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ENVIRONMENTAL IMPACT ASSESSMENT REPORT (EIAR) FOR THE PROPOSED COOM GREEN ENERGY PARK, COUNTY CORK

CHAPTER 14 – ARCHAEOLOGY, ARCHITECTURAL AND CULTURAL HERITAGE

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Date: November 2020

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14. INTRODUCTION

14.1 Introduction

This chapter assesses the impacts of the proposed development on the known and potential cultural heritage resource. The term 'Cultural Heritage' encompasses heritage assets relevant to both the tangible resource (archaeology, architecture heritage); and non-tangible resources (history, folklore, tradition, language, place names etc.). The recorded and potential cultural heritage resource within lands encompassing the proposed development and the surrounding landscape was assessed in order to compile a comprehensive cultural heritage baseline and context. The proposed route for the project grid connection and the routes for the delivery of turbines to the site were also assessed.

The chapter was prepared by John Cronin and Tony Cummins of John Cronin Associates. Mr Cronin holds qualifications in archaeology (B.A. (University College Cork (UCC), 1991), regional and urban planning (MRUP (University College Dublin (UCD) 1993) and post-graduate qualifications in urban and building conservation (MUBC (UCD), 1999) while Mr Cummins holds a primary degree and Master's Degree in archaeology (UCC 1992/1994). Both individuals have extensive experience in preparing archaeological, architectural and cultural heritage assessments.

14.2 Methodology

The methodology used for this assessment is based on the EPA (2017) *Draft Guidelines for Information to be Contained in EIAR* as well as guidelines for the assessment of impacts on the cultural heritage resource published by the International Council on Monuments and Sites (ICOMOS 2011). The assessment was based on a programme of desk-based research combined with a number of site inspections and these studies were undertaken to identify any features of archaeological, architectural or cultural heritage significance likely to be affected by the proposed development. A description of the proposed development assessed in the EIAR is provided in Chapter 3. The assessment encompasses the main energy park area, turbine delivery routes and grid connection route. It also assesses cumulative impacts including those associated with the existing landfill, nearby commercial forestry operations and a previously consented single wind turbine in Moneygorm townland within the environs of the north end of the proposed energy park. An assessment of the locations of proposed replant lands is presented in Appendix 3.3.

14.2.1 Desktop Survey

The assessment presents the results of a desktop study of relevant published sources and datasets undertaken in order to identify all recorded and potential archaeological, architectural and other cultural heritage sites/features/areas within the study area. The principal sources reviewed for the assessment of the recorded archaeological resource were the Sites and Monuments Record (SMR) and the Record of Monuments and Places (RMP). The Record of Protected Structures (RPS) and the National Inventory of Architectural Heritage (NIAH) were consulted for assessing the designated architectural heritage resource. Details on the legal and planning frameworks designed to protect these elements of the cultural heritage resource are also provided.

Other sources consulted as part of the assessment included the following:

Development Plans
The Cork County Development Plan 2014 was consulted as part of this assessment. This publication outlines the Council's policies for the protection of the archaeological and architectural heritage resource within the county and includes a list of Record of Protected Structures (RPS) and designated Architectural Conservation Areas (ACA).

Archaeological Inventory of County Cork Vol. 4: North Cork
This publication presents summary descriptions of the recorded archaeological sites within this area of the county and the relevant entries are included within the chapter. In addition, the current national online database resources pertaining to same were reviewed in September 2020 (Historical Environment Viewer: www.archaeology.ie).

Irish Heritage Council: Heritage Map Viewer
This online mapping source (www.heritagemaps.ie) collates various cultural heritage datasets and includes datasets sourced from, among others, the National Museum of Ireland, the National Monuments Service, local authorities, the Royal Academy of Ireland and the Office of Public Works. This resource was consulted in September 2020.

Database of Irish Excavation Reports
The Database of Irish Excavation Reports contains summary accounts of archaeological licensed excavations carried out in Ireland (North and South) from 1970 to 2020. Current data was accessed via www.excavations.ie in September 2020.

Literary Sources
Various published literary sources were consulted in order to assess the archaeological, historical, architectural heritage and folklore record of the study area and these are listed in Section 14.7 of this chapter.

Historic Maps
The detail on historic cartographic sources can indicate the presence of past settlement patterns, including features of archaeological and architectural heritage significance that no longer have any surface expression. A review of available map sources dating from the 17th century onward was carried out as part of the assessment and relevant extracts are presented in Appendix 14.1.

Aerial and Lidar imagery
A review of available online aerial images and LiDAR datasets of the study area, supplied by the client, was undertaken in order to review modern interventions and to ascertain if any traces of unrecorded archaeological sites or architectural heritage structures were visible.

Irish National Folklore Collection
A review was undertaken of transcribed material from the National Folklore Collection archive, which has been digitised and published online at www.duchas.ie.

UNESCO World Heritage Sites and Tentative List
There are two designated world heritage sites in Ireland while a number of other significant sites have been included in a Tentative List (2010) put forward by Ireland for consideration for inclusion. The locations of the designated and nominated sites were reviewed as part of the assessment.

14.2.2 Field Survey

The proposed development area was inspected on a number of occasions between 2018 and 2020 and included an assessment of the environs of the proposed turbine locations, internal access routes, compounds, substations, borrow pits, grid connection and turbine delivery routes. The study area was assessed in terms of historic landscape, existing land use, vegetation cover and the potential for the presence of unrecorded archaeological sites and undesignated architectural heritage structures. The results are presented within the chapter while extracts from the photographic record compiled during the field survey are provided in Appendix 14.2.

The chapter also incorporates the results of a visual impact assessment of Island wedge tomb, a National Monument (ref. 502) located 2.3km to the west of the proposed energy park (Section 14.4.3). This assessment was undertaken by the Landscape and Visual Impact Assessment (LVIA) consultants (see Chapter 15) in consultation with the Archaeological consultants and included the production of a photomontage demonstrating the views from the monument towards the proposed energy park. A number of the receptors within the wider landscape that were assessed by the LVIA consultants included various cultural heritage assets and the results of their assessment of potential impacts were reviewed by the Archaeological consultants.

