is barren, remote and covered almost exclusively in blanket bog and plantation forestry.

County	Galway
Townland	Derrybrien North
OS Sheet number	124
NGR	Centred on 15900/20500
Height	190-230m

Table 1: Locational details

1.5 Description of the Project

There were a number of components associated with the completion of the project. These included:

- Construction of 71 Vestas V52 850 kw turbine foundations including excavation, disposal, blinding and reinforced concrete to bases and crushed stone backfill on top of base.
- Design and maintenance of approx 20 km of site access roads for all construction traffic.
- Design and maintenance of 71 craneage areas adjacent to turbine foundations for a safe and suitable working platform.
- Construction of ESB switchgear house and substation including all associated plinth ducts and external fencing.
- Excavation and backfilling of approx 20 km of cable trench for underground cabling between turbines and substation.
- Upgrade and maintain existing highway from Derrybrien village to new site
- Construct new junction with Derrybrien to Killeenedeema road to provide safe and suitable access for all construction traffic
- Open up and develop two on site borrow pits to provide rock for the construction, upgrading and maintenance of site tracks, crane bases, backfilling and reinstatement.

The three associated with the programme of archaeological monitoring are listed below.

- Preparation of site and construction of turbine bases
- Erection of turbines
- Excavation of cable trenches

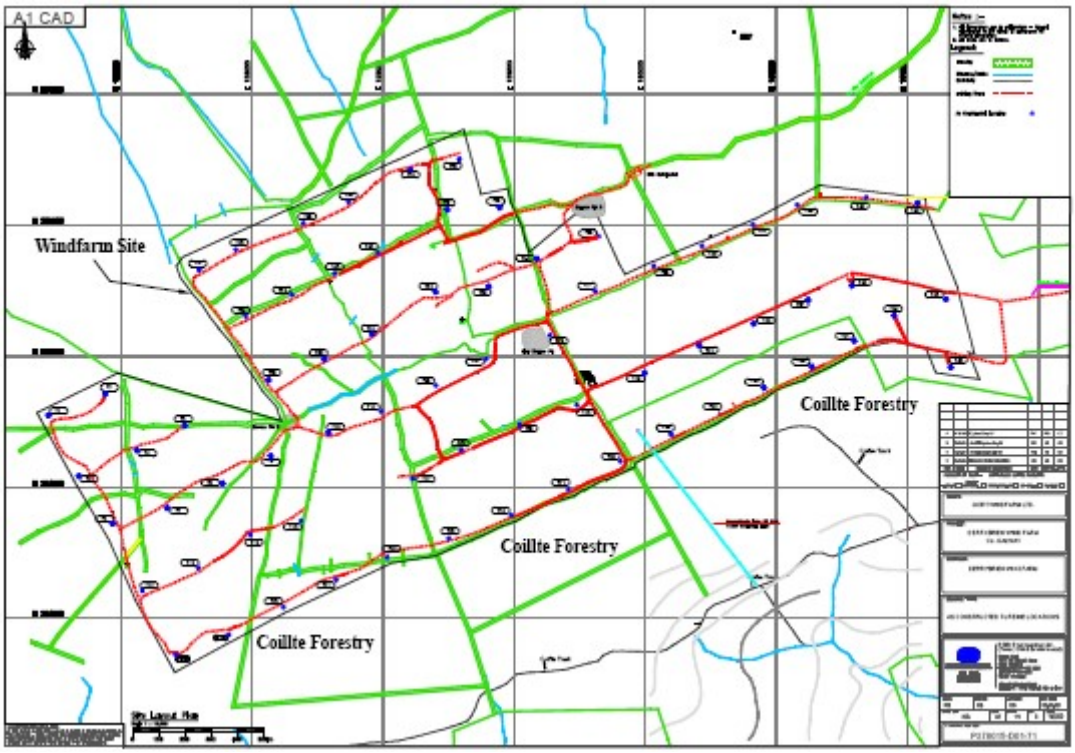

Figure 3. Turbine base and cable trench locations

2 DESCRIPTION OF THE EXISTING ENVIRONMENT

2.1 Solid Geology

The geology of the region surrounding Derrybrien consists of Devonian Sandstone ('Old Red Sandstone') with occasional outcroppings of shale and carboniferous limestone.

2.2 Soil Type

The soil in the area is made up of peaty gleys and blanket peat. The substrate type in the vicinity of the subject site is predominantly sandstone glacial till. Subsequently, there is restricted land use in the region with a predominance of state plantation forestry, peat cutting and some grazing for sheep.

2.3 Landscape

The townland of Derrybrien is situated 13km to the east of Gort, Co. Galway. The countryside surrounding the development site is barren highland and land use comprises almost completely of peat cutting, forestry, and sheep pasture.

3 ARCHAEOLOGICAL & HISTORICAL BACKGROUND

This section comprises of a paper study of all available archaeological, historical and cartographic sources relating to the development site. It provides the archaeological and historical context for the landscape in which the development is situated.

3.1 Mesolithic Period

The Mesolithic (middle stone age) people were the first inhabitants of Ireland, arriving about 9000 years ago. They were a mobile society relying on wild resources for food, which was hunted and gathered using stone tools as well as boats, nets and traps. Settlement was in temporary and semi permanent groups of huts constructed of wood slung with hide, which may have operated as seasonal or hunting camps.

Mesolithic activity to date shows a marked concentration in the north-east of Ireland. Evidence for Mesolithic activity in Galway is scarce. The concentration of find-spots and sites in the north east can, in part be attributed to both the availability of flint and the large number of antiquarians and collectors in the region and suggests that activity in this period was widespread in the country, with settlers probably utilising the extensive coastline for fish and shellfish. Finds from Galway include a distally trimmed chert flake from the western shores of Lough Corrib at Oughterard, which is later Mesolithic in provenance.

3.2 Neolithic Period

Farming was first adopted in the Middle East but spread gradually across Europe in succeeding centuries, arriving in Ireland about 4000 BC. Tending of crops and animals required a more sedentary lifestyle and larger permanent settlements were built. The megalithic (from the Greek mega – large and lith – stone) monuments of the Neolithic people built as communal tombs or for ceremonial purposes, are relatively common in the landscape. New methods were adopted for shaping stone tools and the first long distance trade networks were established.

Neolithic activity is more apparent in the archaeological record of Galway due to the presence of a number of known megalithic monuments. Megalithic monuments can be divided into funerary monuments, communal tombs for the burial of the dead and those with a more esoteric function such as stone circles, stone rows or single standing stones whose function was probably ceremonial. Single standing stones may have acted as foci or markers at the edges of territories.

3.3 The Bronze Age

As stone tools were replaced by the use of copper, later combined with tin to make bronze, the structure of society also changed over centuries. While some communal megalithic monuments, particularly wedge tombs continued to be used, the Bronze Age is characterised by a movement towards single burial and the production of prestige items and weapons, suggesting that society was increasingly stratified and warlike.

There is a notable concentration of Bronze Age burials known in an area roughly bounded by Athenry, Tuam and Headford, indicating that activity in this period was widespread in the region and suggesting a significant population density. Barrows, generally dating from the Late Neolithic to the Early Iron Age, along with standing stones are quite common in the Tuam - Headford area.

Although there is some debate about the provenance of the standing stones, it is generally accepted that they date from the later part of the Bronze Age. Stone rows or single standing stones were probably ceremonial in function, although single standing stones may have acted as foci or markers at the edges of territories.

Fulachta Fiadh, which consist of small, horseshoe shaped grass covered mounds, are composed of burnt and fire cracked stones and a central pit or trough. They may have functioned as cooking places and are common throughout the country with many more identified each year.

3.4 The Iron Age/Early Historic Period

In late Bronze Age Ireland the use of the metal reached a high point with the production of high quality decorated weapons, ornament and instruments, often discovered from hoards or ritual deposits. The Iron Age however is known as a 'dark age' in Irish prehistory. Iron objects are found rarely, but there is no evidence for the warrior culture of the rest of Europe, although the distinctive La Tené style of art with animal motifs and spirals was adopted. Life in Iron Age in Ireland seems to have been much as it was in the early historic period – mixed farmers living in or around small defended settlements known as ringforts or stone cashels.

Ringforts, hilltop enclosures and other large enclosures are common across County Galway, both as raths (defended settlements defined by an earthen bank) and cashels (defined by a bank of stone). The smaller ringfort settlements are the most common monuments in Galway and are thought to be small farmsteads, enclosing houses, farm buildings and animal pens, enclosed as protection against raiders or wild animals. Excavations of the interior suggest that

the houses were small circular huts, built of stakes with a double skin of wattle and a thatched roof. Their distribution in the region is dispersed and widespread. The Archaeological Inventory of North Galway lists 1104 examples while the Archaeological Inventory of Galway (west) lists 135.

The larger hillforts and enclosures are either large secular settlements, dating to the Late Bronze Age or Early Iron Age, linked to large 'royal' sites or may be associated with pre-Norman monastic settlements. Limited fieldwork has been carried out on these monuments.

Although the town of Loughrea is generally regarded as dating from 1236 AD, there is much evidence of human settlement in the area prior to this date. The Turoe Stone, which is probably carved around 100BC, is located north of the town, outside the village of Bullaun. There is a well-preserved stone circle of an earlier date at Moanmore East on the Tynagh road.

3.5 Later Historic Period

The Slieve Aughty Mountains form the eastern boundary of the kingdom of Hy Fiachradh Aidhne, which is thought to have been founded in the fourth century AD by King Fiachra. The mountains formed a natural barrier with the aggressive kingdom of Thomond, to the southeast, and because of it's borderland nature was not well settled. While the Kingdom of Aidhne prospered, the Aughty Mountains remained an isolated and under-populated region throughout the early medieval period, and even under the rule of Guaire, in the eight-century, after whom Gort is named ('Gort Inse Guaire', meaning 'the island in the bog of Guaire') the Aughties remained a wild and desolate place.

3.6 General background to the site

The sites mountainous terrain and the exposed nature of the landscape mean that human activity in the area has always been of a limited nature. Occasional small farms are found, but for the most part the locality is unpopulated, a trend which almost definitely extends far into the areas past; an implicit implication of the areas equally sparse known archaeological record.

4 BASELINE DATA

4.1 Record of Monuments and Places

The RMP is a database recording all archaeological sites in Ireland known to the National Monuments Service established under Section 12 of the 1994 National Monuments (Amendment) Act. It is based on Ordnance Survey 6" sheets, which indicate the location of each monument or place of archaeological interest. For each, a file contains further documentary and photographic data or information relating to an archaeological event such as a site visit, survey or excavation. These are housed in the National Monuments Services in Dublin. The record is constantly updated and focuses on monuments that pre-date 1700.

Although there are no recorded archaeological monuments or places in the development area, The following sites are in the vicinity of the subject site:

SMR No.: GA124-002
Nat Grid Ref.: 16483/20585
Townland: Cullenagh
Classification: Standing stone

SMR No.: GA124-004
Nat Grid Ref.: 15998/20152
Townland: Derrybrien East
Classification: Enclosure

SMR No.: GA124-005
Nat Grid Ref.: 15956/20170
Townland: Derrybrien East
Classification: Graveyard

None are within an 1km impact zone of the site.