14.2.3 Assessment of Impacts

The methodology used for this assessment has been informed by the Environmental Protection Agency (EPA) *Draft Guidelines for Information to be Contained in EIAR* (2017), in accordance EIA requirements of codified EU Directive 2011/92/EU as amended by EU Directive 2014/52/EU, per current Planning Legislation, concerning EIA assessment: Planning and Development Act, 2000 (as amended) and in Part 10 of the Planning and Development Regulations, 2001 (as amended). The following summation of the criteria used to assess impacts is provided in order to clearly and concisely outline the methodology specifically applied to the cultural heritage resource.

Duration of Effect
The duration of effects is assessed based on the following criteria:

- Momentary (seconds to minutes)
- Brief < 1 day
- Temporary <1 year
- Short-term 1-7 years
- Medium Term 7-15 years
- Long Term 15-60 years
- Permanent > 60 years
- Reversible: Effects that can be undone, for example through remediation or restoration

Quality of Effect
The quality of an effect on the cultural heritage resource can be positive, neutral or negative:

- *Positive Effect* – a change which improves the quality of the cultural heritage environment (e.g. increasing amenity value of a site in terms of managed access, signage, presentation etc. or high-quality conservation/restoration and re-use of an otherwise vulnerable derelict structure).

- *Neutral Effect* – no change or effects that are imperceptible, within the normal bounds of variation for the cultural heritage environment.
- *Negative Effect* – a change which reduces the quality of the cultural heritage resource (e.g. visual intrusion on the setting of an asset, physical intrusion on features/setting of a site etc.)

Type of Effect
The type of effect on the cultural heritage resource can be direct, indirect or no predicted impact:

- *Direct Impact* – where a cultural heritage site is physically located within the footprint of the proposed development, which will result in its complete or partial removal.
- *Indirect Impact* – where a cultural heritage site or its setting is located in close proximity to the footprint of the proposed development.
- *No predicted impact* – where the proposed development will not adversely or positively affect a cultural heritage site.

Magnitude of Effect
This is based on the degree of change, incorporating any mitigation measures. The magnitude can be negative or positive and is ranked without regard to the value of the asset according to the following scale: High; Medium; Low and Negligible.

Value assessment criteria
The evaluation of the Value of a cultural heritage asset used for the purposes of assessment is not intended as definitive, but rather an indicator which contributes to a wider judgment based the individual circumstances of each asset. Generally, the more criteria that are evident for a given asset, the higher in scale its respective Value is deemed to be. Criteria considered in addition to any legal designations include the condition/preservation; documentary/historical significance; group value; rarity; visibility in the landscape; fragility/vulnerability and amenity value. The Value of all known or potential assets that may be affected by the proposed project are ranked according to the following scale: Very High; High; Medium; Low and Negligible. The factors for assessing the value of cultural heritage assets has been informed by the International Council on Monuments and Sites *Guidance on Heritage Impact Assessments for Cultural World Heritage Properties* (ICOMOS 2011, 14-17) (Table 14-1). The values assigned to identified assets within the study areas were determined following the completion of desktop studies combined with site inspections and are presented in Section 14.4 of this chapter.

Table 14-1: Factors for assessing the Value of Cultural Heritage Assets

Indicative Value	Example of Asset Types
Very High	• World Heritage Sites (including Tentative List properties) • Assets of acknowledged international importance • Assets that can contribute significantly to international research objectives
High	• Designated *National Monuments* (archaeological) • Assets of significant quality and importance, including designated RMP sites • Assets that can contribute significantly to acknowledged national research objectives • Protected Structures/National NIAH Grade Buildings • Conservation Areas containing significant buildings of importance, including group value • Archaeological Landscapes with significant inter-group value

Indicative Value	Example of Asset Types
Medium	• Assets of good quality and importance, including designated RMP sites • Assets that can contribute significantly to acknowledged regional research objectives • Regional Grade NIAH Buildings • Other undesignated buildings that can be shown to have exceptional qualities in their fabric or historical associations • Undesignated structures of potential national importance (archaeological, potential 'new sites') • Conservation Areas containing buildings that contribute significantly to its historic character • Historic townscape or built-up areas with important historic integrity in their buildings, or built settings (e.g. including street furniture and other structures)
Low	• Designated and undesignated assets of local importance, including buildings • Assets compromised by poor preservation and/or poor survival of contextual associations • Assets of limited value, but with potential to contribute to local research objectives • Historic Townscape or built-up areas of limited historic integrity in their buildings, or built settings (e.g. including street furniture and other structures)
Negligible	• Assets with very little or no surviving archaeological interest • Buildings of no architectural or historical note; buildings of an intrusive character

Significance of Effects

This is based on an assessment largely of the Magnitude of the Impact (graded from High to Negligible, based on a consideration of character, duration, probability and consequences) combined with the Value (graded from High to Negligible, based on a consideration of significance/sensitivity) of the cultural heritage asset. The Significance can be described as Profound, Very Significant, Significant, Moderate, Slight, Not Significant or Imperceptible (Table 14-2) and is assigned based on a combined evaluation of effect magnitude and asset significance (Table 14-3).

Table 14-2: Significance of Effects (per EPA Draft EIAR Guidelines 2017)

Significance	Description
Imperceptible	An effect capable of measurement but without significant consequences
Not Significant	An effect which causes noticeable changes in the character of the environment but without significant consequences
Slight	An effect which causes noticeable changes in the character of the environment but without affecting its sensitivities
Moderate	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends

Significance	Description
Significant	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment
Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment
Profound	An effect which obliterates sensitive characteristics

Table 14-3: Significance of Effects Matrix (after EPA Draft EIAR Guidelines 2017)

Magnitude of Impact	**High**	Not Significant/ Slight	Moderate/ Significant	Significant/ Very Significant	Very Significant/ Profound
	Medium	Not Significant	Slight	Moderate/ Significant	Significant/ Very significant
	Low	Not Significant/ Imperceptible	Slight/ Not Significant	Slight	Moderate
	Negligible	Imperceptible	Not Significant/ Imperceptible	Not Significant/ Slight	Slight
		Negligible	**Low**	**Medium**	**High**
		Value/Sensitivity of the Asset			

14.3 Existing Environment

14.3.1 Introduction

A study area extending for 1km from the proposed locations of turbines, access roads, compounds, borrow pits and substations within the energy park was reviewed in order to assess the potential for direct impacts on the cultural heritage resource (Figures 14-4, 14-5 and 14-6). The wider landscape extending for 5km from the proposed energy park was also reviewed to assess the potential for indirect impacts on National Monuments and other extant recorded monuments with potential visual alignments across the landscape, including megalithic tombs, stone circles and stone rows. There is one National Monument located within this study area and this comprises Island wedge tomb (Nat. Mon. ref. 502; RMP CO042-056001-) which is 2.3km to the west of the proposed energy park (Figure 14-11). There are no other extant megalithic tombs, stone circles or stone rows within 5km of the proposed energy park. A review of the of the cultural heritage receptors within the wider landscape that were subject to assessment by the LVIA consultants was also carried out.

A study area comprising a 100m wide corridor centred on the grid connection route through the existing public road network was also assessed (Figure 14-10) as was the turbine delivery route. The locations of two proposed associated tree replant areas and the lands within 100m of their boundaries were also reviewed during the assessment and the results are presented in Appendix 3.3. One of these areas is located within pastureland in Moneygorm townland in the area to the east of the proposed energy park while the other is located within Coillte lands in Ballard townland, Co. Wicklow.

The following sections present summaries of the legal and planning frameworks designed to protect the cultural heritage resource and details on the recorded and potential elements of this resource within the study area and the surrounding landscape.

14.3.2 Legal and Planning Context

This section presents a concise summary of the legal and planning policy frameworks relevant to this assessment in order to provide a context for the statutory protection assigned to the cultural heritage resource. The management and protection of cultural heritage in Ireland is achieved through a framework of national laws and policies which are in accordance with the provisions of the Valetta Treaty (1995) (formally the European Convention on the Protection of the Archaeological Heritage, 1992) ratified by Ireland in 1997; the European Convention on the Protection of Architectural Heritage (Granada Convention, 1985), ratified by Ireland in 1997; and the UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage, 2003, ratified by Ireland in 2015.

The locations of World Heritage Sites (Ireland) and the Tentative List of World Heritage Sites submitted by the Irish State to UNESCO were reviewed and none are located within the wider environs of the proposed development.

The national legal statutes and guidelines relevant to this assessment include:

- National Monuments Acts 1930 - 2014;
- Heritage Act 1995, as amended;
- National Cultural Institutions Act 1997;
- The Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous) Provisions Act 1999;
- Planning and Development Act 2000, as amended;
- Architectural Heritage Protection: Guidelines for Planning Authorities (Department of Arts, Heritage and Gaeltacht 2011).
- Framework and Principles for the Protection of Archaeological Heritage (Department of Arts, Heritage, Gaeltacht and the Islands 1999).

The National Monuments Service (NMS), which is currently based in the Department of Housing, Local Government and Heritage, is responsible for the protection and promotion of Ireland's archaeological heritage.

The National Monuments Act 1930 and its Amendments, the Heritage Act 1995 and relevant provisions of the National Cultural Institutions Act 1997 are the primary means of ensuring the satisfactory protection of archaeological remains. There are a number of mechanisms under the National Monuments Acts that are applied to secure the protection of archaeological monuments. These include the designation of National Monument status, the Register of Historic Monuments (RHM), the Record of Monuments and Places (RMP) and the Sites and Monuments Record (SMR), and the placing of Preservation Orders and Temporary Preservation Orders on endangered sites[1].

[1] https://www.archaeology.ie/sites/default/files/media/publications/NMS%20-%20Managing%20and%20Protecting%20Ireland%27s%20Archaeological%20Heritage%202013.pdf

A National Monument is described as 'a monument or the remains of a monument, the preservation of which is a matter of national importance by reason of the historical, architectural, traditional, artistic or archaeological interest attaching thereto' (Section 2, National Monument Act, 1930). There are no National Monuments within State Ownership or Guardianship located within the 1km study area around the energy park or within the environs of the grid route connection. There is one National Monument in State Guardianship located within 5km of the proposed energy park and this comprises Island wedge tomb (Nat. Mon. 502 / RMP CO042-056001-) which is located 2.3km to the west of the nearest turbine (Turbine 2).

The RMP was established under Section 12 (1) of the National Monuments (Amendment) Act, 1994 and was based on the earlier SMR and RHM. It comprises lists and maps of all known archaeological monuments and places for each county in the State and all listed archaeological sites receive statutory protection under the National Monuments Act 1994. No works can be undertaken at their locations or within their surrounding designated Zones of Notification without providing two months advance notice to the NMS. There are seven recorded archaeological sites within the 1km study area around the proposed energy park, the closest of which is a possible barrow site (CO043-001----) located within forestry at a distance of 215m from the nearest turbine (Turbine 11). There is one recorded archaeological site located within the 100m wide study area centred on the grid route connection (Table 14-9) and there are two examples within the environs of a turning-head turbine delivery node to the south of the proposed energy park (Table 14-11). Details on these archaeological sites are provided in Section 14.3.3 which includes their published inventory descriptions. None are included in the national list of monuments with Preservation Orders which was published by the National Monuments Service in June 2019[2].

The County Cork Development Plan 2014[3] includes a number of policies and objectives in relation to the protection of the archaeological resource within the county including the protection of recorded sites (Plan ref. HE 3-1) and their environs (Plan ref. HE 3-3) and also requires that appropriate mitigation measures are enacted for newly discovered archaeological materials (Plan ref. 12.3.6).

The protection of the architectural heritage resource is provided for through a range of legal instruments that include the Heritage Act 1995, the Architectural Heritage (National Inventory) and National Monuments (Misc. Provisions) Act 1999, and the Planning and Development Act 2000. The Planning and Development Act 2000 requires Planning Authorities to keep a 'Record of Protected Structures' (RPS) of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest. As of the 1st January 2000, all structures listed for protection in current Development Plans have become 'protected structures'. Since the introduction of this legislation, planning permission is required for any works to a protected structure that would affect its character. In addition, planning authorities must provide for the preservation of places, groups of structures and townscapes of architectural heritage significance within their administrative areas through the designation of Architectural Conservation Areas (ACAs). The RPS for County Cork is published in the current Cork County Development Plan (2014) and does not include any of the structures located within the study areas. The Architectural Heritage Act 1999 established the National Inventory of Architectural Heritage (NIAH) to create a record of built heritage structures within the State. While inclusion in a NIAH inventory does not provide statutory protection to a structure, the inventory is used to advise local authorities on compilation of their Records of Protected Structures. None of the structures within the study areas are listed in the NIAH. Structures that have been included in the RPS and NIAH are described hereafter as 'designated architectural heritage structures'.