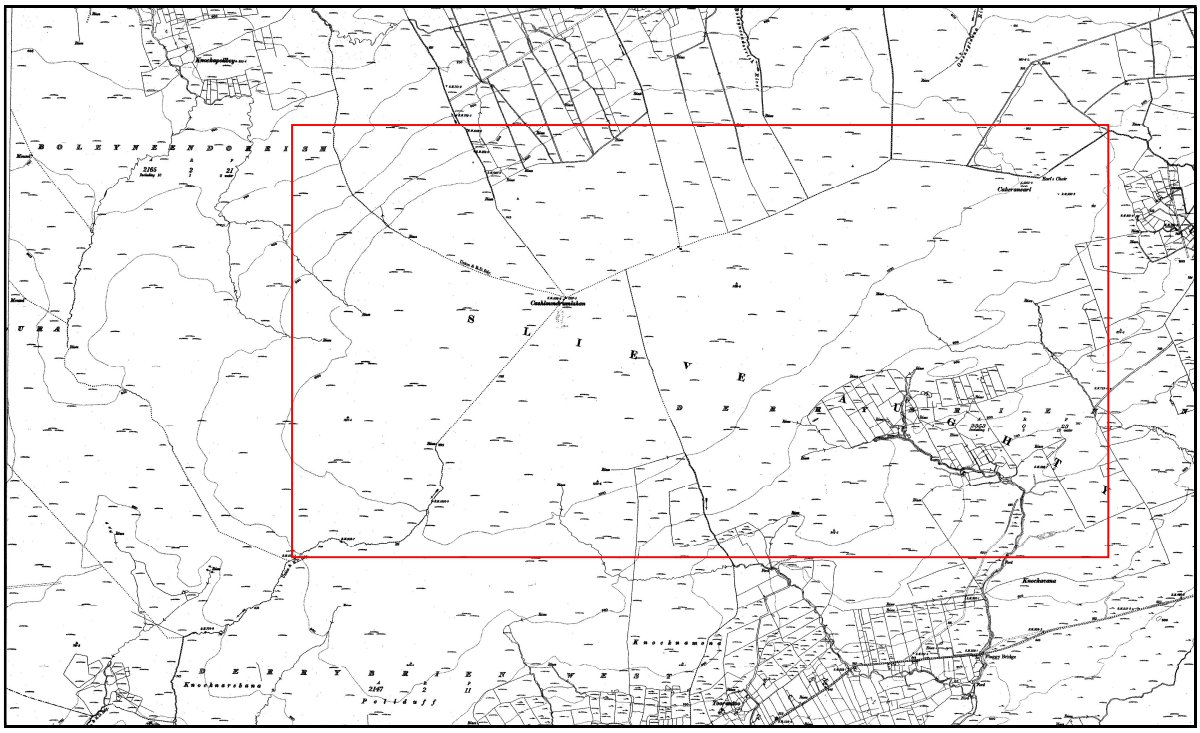

Figure 4. Extract from RMP Map GA124 showing location of monitoring area

4.2 The National Museum of Ireland Topographical Files

The discovery of artefacts can be an important indicator of past levels of activity in an area and therefore a useful guide to the archaeological potential of a site. The National Museum in Dublin houses a national archive of antiquities cataloguing artefacts which were found and reported between 1928 and 1995. They are catalogued by year and accession number.

The topographical survey has no record of any archaeological artefacts having been recovered from the townland of Derrybrien Co. Galway.

4.3 Previous Archaeological Fieldwork in the area

A search of the *Excavations.ie* database revealed that no archaeological excavations have been undertaken in the townland of Derrybrien North. Two archaeological assessments and the report of a programme of archaeological monitoring associated with phase one of the wind farm have been compiled. These reports are not required to be published in the public domain.

4.4 Aerial Photographs

Aerial photographs are an invaluable resource in archaeology for the recognition of new sites and the contributing to the understanding of known sites. Features can be recognised from the air as earthworks in relief or as vegetation marks where a buried feature such as a wall or ditch affects the growth of the surrounding flora. The Geological Survey of Ireland, based in Dublin, holds a comprehensive archive of high level vertical photographs available for consultation by the public and researchers but may not be copied. Aerial images are also available from the Marine Institute of Ireland National Coastline Survey.

There were no archaeological features or monuments noted in the aerial photographs for this area.

4.5 Inventory of Architectural heritage post 1700 AD

This comprises a brief description of architectural features/buildings of architectural significance extant at or near the subject site.

There were no features of this nature in the vicinity of the development.

4.6 Cartographic Evidence

A search of historic maps of County Galway shows little detail for the townland of Derrybrien North and Cashlaundrumlahan and Caheranearl or 'the Earls Chair'. Molls map of County Galway drawn in 1728, was the earliest map consulted (see figures 4 & 5). It recorded the location of the towns of Loughrea, Kiltartan and Feakle. It contains no detail of any major settlement or features of archaeological significance in the area of Derrybrien North and Cashlaundrumlahan and Caheranearl.