[2] https://www.archaeology.ie/sites/default/files/media/publications/po19v1-all-counties.pdf

[3] http://corkcocodevplan.com/wp-content/uploads/2017/10/CCDP_Volume_1.pdf

The County Cork Development Plan 2014 also includes a number of policies and objectives in relation to the protection of the architectural heritage resource within the county including the protection of designated structures (Plan refs. HE 4-1 and HE 4-2) and non-structural features such as gardens, masonry walls, railings, follies, gates, bridges and street furniture that are of built heritage significance (Plan ref. HE 4-3). The Development Plan also includes a number of policies and objectives in relation to the protection of the cultural heritage resource within the county, including aspects such as historical associations, place names, language and the arts (Plan refs. HE 5-1 and HE 5-2).

14.3.3 Desktop Study

The following section commences with a summary of the results of the desktop study on the lands within the study area extending for 1km around elements of the proposed energy park (Section 14.3.3.1) and includes a review of the locations of National Monuments and other monuments with potential visual alignments within a wider 5km area. It then presents the results of studies on the lands within a 100m corridor centred on the public roads that will carry the proposed grid route connection (Section 14.3.3.2) and the turbine delivery routes (Section 14.3.3.3).

Datasets have been interrogated and retrieved from State and Local authorities and are considered accurate and current per publicly available sources. The dating framework used for each period is based on *Guidelines for Authors of Reports on Archaeological Excavations* as published by the National Monuments Service[4]. The published inventory entries of all recorded archaeological sites within the study areas are also presented. A summary of the review of other sources consulted during the desktop study is also provided, including historic maps, literary sources, folklore records and aerial/LiDAR imagery.

14.3.3.1 Energy Park

There are no recorded archaeological sites located on the footprint of any element of the proposed energy park while there are seven examples ranging from the late prehistoric to post-medieval periods located within the surrounding 1km study area (Table 14-4). The SMR does not record any unlocated archaeological sites within the townlands in this study area and there are also no designated architectural heritage structures located within the area.

Table 14-4: Recorded archaeological sites within 1km study area around energy park

Monument No.	Class	Townland	ITM E	ITM N	Nearest element of proposed energy park	Extant Surface Remains
CO043-001----	Ring barrow	KNOCKACULLATA KNUTTERY MULLENABOREE	564091	592845	215m northeast of Turbine 11	No
CO043-003----	Enclosure	KNUTTERY	563261	591774	540m northwest of Turbine 8	No
CO042-082----	Burial	TOOREEN SOUTH (Barretts By.)	562384	588906	580m southwest of temporary compound	No

[4] https://www.archaeology.ie/sites/default/files/media/publications/excavation-reports-guidelines-for-authors.pdf

Monument No.	Class	Townland	ITM E	ITM N	Nearest element of proposed energy park	Extant Surface Remains
CO043-004----	Ring barrow	COOM (Hudson)	564270	591028	240m to southeast of Turbine 9	Yes
CO043-005----	Fulacht Fia	COOM (Hudson)	564464	591127	310m northwest of Turbine 10	In forestry
CO042-083----	Fulacht Fia	GLASHABOY NORTH	526468	588756	660m southwest of temporary compound	No
CO043-022----	Burnt mound	MULLENABOREE	565909	591535	910m east of Turbine 14	No

Prehistoric Periods

Until the recent identification of Palaeolithic human butchery marks on a bear bone recovered from a cave site in County Clare, the earliest recorded evidence for human activity in Ireland dated to the Mesolithic period (7000–4000 BC) when groups of hunter-gatherers lived on the heavily wooded island. The archaeological record indicates that these mobile groups tended to favour coastal, lake and river shores which provided a transport resource and provided elements of their varied diet. These groups did not construct any settlements or monuments that have left any above ground traces although their presence in an area can often be identified by scatters of worked flints in ploughed fields or during earth-moving undertaken as part of development works. The Neolithic period (4000-2400 BC) began with the arrival and establishment of agriculture as the principal form of economic subsistence, which resulted in more permanent settlement patterns in farmlands within areas of cleared forestry. As a consequence of the more settled nature of agrarian life, new site-types, such as more substantial rectangular timber houses and various types of megalithic tombs, begin to appear in the archaeological record during this period. While there are no recorded Mesolithic or Neolithic sites located within the study area, examples from both periods have been identified elsewhere in County Cork. The fragmentary remains of a possible megalithic structure (CO034-058----) have been recorded within an area of forestry c.2.1km to the north of Turbine 22. This monument has been described as in 'very ruined due to forestry planting' and its remains have been deemed as insufficient to definitively classify it as a megalithic structure (Power *et al* 2000).

The advent of the Bronze Age period (*c.* 2400–500 BC) saw the introduction of a new artefactual assemblage, including metal and ceramic objects, to the island. This period was also associated with the construction of new monument types such as wedge tombs, standing stones, stone rows/circles and burnt mounds known as *fulachta fiadh*. The development of new burial practices during this period also saw the construction of funerary monuments such as cairns, barrows, boulder burials and cists. The arrival of iron-working technology in Ireland saw the advent of the Iron Age (600 BC – 400 AD). This period has been traditionally associated with a Celtic invasion but recent archaeological evidence points instead to a gradual acculturation of the Irish Bronze Age communities following centuries of contacts with Celtic-type cultures in Europe. Relatively little has been known about Iron Age settlement and ritual practices until recent decades when the corpus of evidence has been greatly increased by the discovery of sites dating to this period during bog-cutting works and road construction projects.

There are four recorded late prehistoric monuments located within 1km of elements of the proposed wind farm and these comprise two ring barrows and two *fulacht fia* (Table 14-4). Ring barrows are associated with Bronze/Iron Age (c.2400 BC - AD 400) burial and ritual traditions and comprise circular mounds enclosed by one or more ditches with outer banks. The mounds are often quite low and in cases where no mound exists at all the classification 'ring bank' or 'ring ditch' is probably more appropriate.

While some excavated examples have produced evidence for burials other examples have not and the encircling ditches and banks may simply have served to demarcate an area of now unknown special importance perhaps as empty tombs built as memorial cenotaphs (Waddell 1998 and Daly & Grogan 1993). The location of one of the ring barrows (CO043-001----) within the 1km study area is now occupied by forestry and no surface traces are visible while the other example (CO043-004----) survives extant within a pasture field outside the proposed energy park area.

The following descriptions of these two sites are published in the *Archaeological Inventory of North Cork* (Power *et al* 2000):

> *Ring barrow (CO043-001----)*
> *Shown only on 1842 OS 6-inch map as dotted circular area (diam. c. 30m) straddling three townlands and at an angle where the baronies of Barrymore and Fermoy adjoin. Inaccessible due to swampy conditions.*

> *Ring barrow (CO043-004----)*
> *In rough mountain pasture on NE-facing slope. Circular mound (11m N-S; 9.8m E-W; H 1.2m) enclosed by shallow fosse with external earthen bank (H 0.4m). Top of mound dug into leaving hollow (max. D 0.4m). On-going reclamation cuts into outer edge of bank.*

Fulacht fia (approx. translation 'cooking place of the deer') are generally interpreted as the remains of prehistoric cooking sites, although other domestic functions have also been postulated, and most excavated examples have been dated to the Bronze Age. While many have been levelled by ploughing or land improvement works, in their undisturbed form they often comprise horseshoe-shaped mounds of fire-cracked stone and charcoal-enriched soil built up around a sunken trough. They functioned by placing fire-heated stones into a water-filled trough in order to raise the water to boiling point and are typically located near or adjacent to natural water sources, such as streams, springs or marshy areas. The following descriptions of the *fulachta fia* and a burnt mound (CO043-005----, CO042-083---- and CO043-022----) within the study area have been published by the Archaeological Survey of Ireland (ASI). The description of CO043-005---- is based on an inspection of the site prior to the expansion of the forestry plantation into its location.

> *Fulacht Fia (CO043-005----)*
> *In rough grazing on NE-facing slope. Low oval mound of burnt material (9m N-S; 15.8m E-W).*

> *Fulacht Fia (CO042-083----)*
> *Levelled; burnt material visible in section (N-S) cut into S-facing slope. Field clearance stones dumped W of section.*

> *Burnt Mound (CO043-022----)*
> *In pasture, on a gentle E-facing slope. A mound (13m NE-SW) of heat-shattered stones and charcoal-enriched soil was discovered during drainage works in 1999. A drain (D c. 1.5m) cuts through the mound NE-SW and the burnt material is visible in its full depth. It was not possible to estimate the NW-SE dimension of the mound as it has been covered with material from the drain*

There is also evidence for other Bronze Age monuments within the wider landscape outside the 1km study area, including other *fulachta fiadh*, standing stones and wedge tombs, indicating that this general area of north Cork was well-settled during this period. These include Island wedge tomb (CO042-056001-) which is located approx. 2.3km to the west of the nearest element of the proposed energy park (Turbine 2) and is a National Monument in State Guardianship (National Monument ref. 502; RMP CO042-056001-).

An excavation of this monument in the 1950s revealed remains of a gallery, aligned northeast-southwest (length 5.75m; Width 1.2m at SW end, 0.75m at NE) containing three cremated burials which was enveloped by a cairn (length 11.5m; width 9.7m), at the edge of which were series of spaced sockets for probable kerb stones. Recovered samples from the monument produced dating evidence demonstrating a construction date between 1412-1308 BC (O' Kelly 1958). The existing reconstructed monument is located within a pasture field and comprises a low gallery, and measuring *c.*80cm high and 6m long, which is now surrounded by the basal remains of a 11.5m long by 9.7m wide stone cairn. This monument is not visible from the proposed energy park and a visual impact assessment from its location towards the proposed energy park was carried out by the LVIA consultants and this was carried out in liaison with the archaeological consultants. An archaeological review of the results of the visual assessment is presented in Section 14.4 and further details are provided in Chapter 15.

The recorded extent of the Claidh Dubh road (CO018-001----) terminates on the north side of Knocknaskagh Hill approx. 2.1km to the north of the nearest element of the proposed park (Turbine 23 and its access road). The Claidh Dubh road is of potential Iron Age date and follows a meandering course for approx. 22.5km through the Blackwater Valley in the area between the Nagle and Ballyhoura Mountains; with later field and townland boundaries often delimiting its line. An archaeological investigation of a section of the route in the hills to the north of the proposed energy park, which forms the boundary between Castleblagh and Ballydague townlands, revealed a surfaced trackway flanked by a 1.5m high earthen bank and produced dating evidence indicating that it was constructed before 100AD (Doody 1993; see Table 14-6 below). The townland boundary delimiting this section of its line diverts to the east and west in lands to the north of the proposed energy park and the historic OS maps do not show any pre-forestry field boundaries or tracks on a projected north-south line extending from its known terminus within the environs of the proposed energy park. Modern aerial imagery does show a curving trackway within the heathland to the south of Knocknaskagh Hill although this feature is not present on the historic OS maps. The visible extent of this track curves to the west in the area to the north of the forestry plantation which contains the north end of the proposed energy park. As noted below, there were no traces of a potential trackway or boundary feature noted within this section of forestry during a review of historic mapping and LiDAR imagery. The open heathland on the hill summit between the terminus of the recorded line of the Claidh Dubh and the forestry plantation containing part of the proposed energy park was inspected during the field survey to determine if any trace of an unrecorded section of the routeway exists within this area and no surface traces were noted.

There are five unclassified stone cairns located on the forested hills to the north and northwest of the proposed energy park (CO034-049----, CO034-050----, CO034-052----, CO034-053---- and CO034-054----) and none of these are located within 1km of any element of the proposed energy park. The presence of stone cairns on the summits and ridges of hills and mountains is a common feature in the Irish landscape and individual examples may conceivably date from the Neolithic to early modern periods. The prehistoric cairns may have fulfilled various functions, including burial mounds containing cists or megalithic tombs, territorial boundaries, memorial features and route markers. Highly visible, large summit cairns may have fulfilled a particularly significant function within prehistoric ritual landscapes with the potential for alignments with topographical features or other monuments (Coyne 2006). Some cairns may have been augmented with field clearance stones resulting from extensive post-medieval and early modern land improvement works or indeed may have been entirely created during such works. Other examples may have been altered or created by the Ordnance Survey (OS) in recent centuries. While it is typically not possible to ascertain the date and function of any cairn monument without recourse to archaeological excavation, considerations of their distribution in relation to known prehistoric monuments may provide an indication of their antiquity. The presence of known Bronze and Iron Age monuments within the wider landscape around the Nagle Mountains may suggest a prehistoric origin for some of the above examples. The Cork Archaeological Survey have noted that two of the cairns (CO034-049----- and CO034-052----) on the summits of forested hills to the northwest are not present on 19th century OS maps but are depicted with OS triangulation points on 20th-century editions (Power *et al* 2000). The presence of the extensive forestry plantations across the surrounding hillsides has obscured the now inaccessible cairn locations and none were visible from any area of the proposed energy park.