4.6.1 Molls Map of County Galway, 1728

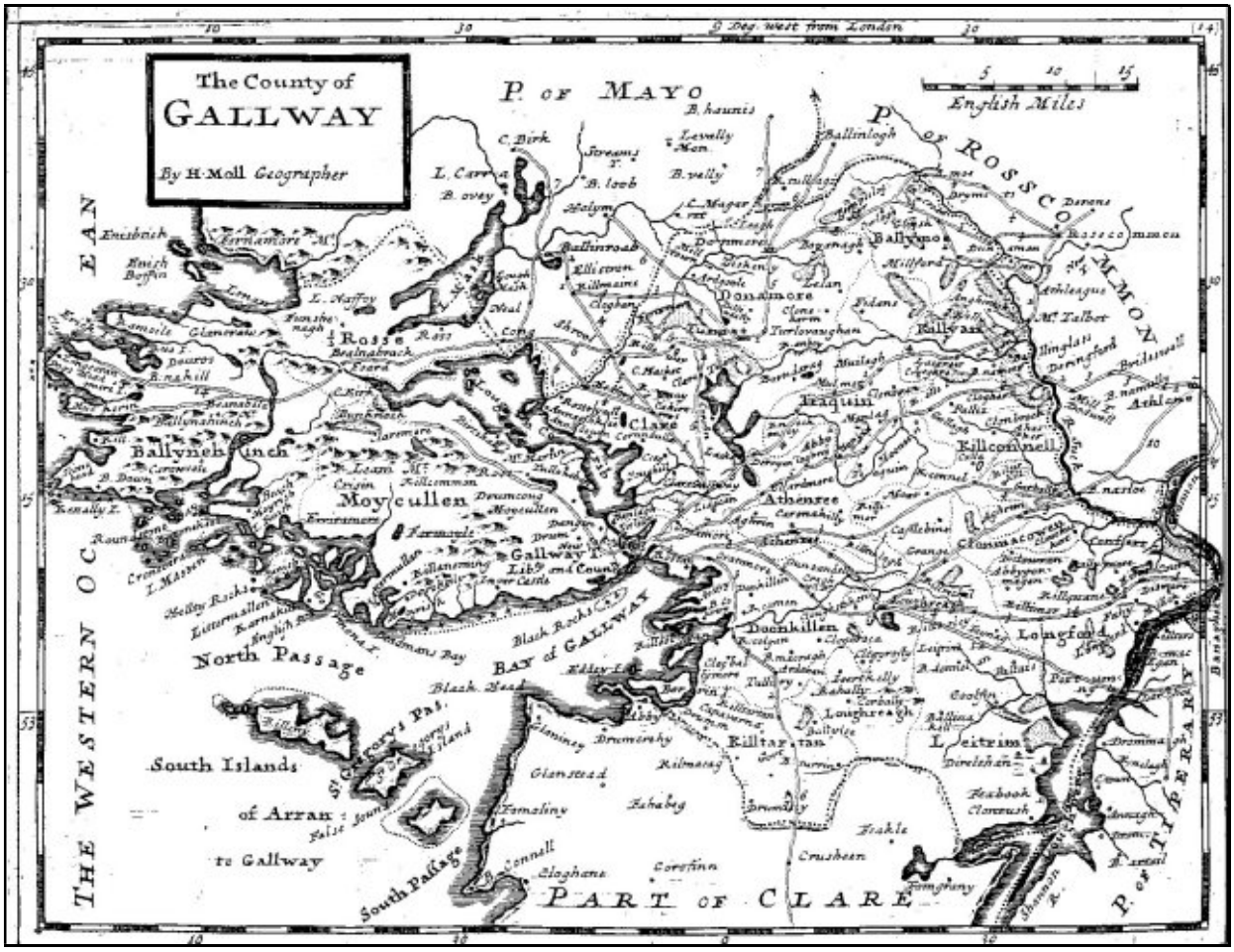

Figure 5. Molls Map of Galway, 1728

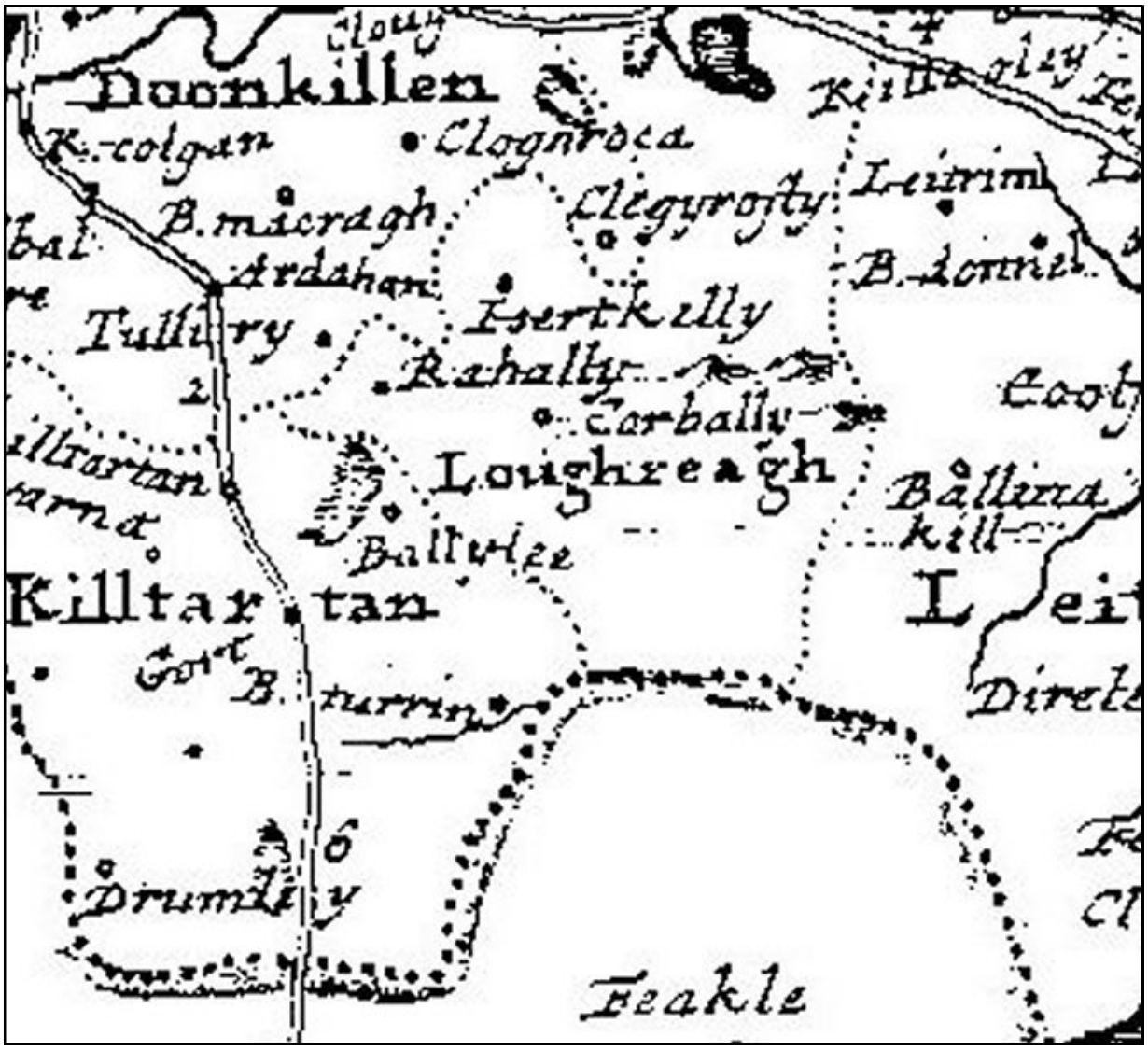

Figure 6. Close up of Molls Map, detailing monitoring area.

This map was complied in 1728 and does not represent any features of archaeological or architectural significance in the development area.

4.6.2 1st Edition Ordnance Survey Map of County Galway, Sheet 124, 1841

Figure 7. Extract from First Edition Ordnance Survey Map of Galway, Sheet 124, 1841 showing a portion of the development site.

This map has no reference to any features of archaeological significance on the development site.

4.6.3 1st Edition Ordnance Survey Map of County Galway, Sheet 115, 1841

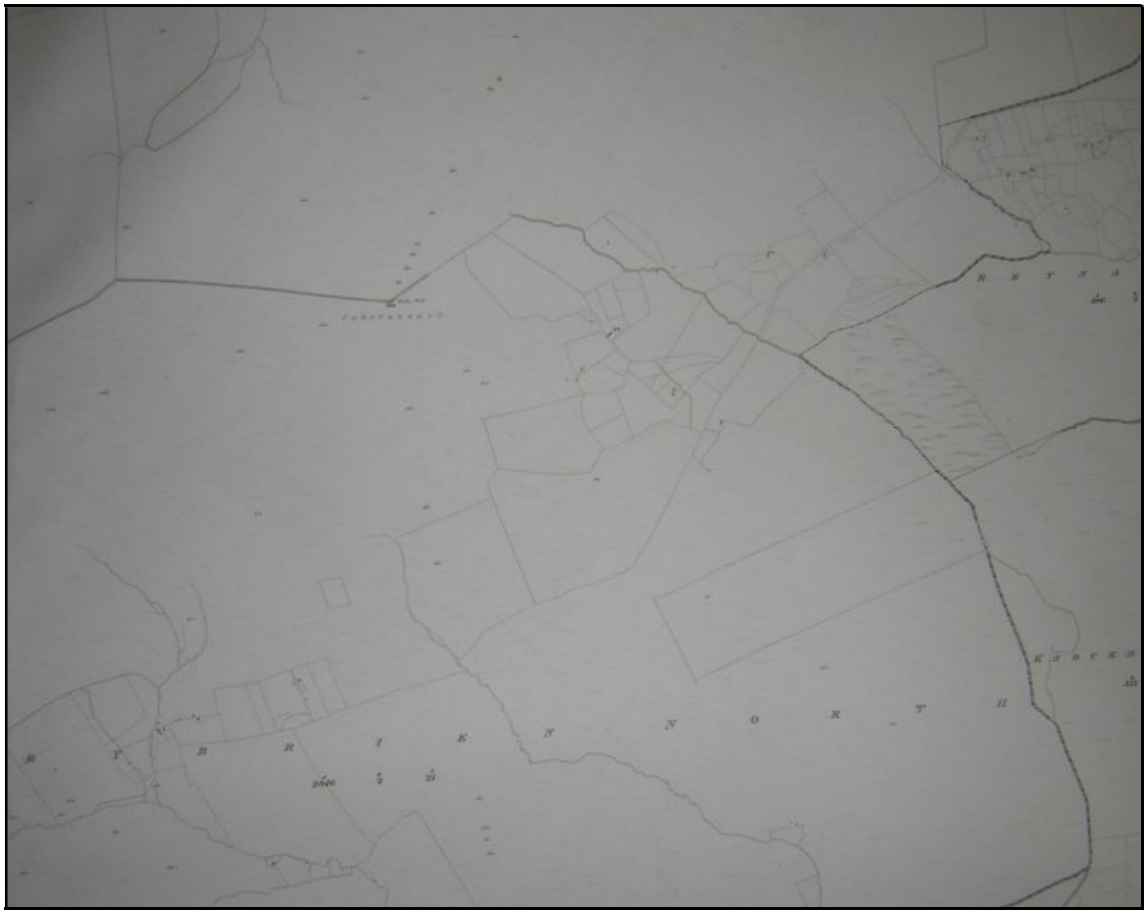

Figure 8. Extract from First Edition Ordnance Survey Map of Galway, Sheet 115, 1841 showing a portion of the development site.

Similar to the previous extract, this map has no reference to any features of archaeological significance on the development site.

5 THE SITE

Archaeological monitoring was undertaken of two components of the project.

- Excavation of turbine bases
- Excavation of cable trenches

5.1 Excavation of Turbine Bases

Prior to the commencement of archaeological monitoring operations, an engineering method statement was agreed between the developer and the contractor. The aim of this method statement was to ensure the safe excavation and disposal of the excavated material. A number of procedures were put in place to ensure the safe execution of these operations. These involved

- The setting out of the location of bases in accordance with dimensions shown on the contract drawings and agreed with the Engineers.
- Carry out trial holes in the area to be excavated to assess the depth of peat at the location. This was undertaken using a core auger.
- Prior to any construction activity taking place, the proposed turbine area should be jointly surveyed and a location specific method of construction agreed with ESBI Site Geo-technical Engineer.
- In areas of low risk, excavated material will be side cast and spread.

5.1.1 Methodology for Excavation of Turbine Bases

Where peat depths were lower than 1m, a site specific method of construction was devised. This methodology had four stages;

- Excavate and side cast or remove material to the required formation level.
- Bench sides of excavation to have safe batters prior to any operatives entering the excavation.
- If de-watering of the excavation was required. All excess run off shall be directed into suitable watercourses.
- Silt traps should be put in place at all agreed outfalls from the site prior to pumping operations commencing.

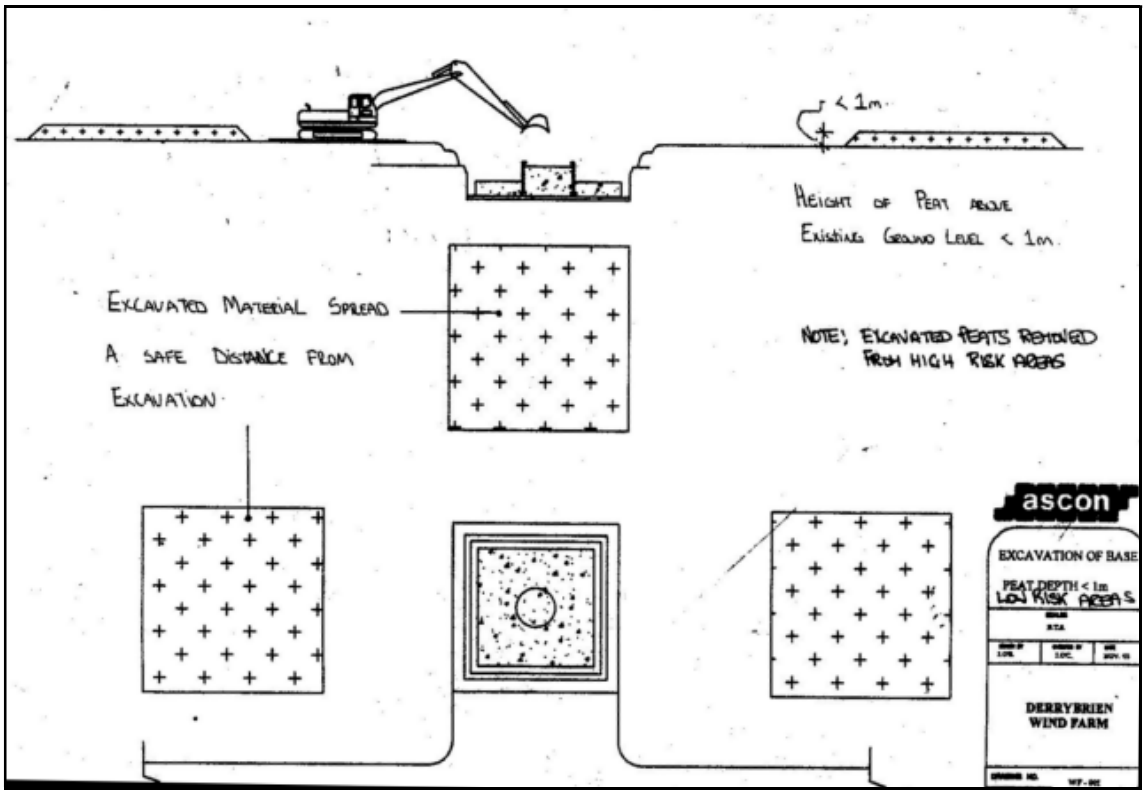

Figure 9. Excavation methodology for bases of less than 1m depth

In areas where peat depth was greater than 1m in depth a separate methodology was employed. This involved;

- The placement of rock on the sides of the excavation that are perpendicular to the slope. Rock should be placed on the sides of the trench, which were parallel to the down slope during excavation. This would ensure that the rock does not exert any additional side forces on the face of the peat parallel to the down slope and the rocks shall act to retain the peat during excavation.

- All excavated material would be removed unless the area adjacent to the excavation was deemed suitable for side casting prior to the commencement of operations.

- Bench sides of excavation to be safely battered prior to the entry of any operatives into the excavation.

- If de-watering of the excavation was required. All excess run off shall be directed into suitable watercourses.

- Silt traps should be put in place at all agreed outfalls from the site prior to pumping operations commencing.