Early Medieval Period

The early medieval period (c.400–1169 AD) in Ireland broadly commenced with the arrival of Christianity and, while this period saw the emergence of the first phases of urbanisation around the large monasteries and the Hiberno-Norse ports, the dominant settlement pattern continued to be rural-based and was centred on enclosed farmsteads known as ringforts. These comprise roughly circular enclosures delimited by roughly circular earthen banks formed of material thrown up from a concentric external ditch while stone-built variants known as cashels are concentrated within western counties. The ubiquity of these enclosures within the Irish landscape is attested to by the fact that their original Gaelic names (*rath, lios and dun*) still form some of the most common place-name elements in the country. Archaeological excavations have demonstrated that the majority comprised enclosed farmsteads and formed the visible element of much wider farm settlements (known as *airlise*) that may contain unrecorded, sub-surface archaeological features such as associated field systems, stockades, barns, mills and drying kilns. There are no recorded early medieval sites located within 1km of the proposed energy park although the wider landscape, most notably in low-lying areas of good quality lands, does contain various ringforts which demonstrate the presence of early medieval farming communities within this area of north Cork. While there are no recorded early medieval church sites located within the study area or its environs, the presence of a holy well (CO042-081----) adjacent to a section of the public road located 1.1km to the southwest of Turbine 2 and a 17th-century local name (Templemichill) of a number of townlands in the area that now contain the name element 'Coom' may also record the presence of early ecclesiastical activity within the general area.

High and Late Medieval Periods

The arrival of the Anglo-Normans in the late 12th century broadly marks the advent of the Irish high medieval period which continued to c.1400 and was followed by the late medieval period which extended to c.1550. These periods saw the continuing expansion of Irish urbanisation as many of the port cities developed into international trading centres and numerous villages and towns began to develop throughout the country. There is little historical information on the settlement and land-use patterns within the environs of the proposed energy park during these periods and there are no definitely identified archaeological sites dating to either period within the study area. However, a now levelled enclosure (CO043-003----) within a field located 0.54km to the northwest of Turbine 8 is depicted as a rectangular feature on the 6-inch OS map and its layout suggests it may potentially be the remains of a medieval moated site, which were fortified residences/farmsteads often built by Anglo-Norman settlers in the late 13th/early 14th centuries.

Post-Medieval and Early Modern Periods

The centuries following 1550 comprise the post-medieval period which continued into the middle of the 19th century and the period thereafter is often described as early modern. The early part of the post-medieval period was a turbulent time in Ireland and saw a period of wars between the 1560s and 1603 and further conflict during the Cromwellian Wars (1649–53) which resulted in extensive dispossession of forfeited Gaelic lands. An agricultural boom in the late 18th and early 19th centuries saw a rise in prices for both tillage and dairy produce which resulted in landlords investing in extensive land improvement works within their holdings to increase productivity. This included the enclosure of open lands into field systems many of which survive to the present-day. The post-medieval period saw the development of high and low status stone houses throughout the Irish countryside and rural settlement clusters at this time typically consisted of single-storey thatched cottages with associated farm buildings while two-storey farmhouses became more common during the 19th century. The settlement pattern throughout much of the rural landscape was greatly affected by the famine period and its aftermath in the middle of the 19th century which saw the depopulation of many areas.

The recorded location of a possible single burial (CO042-082----) of potential post-medieval date is within an area now under forestry at a distance of 0.58km to the southwest of the proposed temporary compound and has been described as follows by the Archaeological Survey of Ireland (source: www.archaeology.ie):

> *At summit of hill, now forested. Locally thought to be the burial place of highwayman. No visible surface trace of burial.*

The 17th-century Down Survey (1660s) and accompanying Books of Survey and Distribution (1670s) indicate that the areas of the Nagle Mountains were used for seasonal cattle grazing with other areas recorded as unprofitable bog lands. The survey records of the place names and landowners of townlands within the proposed energy park prior to and following the Cromwellian wars are presented in Table 14-5.

Table 14-5: Down Survey records of 17th century landowners within study area

Townland	17th century name	1641 Landowner	1670 Landowner
Carrig	Carriganaway	Carthy, Donogh (Catholic)	Booth, Sir Robert (Protestant)
Coom (Fitzgerald)	Templemichell	Gould, William (Catholic)	James Duke of York (Protestant)
Coom (Hudson)	Templemichell	Gould, William (Catholic)	James Duke of York (Protestant)
Glannasack	Not listed	Not listed	Not listed
Glashaboy North	Ballehistick	O'Callaghan, Cnogher (Catholic)	O'Callaghan, Cnogher (Catholic)
Killeagh	Killeagh	Fitzwilliams, James Roch (Catholic)	Harmer, Captain William (Protestant); Symons, Edward (Protestant)
Knockdoorty	Glannephreighane	Coppinger, Dominick (Catholic)	Hamilton, Sir George (Protestant)
Knoppoge	-	Commonage land	Commonage land
Knuttery	Knockbracke	Roch, Theobald (Catholic)	Cotter, James (Protestant)
Mullenaboree	Glannephreighane	Coppinger, Dominick (Catholic)	Hamilton, Sir George (Protestant)
Tooreen South	Barclen & Currahime	Browne, Sir Valentine (Protestant)	Browne, Captain Thomas (Protestant)

While not designated as a recorded archaeological site, there are historical records of a late 17th-century skirmish between English and Irish forces within the Bottlehill area. In April 1691 a contingent of approximately 100 English soldiers who had been sent to relieve a garrison at Ballymagooly, to the east of Mallow, were attacked at Bottlehill by a larger Irish force. Contemporary records of the engagement note that the English force secured a defended position within an embanked pound that was attacked for three hours before the Irish retreated after suffering losses of 60 men (Buckley 1911). The OS Name Book of 1841 records that a barren hill in the area, named 'Battle Hill', was the site of the battle and the 6-inch OS map produced in the same year indicates its location in an area approx. 1.5km to the southwest of the nearest element of the proposed energy park.

The first edition 6-inch OS map (1841) and 25-inch OS map (1902) both depict the majority of the proposed energy park as vacant upland heathland with occasional farm buildings, roadways, tracks and enclosed fields located within the surrounding lowlands. Further details on the cartographic depictions of the study area are presented below.

The proposed energy park extends into four civil parishes and the following are extracts from 19th century descriptions of each area as published in the *Topographical Dictionary of Ireland* (Lewis 1837).

Ardnageehy: The area of the parish on the south side of the River Bride was described as 2,000 acres of wasteland only suitable for rough pasture while the areas of bogland within the parish were not worked. A number of notable residences within the parish are listed and the only example within the vicinity of the proposed energy park comprises Glanassack House, which was occupied by a Mrs. Wallis in the 1830s. This undesignated residence is located approx. 800m to the south of the nearest element of the proposed energy park (Turbine 23).

Dunbulloge: The description of this parish notes that the surface is hilly, and in some parts mountainous; and the soil on the hills is light and stony, but of much better quality in the valleys. It contained a large extent of bog, supplying the vicinity with abundance of cheap fuel and the reclaimable mountain was being constantly brought into cultivation or planted.

Rahan: The arable land in this parish is described as being generally good, and there is a considerable portion of reclaimable mountain and some excellent bog, from which the Mallow market is partly supplied with fuel; limestone abounds and is used for building and agricultural purposes, and the state of agriculture has of late years been much improved.

Mourneabbey: This parish comprised 11,061 statute acres, of which about 4000 acres are arable, about 3500 acres pasture, and the remainder, with the exception of about 75 acres of woodland, consists of mountain and waste, a large portion of which is reclaimable, and the state of agriculture is gradually improving.

Excavations Database

The Database contains two entries for archaeological investigation undertaken within townlands in the study area. Archaeological monitoring of ground works during the creation of the Council landfill site adjacent to the southwest end of the proposed energy park area revealed nothing of archaeological significance. A programme of archaeological survey and excavation was undertaken in 1993 on a section of the Claidh Dubh located within lands to the north of the proposed energy park. The published summary descriptions of these two investigations are presented in Table 14-6 (source www.excavations.ie).

Table 14-6: Excavation Database entries

Licence	Townlands	Description
05E0508	Glashaboy, Coom (Hudson), Coom (Fitzgerald) Tooreen South	Monitoring was undertaken on behalf of Cork County Council of a new landfill site in the townlands of Glashaboy, Coom (Hudson), Coom (Fitzgerald) and Tooreen South, c. 10km north of Cork city. Topographically the site is an upland north-facing location. Coillte have occupied the site and grown various species of evergreen trees prior to the approval of the present project. A haul road measuring 3.2km will service a cell-based system of product management. The initial phase of operations was the installation of a haul road followed by the clearing of areas of ground allowing for the construction of administrative buildings, product control units and product

Licence	Townlands	Description
		deposition cells which will be at, or below, subsoil levels. The entire site is located above 240m OD. The soil is generally a peaty waterlogged clay. No archaeological features or artefacts were recorded while monitoring ground disturbance works. *John Lehane and Aine Richardson*
93E0122	Castleblagh Ballydague	A stretch of the Claidh Dubh linear earthwork was surveyed and excavated in North Co. Cork as part of the Discovery Programme, Ballyhoura Hills Project. The work took place during a three-week period in August. The monument is recorded on the Ordnance Survey 6" maps and figures prominently in local legend. Despite this no portion of the site had previously been excavated. The purpose of the current work was to investigate the make-up of the earthwork and to obtain dating evidence. The site chosen for study is in the Nagles Mountains where the earthwork forms part of a 14-mile stretch of the Claidh Dubh which extends across the Blackwater Valley and into the Ballyhoura Hills to the north. An 800m-stretch of the Claidh Dubh was surveyed in detail and two sections were excavated through the bank and associated features. The Claidh Dubh at this point forms part of the townland boundary between Castleblagh and Ballydague and is made up of an earthen bank c. 1.5m high constructed alongside a partly silted-up stream bed to the west. A shallow ditch was recorded to the east and further east again were the remains of a well-constructed roadway. There was evidence for a palisade off the crest of the bank on the east side. No direct dating evidence was recorded; however samples of peat were taken from directly above the roadway and submitted for radiocarbon dating. These indicated the onset of peat growth above the roadway at c. 100AD. *Martin Doody*

Overview of Cartographic, Aerial and LiDAR Imagery

The cartographic sources examined for the subject area comprised the 17th-century Down Survey, the 1st edition 6-inch Ordnance Survey (OS) map, surveyed in 1841, and the 25-inch edition OS map, surveyed in 1902. Available online aerial images as well as LiDAR data provided by the client were also consulted in order to assess the extent of modern interventions within the proposed energy park. The following section provides an overview of the results of this review and further details on the cartographic and LiDAR imagery at development locations are also summarised in the Field Survey section of this chapter (Section 14.3.5).

The 17th-century Down Survey map does not show any major settlements, structures or roadways within the environs of the energy park. The 6-inch and 25-inch OS maps both depict the majority of the proposed park as open, vacant heathland while occasional dispersed farm buildings, roadways, trackways and enclosed fields are shown within the surrounding lowlands. Details on the cartographic depictions of the direct footprint of the various elements of the proposed energy park are presented in Table 14-9 (below) but, in summary, no potential unrecorded archaeological sites or undesignated structures of architectural heritage potential were noted at any location.

The detail on the consulted aerial images of the study area demonstrates that most of the proposed energy park has formed part of commercial forestry plantations since at least the 1990s. The plantations continued to expand during the 2000s and closely planted trees now cover the majority of the proposed development areas. No potential unrecorded archaeological sites were identified on aerial images of the sections of the proposed energy park which were visible as open heathland prior to the expansion of the forestry plantation.