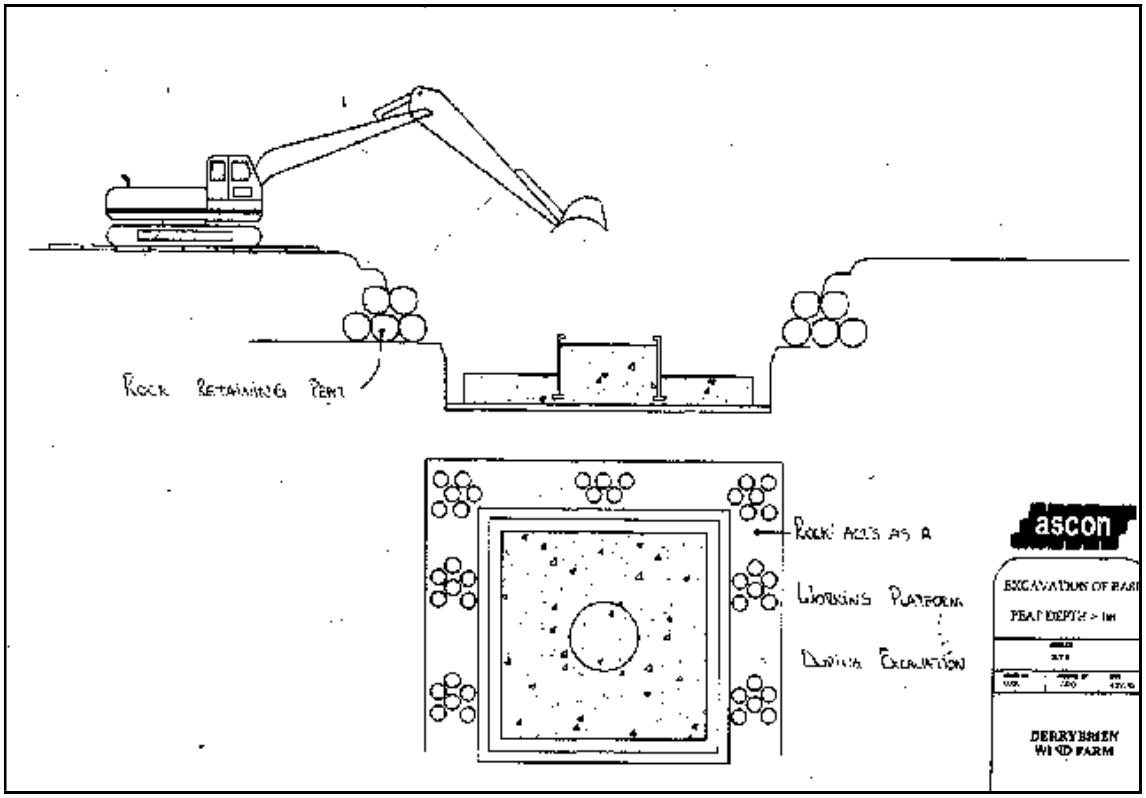

Figure 10. Excavation methodology for bases of greater than 1m depth

The construction of each turbine base required the excavation of a considerably larger area of peat land than was required for the turbine itself. This larger area was needed, as each turbine base required an associated crane base hard stand to be constructed.

The construction methodology for the turbine base and crane stand involved the removal of all overlying soft peat and clays from the site. This was undertaken by means of mechanical excavator. All excavated material was carried by lorry from the turbine site to a stockpile storage area. The removal of excavated material by this means ensured that all weighty material was removed from a potential vulnerable site to a more stable secure site.

Plate 1. Mechanical excavator removing peat

As peat was being removed from the site, replacement stone was being transported to the site. This stone was the material on which the crane would be based and it was also needed to ensure ground stability in the area. The stone was carried to the site by lorries and deposited in all excavated areas with the exception of the designated turbine base area, where a clear area was required to build the base.

Plate 2. Lorry depositing rock after peat removal

Plate 3. Stone crane base and excavated turbine base

5.1.2 Archaeological Monitoring of Turbine Base Excavations

Archaeological monitoring of turbine base excavations was undertaken by means of direct visual monitoring. The regime employed involved the continued presence of an archaeologist at the excavation site.

Although the stratigraphic matrix of the development site varied considerably in depth, it did not vary in composition, form and texture. Throughout the site the stratigraphy consisted of peat overlying a layer of compact pinkish red stoney silty clay. This clay overlay bedrock. As previously noted, the depth of these stratigraphic horizons varied throughout the site. In the higher reaches of the hilltops the peat cover tended to be lower as too was the pink silty clay. In the lower lying areas, peat deposits measured up to 3-4m in depth with the pink silty clay measuring up to 2m.

No archaeological material or features were noted during the excavation of the crane and turbine bases.

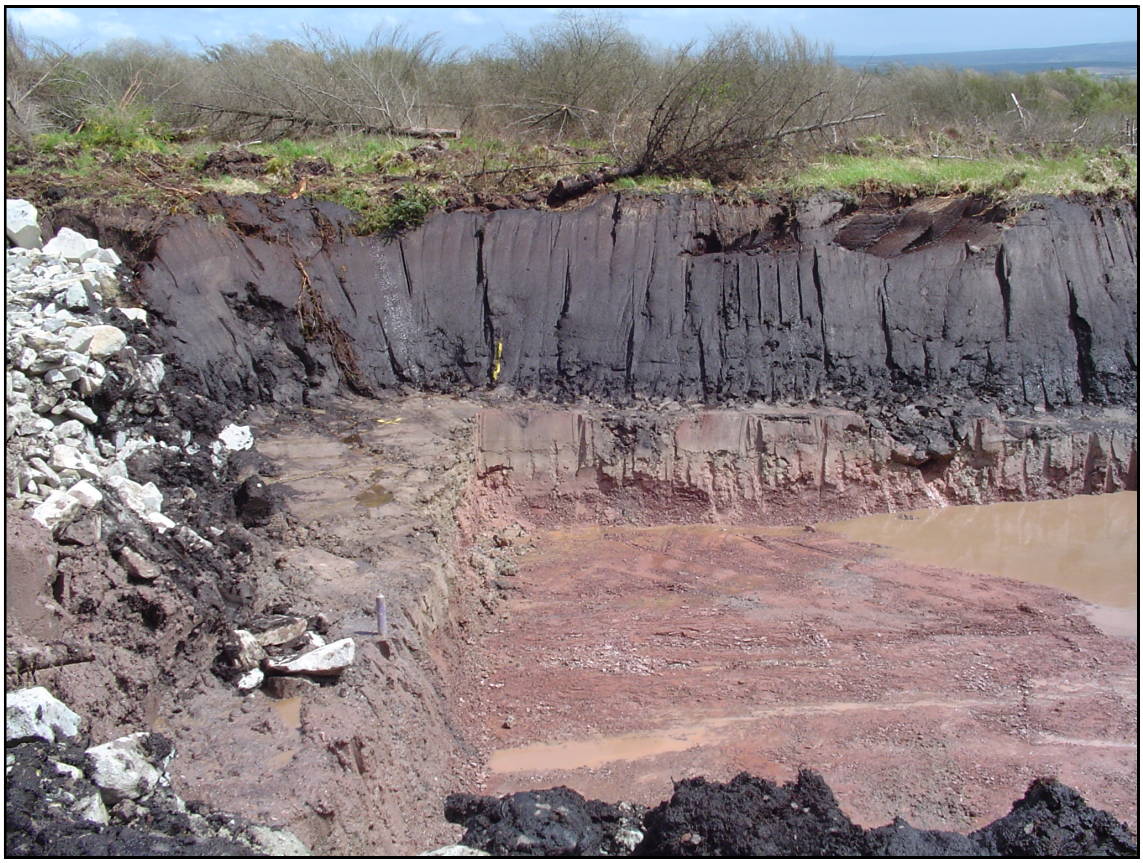

Plate 4. Section view of site stratigraphy

5.2 Cable Trench Excavations

5.2.1 Cable Trench Excavation Methodology

The only means whereby the power generated by the turbines could be transported to the central sub station is via power cables. In order to ensure the safety of these cables it was considered most appropriate that the cables be buried in a shallow trench.

The excavation of this trench was by means of mechanical excavator, whereby the machine would travel across the peatland excavating the trench into which the cable would then be buried. Once the trench was completed and the cable laid, the trench was then covered using the reverse technique to that of the trench excavation.

Plate 5. Cable trenching in progress

Plate 6. Cable trenching towards a nearby wind turbine

5.2.2 Cable Trench Excavation Monitoring

All excavated cable trenches were investigated for their archaeological content. The monitoring regime used for this section of the development involved both direct visual monitoring and subsequent trench investigation by means of field walking. These methodologies ensured that any potential archaeological features or material would be immediately recognised and appropriate measures could be put in place to ensure their protection.

Throughout the development area, the depth of the cable trench excavations never exceeded 1m. As such, it was only the upper levels of the peat layer that was impacted. No archaeological material was noted in any of the cable trenches.

Plate 7. Turbine base excavation in progress

6 RESULTS OF MONITORING

A programme of archaeological monitoring was undertaken of two components of the wind farm construction. These were the excavation of the turbine bases and associated crane bases and the excavation of cable trenches. Both components were subjected to archaeological monitoring.

No archaeological material or features were uncovered or impacted during the course of the programme of archaeological monitoring.

Plate 8. Excavated cable trench

7 CONCLUSION

It would appear that the remote location and the unfavourable topographic conditions made the site one in which there has been only occasional human exploitation. No evidence of this occasional exploitation was impacted by the development and no archaeological material or features were uncovered or impacted during the course of the programme of archaeological monitoring.

8 LOCATION OF TURBINES

Derrybrien Windfarm As Constructed Co-Ordinates

Note: Elevations to top of turbine blade at highest point of rotation

	IRISH NATIONAL GRID			WGS84 / ETRS89		
	Easting	**Northing**	**Malin Hd. Elev (m)**	**Latitude**	**Longitude**	**Ell. Height (m)**
T1	157724	204774	403	N 53 05 31.853	W 08 37 54.304	460
T2	157941	204856	417	N 53 05 34.569	W 08 37 42.685	474
T3	157840	204543	405	N 53 05 24.413	W 08 37 47.970	462
T4	158061	204642	417	N 53 05 27.665	W 08 37 36.143	474
T5	158245	204736	425	N 53 05 30.760	W 08 37 26.336	482
T6	157969	204361	415	N 53 05 18.550	W 08 37 40.968	472
T7	158177	204421	420	N 53 05 20.550	W 08 37 29.821	477
T8	158389	204515	425	N 53 05 23.650	W 08 37 18.474	482
T9	158572	204619	431	N 53 05 27.080	W 08 37 8.707	488
T10	158793	204708	435	N 53 05 30.008	W 08 36 56.875	492
T11	158993	204790	435	N 53 05 32.698	W 08 36 46.144	492
T12	158083	204104	410	N 53 05 10.282	W 08 37 34.727	467
T13	158296	204192	415	N 53 05 13.162	W 08 37 23.326	472
T14	158494	204319	417	N 53 05 17.327	W 08 37 12.744	474
T15	158688	204372	422	N 53 05 19.095	W 08 37 2.354	479
T17	159114	204533	430	N 53 05 24.419	W 08 36 39.552	487
T18	158210	203859	403	N 53 05 2.381	W 08 37 27.779	460
T19	158412	203937	405	N 53 05 4.952	W 08 37 16.943	462
T20	158621	204042	410	N 53 05 8.416	W 08 37 5.771	467
T21	158822	204146	411	N 53 05 11.845	W 08 36 55.056	468
T22	159016	204233	410	N 53 05 14.690	W 08 36 44.632	467
T23	159251	204305	408	N 53 05 17.091	W 08 36 32.062	465
T24	159637	205080	425	N 53 05 42.279	W 08 36 11.678	482
T25	159739	204814	421	N 53 05 33.703	W 08 36 6.065	478
T26	159905	204599	404	N 53 05 26.797	W 08 35 57.041	461
T27	159808	205249	420	N 53 05 47.787	W 08 36 2.541	477
T28	159998	204936	410	N 53 05 37.705	W 08 35 52.221	467
T29	160100	204700	388	N 53 05 30.118	W 08 35 46.647	445
T30	160033	205345	420	N 53 05 50.954	W 08 35 50.527	477
T31	160205	205042	405	N 53 05 41.185	W 08 35 41.126	462
T32	160281	204785	389	N 53 05 32.912	W 08 35 36.938	446
T33	160217	205422	415	N 53 05 53.488	W 08 35 40.675	472
T34	160413	205124	405	N 53 05 43.918	W 08 35 29.991	462
T35	160452	204880	384	N 53 05 36.017	W 08 35 27.776	441
T36	160411	205504	413	N 53 05 56.179	W 08 35 30.258	470
T37	160621	205216	400	N 53 05 46.919	W 08 35 18.855	457
T38	160636	204960	385	N 53 05 38.649	W 08 35 17.954	442
T39	160580	205578	407	N 53 05 58.638	W 08 35 21.223	464

T40	160788	205270	393	N 53 05 48.727	W 08 35 9.918	450
T41	160797	205059	381	N 53 05 41.913	W 08 35 9.317	438
T42	160842	205607	396	N 53 05 59.639	W 08 35 7.132	453
T43	160949	205155	379	N 53 05 45.051	W 08 35 1.192	436
T44	161039	205586	386	N 53 05 59.022	W 08 34 56.573	443
T45	161146	205218	370	N 53 05 47.125	W 08 34 50.634	427
T46	161165	204958	364	N 53 05 38.734	W 08 34 49.504	421
T47	158299	205331	416	N 53 05 50.019	W 08 37 23.691	473
T48	158439	205407	420	N 53 05 52.516	W 08 37 16.199	477
T49	158697	205509	414	N 53 05 55.872	W 08 37 2.412	471
T50	158869	205590	410	N 53 05 58.555	W 08 36 53.180	467
T51	159105	205715	415	N 53 06 2.664	W 08 36 40.555	472
T52	159292	205753	402	N 53 06 3.942	W 08 36 30.513	459
T53	158477	205154	429	N 53 05 44.332	W 08 37 14.060	486
T54	158653	205235	434	N 53 05 47.009	W 08 37 4.640	491
T55	158816	205317	427	N 53 05 49.696	W 08 36 55.900	484
T56	158981	205396	420	N 53 05 52.310	W 08 36 47.078	477
T57	159245	205560	415	N 53 05 57.689	W 08 36 32.960	472
T58	159444	205568	411	N 53 05 57.998	W 08 36 22.248	468
T59	158563	204909	433	N 53 05 36.456	W 08 37 9.284	490
T60	158776	204988	435	N 53 05 39.072	W 08 36 57.910	492
T61	158958	205084	437	N 53 05 42.200	W 08 36 48.174	494
T62	159201	205246	433	N 53 05 47.511	W 08 36 35.207	490
T63	159403	205267	428	N 53 05 48.239	W 08 36 24.326	485
T64	159588	205373	425	N 53 05 51.718	W 08 36 14.453	482
T65	159823	205458	420	N 53 05 54.547	W 08 36 1.853	477
T66	159202	204889	434	N 53 05 35.962	W 08 36 34.950	491
T67	159394	204990	432	N 53 05 39.288	W 08 36 24.701	489
T68	159298	204643	435	N 53 05 28.042	W 08 36 29.694	492
T69	159521	204740	425	N 53 05 31.252	W 08 36 17.772	482
T70	159488	204394	408	N 53 05 20.030	W 08 36 19.357	465
71	159708	204492	405	N 53 05 23.269	W 08 36 7.600	462

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APPENDIX 1

Legislative background

The 1992 European Convention on the Protection of Archaeological Heritage was ratified by Ireland in 1997. The convention provides the basic framework for policy on the protection of the archaeological heritage. In summary, the obligations on the state under the convention relate to

- providing statutory protection measures
- authorisation and supervision of archaeological activities
- measures for the physical protection of the archaeological heritage
- providing consultation between archaeologists and planners
- providing financial support for research or rescue archaeology
- facilitating the study of archaeological discoveries by making or bringing up to date maps, surveys and inventories of archaeological sites
- facilitating national and international exchanges of elements of the archaeological heritage for scientific purposes
- educating the public in relation to the value of and threat to the archaeological heritage
- preventing the illicit circulation of elements of the archaeological heritage
- providing for the exchange of information and experts on the archaeological heritage between states party to the convention.

Irish Legislation

Irish legislation for the protection of archaeological heritage is based on the National Monuments Acts 1930-1994. This is in accordance with the Valletta Convention (as above). The Minister for Arts, Heritage, Gaeltacht and the Islands has a specific role in relation to the protection of the archaeological heritage through powers provided by these acts and the National Cultural Institutions Act 1997. The overall state archaeological service is provided by the Department of Arts, Heritage, Gaeltacht and the Islands (DAHGI) and delivered through the Planning and Heritage Section of the Department of the Environment, Heritage and Local Government and the National Museum of Ireland (Irish Antiquities Division) on behalf of the minister.

- The National Monuments Acts secure the archaeological heritage in several key areas
- The Protection of Archaeological Monuments and Areas

Section 2 of the 1930 Act (as amended) provides that 'monument' includes any artificial building or structure, cave, stone or any natural object that has been altered or moved into purposefully put in position, any prehistoric tomb, grave or burial or any ritual, industrial or habitation site or any traces of the above. the Planning and Heritage Section of the Department of the Environment, Heritage and Local Government advises the Minister on the protection of archaeological monuments and places. There are a number of mechanisms which can be applied to secure the protection of archaeological monuments and areas.

- The Record of Monuments and Places – a list and maps of monuments and relevant places in each county maintained and updated by The Planning and Heritage Section of the Department of the Environment, Heritage and Local Government. Monuments entered into it are referred to as Recorded Monuments. Owners or occupiers of Recorded Monuments are required to give two months notice to the Minister and obtain consent before carrying out any works in relation to the monument.
- The Register of Historic Monuments – a list of all historic monuments known to the Minister. Owners or occupiers must not, other than with consent, alter, deface, demolish or in any manner interfere with a historic monument entered in the register.
- Preservation Orders and Temporary Preservation Orders. – Where it appears to the minister that a monument, considered to be a national monument, is in danger or is actually being destroyed or falling into decay the minister may by preservation order or temporary preservation order, undertake the preservation of the monument. A temporary preservation order will remain in force for six months and then expire.

The Protection of Archaeological objects

Section 2 of the 1930 Act (amended) defines an archaeological object as (in summary) any chattel in a manufactured or partly manufactured state or an unmanufactured state but with an archaeological or historical association. This includes ancient human, animal or plant remains. The National Museum of Ireland advises the Minister on the protection of archaeological objects. The National Monuments Acts state the following regarding the archaeological objects. Archaeological objects must not be altered by any person unless issued with a licence to do so by the Minister. This includes cleaning, restoring, sampling, cutting or drilling. No archaeological object found after 1930 may be purchased or otherwise acquired or sold unless designated by

the director of the Museum. It is unlawful to export or attempt to export archaeological objects other than with an export licence.

The Control of Archaeological Excavation

It is unlawful for any person to dig or excavate in or under any land for the purpose of searching for archaeological objects or particular structure or thing of archaeological interest known or believed to be under such land unless issued with, or in accordance with a licence issued by the Minister. The Planning and Heritage Section of the Department of the Environment, Heritage and Local Government, in consultation with the National Museum, advises the Minister on the issuing of licences. In practice, for a person to be issued with a licence to excavate, he or she will have to be considered eligible to hold one. This is generally determined by interview.

The Control of Detection Devices

Section 2 of the 1987 Act defines a detecting device as a device designed or adapted for detecting or locating any metal or mineral on the ground and under water. This does not include a camera. It is unlawful to use or be in possession of such a device

- At the site of a monument subject to a preservation order
- A monument in the ownership or guardianship of the Minister
- A monument entered in the Record of Monuments and Places
- A monument entered in the Register of Historic Monuments

APPENDIX 2: Impact Assessment & the Archaeological Resource

Procedures relating to the carrying out of Cultural Heritage section of EISs.

Archaeological assessment has been described as "the overall process of assessing the impact of a development" (DAHGI, 1999). The principle aim of assessment is to anticipate and avoid impacts on the archaeological resource. Archaeological assessment may be required as part of the planning process in response to developments which may be located in the vicinity of archaeological monuments, which are extensive in terms of area or length, which are likely to have a substantial impact on present or former wetlands, unenclosed land, rivers, lakes, the inter-tidal zone or the sea-bed (The Heritage Council. 2000).

Impact Assessment and Archaeology.

Archaeological monuments can comprise identifiable above ground features or subterranean traces of previous activity. These monuments can be affected in the course of development in a number of ways. Potential impacts can be identified through the assessment procedure by carrying out a paper study/historical research. The documentary research can then be combined with existing baseline data, field assessment and non-intrusive methods to provide a pre-development risk appraisal study for developers. Further investigation or mitigation measures may subsequently be recommended prior to and during the course of construction work. Sources used by archaeologists show considerable variation (The Heritage Council, 2000). A number of primary baseline data sources and procedures must be considered. These are listed below.

1. **The Register of Monuments and Places.** The RMP is a database recording all archaeological sites in Ireland known to the National Monuments Service. It is based on the Sites and Monuments Record of each County. The record comprises Ordnance Survey 6" sheets which indicate the location of each monument or place of archaeological interest and files of further documentary and photographic data or information relating to an archaeological event such as a site visit, survey or excavation. These are housed in the National Monuments Services in Dublin. The record is constantly updated and principally focuses on monuments that pre-date 1700.
2. **The National Museum of Ireland Topographical Files.** The National Museum in Dublin houses an archive of antiquities cataloguing artifacts which were found and reported between 1928 and 1995. Artifacts can be used as a pointer to the levels of activity in an area in the past. As such they are a useful guide to the archaeological potential of a site

3. **Cartographic evidence.** Ordnance Survey maps and available early maps are consulted and examined. Historical maps are more easily available for urban sites. However, other sources, such as estate maps, are available for rural sites.
4. **Previous archaeological work near to the subject site.** Previous fieldwork carried out locally can provide further information on the surrounding landscape and help to determine the nature of the archaeological resource. A yearly excavations bulletin catalogues all licensed fieldwork carried out in the state. The Archaeological Survey of Ireland and local journals can also be used as sources for this purpose
5. **Field inspection**. A site visit is necessary in order to determine the nature of the archaeological resource and potential remains. Previously unknown archaeological sites can be identified through topographical observations. A site visit can also be helpful in researching local traditions/folklore which may help to indicate levels of activity in the area in the past.
6. **Aerial photographs.** The Geological Survey of Ireland, based in Dublin, holds a comprehensive archive of high level vertical photographs available for consultation by the public and researchers. This is an invaluable resource for the recognition of new sites and the contributing to the understanding of known sites.

Examination of the above sources and the undertaking of the above procedures can result in a detailed statement of the possible impacts on the archaeological resource of a proposed development and set out recommendations as how the impact can be avoided, minimized or negated. By ensuring the earliest identification of the archaeological impacts of a development these impacts can be minimized or avoided, thus reducing costs and/or delays.

Direct and indirect impacts resulting from the proposed development on the archaeological resource should be described and considered. This section of the cultural impact assessment should address the results of disturbance by excavation or deposition, topsoil stripping or passage of machinery and subsequent physical loss to a monument or its setting, desiccation of archaeological objects or remains due to groundwater level changes, visual impacts and visual amenity impact.

Mitigation strategies and Archaeology

Although it is not always possible to detect archaeological sites prior to construction works, it is important to investigate the potential impacts at the earliest phase of development, if possible during site selection. The ideal mitigation for archaeological sites is avoidance/preservation *in situ*. This is, however, not always possible. If the risk of disturbing archaeological remains is considered minimal, no further archaeological work (other than monitoring of construction work) may be recommended. Recommendations in the impact statement can be offered as mitigation measures should preservation *in situ* prove impractical or impossible. These are as follows:

- **Archaeological Test Trenching.** Test excavation has been defined as that form of archaeological excavation where the purpose is to establish the nature and extent of archaeological deposits and features present in a location which it is proposed to develop (though not normally to fully investigate those deposits or features) and allow an assessment to be made of the archaeological impact of the proposed development (DAHGI, 1999).

- **Full Archaeological Excavation.** Archaeological excavation has been described as being carried out in order to "mitigate the impact of development on archaeological deposits, features and objects through scientific recording … resulting in preservation by record …" (DAHGI, 1999).

- **Archaeological Monitoring.** Archaeological monitoring has been described as "involving an archaeologist being present in the course of the carrying out of development works (which may include conservation works), so as to identify and protect archaeological deposits, features or objects which may be uncovered or otherwise affected by the works" (DAHGI, 1999).

Appendix 15-4 Archaeological impact assessment of peat slide and proposed remediation

05N 0467

ARCHAEOLOGICAL ASSESSMENT

OF

PROPOSED PEAT SLIP REHABILITATION

AT DERRYBRIEN NORTH

COUNTY GALWAY

ON BEHALF OF

THE ELECTRICITY SUPPLY BOARD INTERNATIONAL

Agree to monitor.

Moore Group

Job Number: 05G03

Author: Brian Ó Donnchadha

Date: 28th February 2005

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R23/3

27/4

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NON TECHNICAL SUMMARY

This report describes the results of an archaeological assessment carried out at Derrybrien, Co. Galway on the 23rd of February 2005. The work was undertaken by the author for Moore Group (MOORE) on behalf of the Electricity Supply Board International.

The proposed scheme entails the correction of peat slippage that occurred in the area in October 2003. The works involve removing the areas of slippage and spreading the peat as a thin layer on adjacent land. As part of the request for planning permission from Galway County Planning Authorities, this archaeological assessment was commissioned to determine the extent to which the proposed programme of works may impact on the local archaeological record.

The work was commissioned in order to assess the potential impact this phase of work may have on the local archaeological record, and following on from this, to discuss suitable mitigation strategies for the resolution of any archaeological queries that may arise.

The site assessment was carried out on the 23rd of February 2005. The site is accessed via a third class road, known as the Black Road, from the R353 at the town of Derrybrien. Located in mountainous terrain in the Slieve Aughty mountain range the countryside is covered predominantly by blanket bog and plantation forestry. The site is located in a remote and relatively harsh environment, due to its height and exposed aspect. Consequently, no evidence of archaeological features was present and as a result it was concluded that it is unlikely that this scheme will impact on the archaeological record of the area.

1 SCOPE OF WORKS

1.1 Introduction

Moore Group were commissioned to carry out an archaeological assessment as part of an application for planning permission in advance of a programme of works to be carried out by the ESB in the townland of Derrybrien (figure 1). The following report documents the proposed project, the existing environment at the site and the predicted impacts and suggested mitigation measures for the proposed scheme.

1.2 Purpose of the Project

In October 2003 a series of peat slipages occurred as a result of heavy rainfall. At several locations along the Black Road peat and debris material build up and blocked the road. This programme of works proposes to clear these mounds of debris from their present locations and spread the material as a thin layer on adjoining land.

1.3 Archaeological Assessment

This report assesses the archaeological and historical importance of the land under consideration for the proposed programme of work.

The main purpose of this desk study is to assess the impact on the receiving archaeological environment and to propose ameliorative measures to safeguard any monuments, features or finds of antiquity. The study was carried out on behalf of the ESB.

The principle aim of assessment is to anticipate and avoid impacts on the archaeological resource. Archaeological assessment may be required as part of the planning process "in response to developments which may be located in the vicinity of archaeological monuments" (The Heritage Council. 2000).

Assessment has been described as "the overall process of assessing the impact of a development" (DAHGI,1999). It can comprise of mitigatory measures including documentary research, examination of aerial photographs etc. and more intrusive measures including testing and/or full excavation.

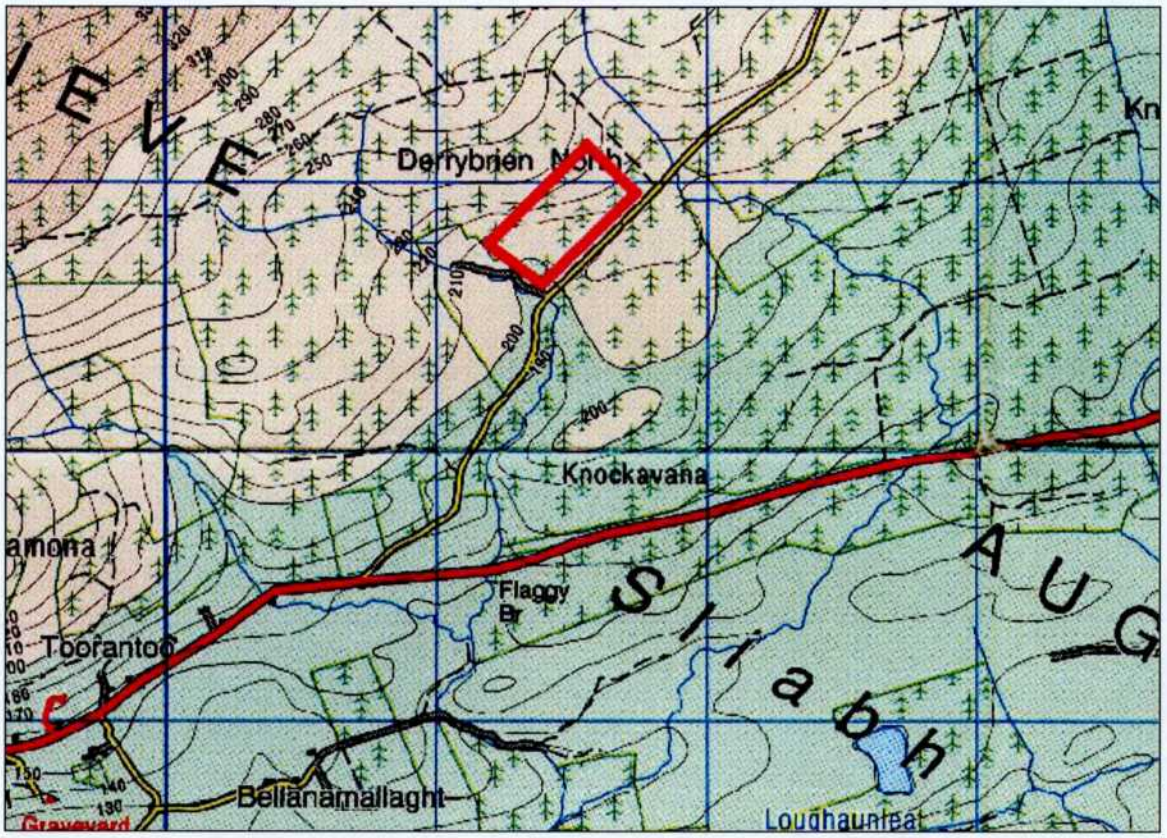

Figure 1: Discovery Map (53) with Site Location (in red)

2 CHARACTERISTICS OF THE PROJECT

2.1 Description of the Site

The proposed development is located at Derrybrien, in the Slieve Aughty Mountains, approximately 13km east of Gort, Co. Galway. It is accessed by a third class road, known as the Black Road, off the R353 from the Gort road (see Figure 1.).

The land in question is mountainous bog land. The desolate landscape comprises completely of blanket bog and plantation forestry. The area is remote and sparsely populated.

2.2 Site Layout/Locational details

The approach road to the subject site is a third class road off the R353. The site itself is a hilltop location in the Slieve Aughty Mountains. The land is barren, remote and covered almost exclusively in blanket bog and plantation forestry.

County	Galway
Townland	Derrybrien North
OS Sheet number	124
NGR	Centred on 15900/20500
Height	190-230m

Table 1: Locational details

2.3 Description of the Project

The projects aims to remove the accumulated debris and peat remains deposited by peat slippage caused by heavy rainfall. The material will be removed from its present locations and spread on adjacent land as a thing layer.

3 DESCRIPTION OF THE EXISTING ENVIRONMENT

3.1 Solid Geology

The geology of the region surrounding Derrybrien consists of Devonian Sandstone ('Old Red Sandstone') with occasional outcroppings of shale and carboniferous limestone.

3.2 Soil Type

The soil in the area is made up of peaty gleys and blanket peat. The substrate type in the vicinity of the subject site is predominantly sandstone glacial till. Subsequently, there is restricted land use in the region with a predominance of state plantation forestry, peat cutting and some grazing for sheep.

3.3 Landscape

The townland of Derrybrien is situated 13km to the east of Gort, Co. Galway. The countryside surrounding the development site is barren highland and land use comprises almost completely of peat cutting, forestry, and sheep pasture.

4 ARCHAEOLOGICAL & HISTORICAL BACKGROUND

Research was undertaken in two phases. It comprised of a paper study of all available archaeological, historical and cartographic sources and a site walkover. The following is based on a document search and paper study.

4.1 Mesolithic Period

The Mesolithic (middle stone age) people were the first inhabitants of Ireland, arriving about 9000 years ago. They were a mobile society relying on wild resources for food, which was hunted and gathered using stone tools as well as boats, nets and traps. Settlement was in temporary and semi permanent groups of huts constructed of wood slung with hide, which may have operated as seasonal or hunting camps.

Mesolithic activity to date shows a marked concentration in the north-east of Ireland. Evidence for Mesolithic activity in Galway is scarce. The concentration of find-spots and sites in the north east can, in part be attributed to both the availability of flint and the large number of antiquarians and collectors in the region and suggests that activity in this period was widespread in the country, with settlers probably utilising the extensive coastline for fish and shellfish. Finds from Galway include a distally trimmed chert flake from the western shores of Lough Corrib at Oughterard, which is later Mesolithic in provenance.

4.2 Neolithic Period

Farming was first adopted in the Middle East but spread gradually across Europe in succeeding centuries, arriving in Ireland about 4000 BC. Tending of crops and animals required a more sedentary lifestyle and larger permanent settlements were built. The megalithic (from the Greek mega – large and lith – stone) monuments of the Neolithic people built as communal tombs or for ceremonial purposes, are relatively common in the landscape. New methods were adopted for shaping stone tools and the first long distance trade networks were established.

Neolithic activity is more apparent in the archaeological record of Galway due to the presence of a number of known megalithic monuments. Megalithic monuments can be divided into funerary monuments, communal tombs for the burial of the dead and those with a more esoteric function such as stone circles, stone rows or single standing stones whose function was probably ceremonial. Single standing stones may have acted as foci or markers at the edges of territories.

4.3 The Bronze Age

As stone tools were replaced by the use of copper, later combined with tin to make bronze, the structure of society also changed over centuries. While some communal megalithic monuments, particularly wedge tombs continued to be used, the Bronze Age is characterised by a movement towards single burial and the production of prestige items and weapons, suggesting that society was increasingly stratified and warlike.

There is a notable concentration of Bronze Age burials known in an area roughly bounded by Athenry, Tuam and Headford, indicating that activity in this period was widespread in the region and suggesting a significant population density. Barrows, generally dating from the Late Neolithic to the Early Iron Age, along with standing stones are quite common in the Tuam - Headford area.

Although there is some debate about the provenance of the standing stones, it is generally accepted that they date from the later part of the Bronze Age. Stone rows or single standing stones were probably ceremonial in function, although single standing stones may have acted as foci or markers at the edges of territories.

Fulachta Fiadh, which consist of small, horseshoe shaped grass covered mounds, are composed of burnt and fire cracked stones and a central pit or trough. They may have functioned as cooking places and are common throughout the country with many more identified each year.

4.4 The Iron Age/Early Historic Period

In late Bronze Age Ireland the use of the metal reached a high point with the production of high quality decorated weapons, ornament and instruments, often discovered from hoards or ritual deposits. The Iron Age however is known as a 'dark age' in Irish prehistory. Iron objects are found rarely, but there is no evidence for the warrior culture of the rest of Europe, although the distinctive La Tené style of art with animal motifs and spirals was adopted. Life in Iron Age in Ireland seems to have been much as it was in the early historic period – mixed farmers living in or around small, defended settlements known as ringforts or stone cashels.

Ringforts, hilltop enclosures and other large enclosures are common across County Galway, both as raths (defended settlements defined by an earthen bank) and cashels (defined by a bank of stone). The smaller ringfort settlements are the most common monuments in Galway and are thought to be small farmsteads, enclosing houses, farm buildings and animal pens, enclosed as protection against raiders or wild animals. Excavations of the interior suggest that the houses were small circular huts, built of stakes with a double skin of wattle and a thatched roof. Their distribution in the region is dispersed and widespread. The Archaeological

Inventory of North Galway lists 1104 examples while the Archaeological Inventory of Galway (west) lists 135.

The larger hillforts and enclosures are either large secular settlements, dating to the Late Bronze Age or Early Iron Age, linked to large 'royal' sites or may be associated with pre-Norman monastic settlements. Limited fieldwork has been carried out on these monuments.

Although the town of Loughrea is generally regarded as dating from 1236 AD, there is much evidence of human settlement in the area prior to this date. The Turoe Stone, which is probably carved around 100BC, is located north of the town, outside the village of Bullaun. There is a well-preserved stone circle of an earlier date at Moanmore East on the Tynagh road.

4.5 Later Historic Period

The Slieve Aughty Mountains form the eastern boundary of the kingdom of Hy Fiachradh Aidhne, which is thought to have been founded in the fourth century AD by King Fiachra. The mountains formed a natural barrier with the aggressive kingdom of Thomond, to the southeast, and because of it's borderland nature was not well settled. While the Kingdom of Aidhne prospered, the Aughty Mountains remained an isolated and under-populated region throughout the early medieval period, and even under the rule of Guaire, in the eight-century, after whom Gort is named ('Gort Inse Guaire', meaning 'the island in the bog of Guaire') the Aughties remained a wild and desolate place.

4.6 General background to the site

The sites mountainous terrain and the exposed nature of the landscape mean that human activity in the area has always been of a limited nature. Occasional small farms are found, but for the most part the locality is unpopulated, a trend which almost definitely extends far into the areas past; an implicit implication of the areas equally sparse known archaeological record.

5 BASELINE DATA

5.1 Record of Monuments and Places

The RMP is a database recording all archaeological sites in Ireland known to the National Monuments Service established under Section 12 of the 1994 National Monuments (Amendment) Act. It is based on Ordnance Survey 6" sheets, which indicate the location of each monument or place of archaeological interest. For each, a file contains further documentary and photographic data or information relating to an archaeological event such as a site visit, survey or excavation. These are housed in the National Monuments Services in Dublin. The record is constantly updated and focuses on monuments that pre-date 1700.

There were no sites in the immediate vicinity of the site, however the following sites are in adjacent townlands:

SMR No.: GA124-002
Nat Grid Ref.: 16483/20585
Townland: Cullenagh
Classification: Standing stone

SMR No.: GA124-004
Nat Grid Ref.: 15998/20152
Townland: Derrybrien East
Classification: Enclosure

SMR No.: GA124-005
Nat Grid Ref.: 15956/20170
Townland: Derrybrien East
Classification: Graveyard

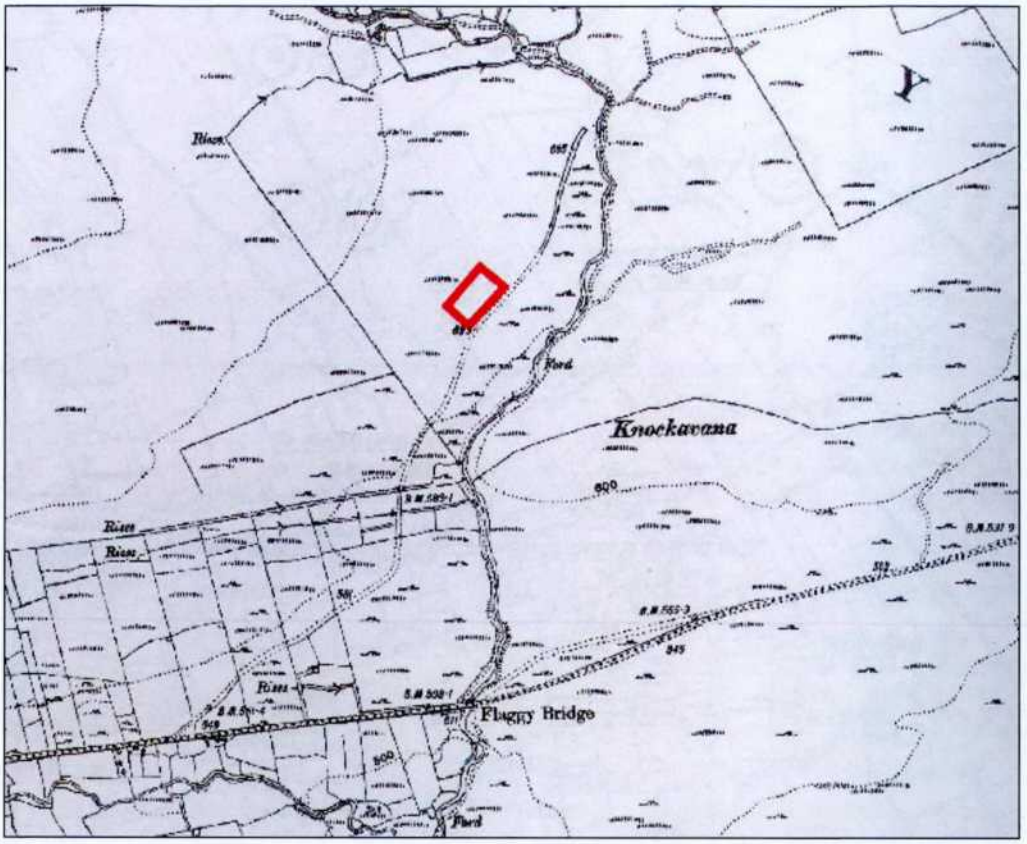

Figure 2: SMR Map (Sheet 124) with Site Location (in red)

5.2 The National Museum of Ireland Topographical Files

The discovery of artefacts can be an important indicator of past levels of activity in an area and therefore a useful guide to the archaeological potential of a site. The National Museum in Dublin houses a national archive of antiquities cataloguing artefacts which were found and reported between 1928 and 1995. They are catalogued by year and accession number.

The topographical survey for the townland of Derrybrien revealed no stray artefacts have been recovered in this area.

5.3 Field Inspection

Field inspection is necessary to determine the extent and nature of archaeological remains, and can also lead to the identification of previously unrecorded sites and portable finds through topographical observation and local information.

Field inspection was carried out on the 23rd of February 2005. In general the terrain consists almost exclusively of peat blanket bog and plantation forestry. Evidence of peat cutting remains visible in the form of cut-away turf banks and platforms. Some attempt at land

drainage exists, as field drains have been excavated, which drain into the nearby small stream. Other than this field drainage, there were no further signs of human activity in the vicinity, either of modern or ancient origin.

5.4 Previous Archaeological Fieldwork in the area

A search of the *Excavations.ie* database revealed no archaeological fieldwork has been carried out in the townland of Derrybrien North.

5.5 Aerial Photographs

Aerial photographs are an invaluable resource in archaeology for the recognition of new sites and the contributing to the understanding of known sites. Features can be recognised from the air as earthworks in relief or as vegetation marks where a buried feature such as a wall or ditch affects the growth of the surrounding flora. The Geological Survey of Ireland, based in Dublin, holds a comprehensive archive of high-level vertical photographs available for consultation by the public and researchers but may not be copied. Aerial images are also available from the Marine Institute of Ireland National Coastline Survey.

There were no aerial photographs available for this area.

5.6 Cartographic Evidence

Other than recent Ordinance Survey maps, no cartographic references were available for this area.

5.7 Inventory of Architectural heritage post 1700 AD

The list below comprises a brief description of architectural features/buildings of architectural significance extant at or near the subject site.

There were no features of this nature in the vicinity of the development.

6 THE SITE

The area of the proposed scheme is an open sub-rectangular space. To the east it is bordered by a stand of mature plantation trees. To the north the area is separated from further forestry by an old overgrown track, which almost definitely dates to the planting of the forestry; to the west the site is flanked by a small stream. Other than evidence of turf cutting there is no other sign of human activity on the site.

Plate 1: View of the site from the Black Road

Plate 2: View of the forestry track from the East

Plate 3: View across the site from the South

Plate 4: View of the site showing the turf banks

7 CONCLUSION

As a result of the absence of visible archaeological remains, an absence of archaeological material in all available reference sources, and the areas absence from all historic references it seems likely that no, or little human activity took place in this area at any point in the past. A number of factors are responsible for this: the infertility of the land and its inability to support any type of farming; the regions inaccessibility and remoteness; the altitude and exposed nature of the landscape and finally its harsh climate of Atlantic wind and rain. All these factors were as important to early society as they are to modern when it comes to choosing where to establish communities and habitation sites. Therefore, it seems extremely unlikely that this scheme will have any impact on the archaeological heritage of the area.

8 DISCUSSION & RECOMMENDATIONS

9.1. Discussion

8.1.1 The Development Area

The area under assessment is located in the townland of Derrybrien and comprises the removal of deposited material and spreading it as a thin layer over adjacent land.

9.1.2. Assessment of Potential Impacts

Direct Impacts

Due to the wet boggy ground and the amount of earth to be removed, the potential for impact on subterranean archaeological deposits exists. However given the likelihood of a complete absence of archaeological material in the vicinity of the development, the possibility of encountering archaeology during the course of the works remains remote.

'Do nothing' impact

If the proposed development were not to proceed there would be no negative impact on the archaeological or cultural heritage resource.

'Worst case' impact

Under a worst-case scenario, the development of study area would disturb previously unrecorded deposits and artefacts without proper excavation and recording being undertaken.

8.2 Recommendations

Due to the scale of the works, it is recommended that a suitably qualified archaeologist be present to monitor initial ground to safeguard against the possibility of encountering previously unidentified subterranean archaeological deposits or remains.

Please note that all recommendations above are subject to approval by the Planning and Heritage Section of the Department of the Environment, Heritage and Local Government.

Please note that this report and accompanying recommendations are based on maps provided at the time of writing. Should changes be made, further assessment may be necessary.

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APPENDIX 1

Legislative background

The 1992 European Convention on the Protection of Archaeological Heritage was ratified by Ireland in 1997. The convention provides the basic framework for policy on the protection of the archaeological heritage. In summary, the obligations on the state under the convention relate to

- providing statutory protection measures
- authorisation and supervision of archaeological activities
- measures for the physical protection of the archaeological heritage
- providing consultation between archaeologists and planners
- providing financial support for research or rescue archaeology
- facilitating the study of archaeological discoveries by making or bringing up to date maps, surveys and inventories of archaeological sites
- facilitating national and international exchanges of elements of the archaeological heritage for scientific purposes
- educating the public in relation to the value of and threat to the archaeological heritage
- preventing the illicit circulation of elements of the archaeological heritage
- providing for the exchange of information and experts on the archaeological heritage between states party to the convention.

Irish Legislation

Irish legislation for the protection of archaeological heritage is based on the National Monuments Acts 1930-1994. This is in accordance with the Valletta Convention (as above). The Minister for Arts, Heritage, Gaeltacht and the Islands has a specific role in relation to the protection of the archaeological heritage through powers provided by these acts and the National Cultural Institutions Act 1997. The overall state archaeological service is provided by the Department of Arts, Heritage, Gaeltacht and the Islands (DAHGI) and delivered through the Planning and Heritage Section of the Department of the Environment, Heritage and Local Government and the National Museum of Ireland (Irish Antiquities Division) on behalf of the minister.

- The National Monuments Acts secure the archaeological heritage in several key areas
- The Protection of Archaeological Monuments and Areas

Section 2 of the 1930 Act (as amended) provides that 'monument' includes any artificial building or structure, cave, stone or any natural object that has been altered or moved into purposefully put in position, any prehistoric tomb, grave or burial or any ritual, industrial or habitation site or any traces of the above. the Planning and Heritage Section of the Department of the Environment, Heritage and Local Government advises the Minister on the protection of archaeological monuments and places. There are a number of mechanisms which can be applied to secure the protection of archaeological monuments and areas.

- The Record of Monuments and Places – a list and maps of monuments and relevant places in each county maintained and updated by The Planning and Heritage Section of the Department of the Environment, Heritage and Local Government. Monuments entered into it are referred to as Recorded Monuments. Owners or occupiers of Recorded Monuments are required to give two months notice to the Minister and obtain consent before carrying out any works in relation to the monument.
- The Register of Historic Monuments – a list of all historic monuments known to the Minister. Owners or occupiers must not, other than with consent, alter, deface, demolish or in any manner interfere with a historic monument entered in the register.
- Preservation Orders and Temporary Preservation Orders. – Where it appears to the minister that a monument, considered to be a national monument, is in danger or is actually being destroyed or falling into decay the minister may by preservation order or temporary preservation order, undertake the preservation of the monument. A temporary preservation order will remain in force for six months and then expire.

The Protection of Archaeological objects

Section 2 of the 1930 Act (amended) defines an archaeological object as (in summary) any chattel in a manufactured or partly manufactured state or an unmanufactured state but with an archaeological or historical association. This includes ancient human, animal or plant remains. The National Museum of Ireland advises the Minister on the protection of archaeological objects. The National Monuments Acts state the following regarding the archaeological objects. Archaeological objects must not be altered by any person unless issued with a licence to do so by the Minister. This includes cleaning, restoring, sampling, cutting or drilling. No archaeological object found after 1930 may be purchased or otherwise acquired or sold unless designated by

the director of the Museum. It is unlawful to export or attempt to export archaeological objects other than with an export licence.

The Control of Archaeological Excavation

It is unlawful for any person to dig or excavate in or under any land for the purpose of searching for archaeological objects or particular structure or thing of archaeological interest known or believed to be under such land unless issued with, or in accordance with a licence issued by the Minister. The Planning and Heritage Section of the Department of the Environment, Heritage and Local Government, in consultation with the National Museum, advises the Minister on the issuing of licences. In practice, for a person to be issued with a licence to excavate, he or she will have to be considered eligible to hold one. This is generally determined by interview.

The Control of Detection Devices

Section 2 of the 1987 Act defines a detecting device as a device designed or adapted for detecting or locating any metal or mineral on the ground and under water. This does not include a camera. It is unlawful to use or be in possession of such a device

- At the site of a monument subject to a preservation order
- A monument in the ownership or guardianship of the Minister
- A monument entered in the Record of Monuments and Places
- A monument entered in the Register of Historic Monuments

APPENDIX 2: Impact Assessment & the Archaeological Resource

Procedures relating to the carrying out of Cultural Heritage section of EISs.

Archaeological assessment has been described as "the overall process of assessing the impact of a development" (DAHGI, 1999). The principle aim of assessment is to anticipate and avoid impacts on the archaeological resource. Archaeological assessment may be required as part of the planning process in response to developments which may be located in the vicinity of archaeological monuments, which are extensive in terms of area or length, which are likely to have a substantial impact on present or former wetlands, unenclosed land, rivers, lakes, the inter-tidal zone or the sea-bed (The Heritage Council. 2000).

Impact Assessment and Archaeology.

Archaeological monuments can comprise identifiable above ground features or subterranean traces of previous activity. These monuments can be affected in the course of development in a number of ways. Potential impacts can be identified through the assessment procedure by carrying out a paper study/historical research. The documentary research can then be combined with existing baseline data, field assessment and non-intrusive methods to provide a pre-development risk appraisal study for developers. Further investigation or mitigation measures may subsequently be recommended prior to and during the course of construction work. Sources used by archaeologists show considerable variation (The Heritage Council, 2000). A number of primary baseline data sources and procedures must be considered. These are listed below.

1. **The Register of Monuments and Places.** The RMP is a database recording all archaeological sites in Ireland known to the National Monuments Service. It is based on the Sites and Monuments Record of each County. The record comprises Ordnance Survey 6" sheets which indicate the location of each monument or place of archaeological interest and files of further documentary and photographic data or information relating to an archaeological event such as a site visit, survey or excavation. These are housed in the National Monuments Services in Dublin. The record is constantly updated and principally focuses on monuments that pre-date 1700.
2. **The National Museum of Ireland Topographical Files.** The National Museum in Dublin houses an archive of antiquities cataloguing artifacts which were found and reported between 1928 and 1995. Artifacts can be used as a pointer to the levels of activity in an area in the past. As such they are a useful guide to the archaeological potential of a site

3. **Cartographic evidence.** Ordnance Survey maps and available early maps are consulted and examined. Historical maps are more easily available for urban sites. However, other sources, such as estate maps, are available for rural sites.
4. **Previous archaeological work near to the subject site.** Previous fieldwork carried out locally can provide further information on the surrounding landscape and help to determine the nature of the archaeological resource. A yearly excavations bulletin catalogues all licensed fieldwork carried out in the state. The Archaeological Survey of Ireland and local journals can also be used as sources for this purpose
5. **Field inspection**. A site visit is necessary in order to determine the nature of the archaeological resource and potential remains. Previously unknown archaeological sites can be identified through topographical observations. A site visit can also be helpful in researching local traditions/folklore which may help to indicate levels of activity in the area in the past.
6. **Aerial photographs.** The Geological Survey of Ireland, based in Dublin, holds a comprehensive archive of high level vertical photographs available for consultation by the public and researchers. This is an invaluable resource for the recognition of new sites and the contributing to the understanding of known sites.

Examination of the above sources and the undertaking of the above procedures can result in a detailed statement of the possible impacts on the archaeological resource of a proposed development and set out recommendations as how the impact can be avoided, minimized or negated. By ensuring the earliest identification of the archaeological impacts of a development these impacts can be minimized or avoided, thus reducing costs and/or delays.

Direct and indirect impacts resulting from the proposed development on the archaeological resource should be described and considered. This section of the cultural impact assessment should address the results of disturbance by excavation or deposition, topsoil stripping or passage of machinery and subsequent physical loss to a monument or its setting, desiccation of archaeological objects or remains due to groundwater level changes, visual impacts and visual amenity impact.

Mitigation strategies and Archaeology

Although it is not always possible to detect archaeological sites prior to construction works, it is important to investigate the potential impacts at the earliest phase of development, if possible during site selection. The ideal mitigation for archaeological sites is avoidance/preservation *in situ*. This is, however, not always possible. If the risk of disturbing archaeological remains is considered minimal, no further archaeological work (other than monitoring of construction work) may be recommended. Recommendations in the impact statement can be offered as mitigation measures should preservation *in situ* prove impractical or impossible. These are as follows:

- **Archaeological Test Trenching.** Test excavation has been defined as that form of archaeological excavation where the purpose is to establish the nature and extent of archaeological deposits and features present in a location which it is proposed to develop (though not normally to fully investigate those deposits or features) and allow an assessment to be made of the archaeological impact of the proposed development (DAHGI, 1999).

- **Full Archaeological Excavation.** Archaeological excavation has been described as being carried out in order to "mitigate the impact of development on archaeological deposits, features and objects through scientific recording ... resulting in preservation by record ..." (DAHGI, 1999).

- **Archaeological Monitoring.** Archaeological monitoring has been described as "involving an archaeologist being present in the course of the carrying out of development works (which may include conservation works), so as to identify and protect archaeological deposits, features or objects which may be uncovered or otherwise affected by the works" (DAHGI, 1999).