A study by the Heritage Council of Ireland on the impacts of forestry plantation works on archaeological sites, including their surface and buried elements, has noted that the initial planting process involves a number of ground disturbance activities, such as ploughing, drainage, access roads and planting, that has the potential to destroy or severely impact any sites within the plantation (Johnson 1998). Further impacts are also likely to occur during the operational phase of the plantation through continued disturbance by extensive root systems, which will entwine with any sub-surface archaeological deposits or features with little or no potential of removal without causing their destruction. Additional impacts during subsequent harvesting and replanting processes were also noted. The study also concluded that given the impossibility of aerial reconnaissance and access constraints during field surveys, the potential for detecting unrecorded sites within forestry plantations is unlikely to be possible. However, the development and widespread use of LiDAR technology in recent years has allowed for the potential for reconnoitring forestry plantations through the use of aerial imagery that can screen out the forestry canopy and allow an assessment of the presence of potential archaeological sites. To this end, the LiDAR imagery commissioned by the developer as part of the proposed development was made available for archaeological review as part of this assessment. No potential unrecorded archaeological sites or architectural heritage structures were noted during this review.

Designated Architectural Heritage

None of the buildings and structures within the 1km study area surrounding the proposed energy park are listed in the RPS or NIAH for County Cork and the area does not extend into an Architectural Conservation Area.

Undesignated Cultural Heritage Assets

While encompassing the archaeological and designated architectural heritage resources, cultural heritage also includes various undesignated assets such as settlements, demesne landscapes, historic territorial boundary features, vernacular structures, folklore, place names and historical events. There are no historic settlement centres, extant vernacular structures or demesne lands located within the proposed energy park.

The proposed energy park extends into a number of townlands which are the smallest unit of land division in the Irish landscape and many may preserve early Gaelic territorial boundaries that pre-date the Anglo-Norman conquest (Table 14-7). The boundaries and names of Irish townlands were recorded and standardised by the Ordnance Survey (OS) in the 19th century and typically entailed anglicisations of their original Irish names. The Irish origins of townland names often refer to natural topographical features, past landowners, farming practices, etc. but some name elements may also give an indication of the presence of archaeological sites within the townland, e.g. lios or rath typically indicate the presence of a ringfort while temple, saggart, termon or kill may record associations with a church site. The townland names within the study area generally refer to natural features such as hills, hollows, streams and woodlands. The Placenames Branch does record one possible translation of Mullenaboree townland that suggests an association with an unrecorded mill site (*Muilleann),* but it also notes a possible alternative translation that may refer to a bare hill (*Maoillin*). There are no mills indicated within this townland on any of the historic OS maps. The northern end of the proposed energy park extends onto the south-facing slopes of a hillside on the southern side of the Nagle Mountains.

Table 14-7: Townland Name Translations

Townland (parish)	Irish	Translation
Carrig (Ardnageehy par.)	An Charraig	the rock
Coom (Fitzgerald) (Dunbulloge par.)	An Choim	the hollow
Coom (Hudson) (Dunbulloge par.)	An Choim	the hollow
Glannasack (Ardnageehy par.)	Ghleann na Sac	glen of the sacks
Glashaboy North (Dunbulloge par.)	An Ghlaise Bhuí Thuaidh	yellow stream
Killeagh (Ardnageehy par.)	An Choill Liath	grey wood
Knockdoorty (Ardnageehy par.)	Chnoc Uí Dhúrtaigh	O'Doorty's Hill
Knoppoge (Ardnageehy par.)	An Chnapóg	hillock
Knuttery (Rahan par.)	Cnotaire	little summit (?)
Mullenaboree (Ardnageehy par.)	Muileann na Buaraí / Maoilinn na Bó Riabhaighe	mill of the spancel / Bare Hill of the Brindled Cow
Tooreen South (Mourneabbey par)	An Tuairín Theas	little paddock

The Irish National Folklore Collection records a number of folklore traditions associated with the Bottlehill area which include stories relating to how the area got its name and other traditions associated with holy wells, a stone fort and lime kilns within the general area (Table 14-8). There are no entries that directly reference the proposed energy park development areas or their townlands. A number of references to holy wells appear to be associated with known examples listed in the SMR and none of these are located within the close environs of the proposed energy park. A stone fort referred to one tradition may be associated with one of the ringforts located within the wider landscape surrounding the general Bottlehill area. Another tradition mentions the presence of lime kilns and while the historic OS maps show a number of examples within the wider landscape none are located within the close environs of the proposed energy park. A tradition relating to a local highwayman, named Brickocloch, is likely associated with an area on the 6-inch OS map of 1841 annotated as the 'Site of Bricolies's Bed'. This potential burial has been designated as a recorded archaeological site (CO042-082----) and is located in an area of forestry approx. 580m to the southwest of the nearest element of the proposed energy park.

Table 14-8: Summaries of Local Folklore Traditions

Source	Summary of Duchas transcript
Mary O Leary	There is a holy well not far from Bottlehill known as Tobar Aluinn. It is situated in a very boggy district near to the road. There is a little path leading down to the well and a hawthorn tree growing at the top of it. Every year on St. John's night people pray rounds to this well. Each person must say the rosary in silence and take a drink of water out a cup by the side of the well. It is said that if you would have faith the water out of this well will cure any disease. People leave ribbons and medals hung on the hawthorn tree.

Source	Summary of Duchas transcript
Connie Sheehan	A pattern is held at "Tobar [?]" on St John's Eve, and the waters are credited with healing power. Sick people pay rounds there and when they are to be cured a trout appears in the water with his belly turned up. It is said that a girl with a withered hand got cured after paying rounds at this well some years ago.
Connie Sheehan	In the far away part of Bottlehill mountain there lies a fort or stone dwelling which was held many years ago by a notorious highwayman. He went by a nickname commonly known as the Brickocloch
Tara O'Hanlon	Not very long ago, a woman, living in Bottlehill named Mollie Hasset earned her living with her spinning wheel. For years she spun her own clothes and sold the surplus of her work to her neighbours. In the same district there are two lime kilns but very little is known of them because it is years since they were in use.

14.3.3.2 Proposed Grid Connection Route

There are no recorded archaeological sites, designated architectural heritage structures or Architectural Conservation Areas located on the public road network, including the road verges, that will carry the grid route connection which extends to the existing Barrymore substation located *c.*4km to the southeast of Fermoy town. The tarmac-surfaced roads extend through a landscape dominated by pasture farmland, with localised forestry plantations, and the route does not extend through any villages or towns. There is one recorded existing archaeological site located within the 100m wide study area corridor centred on the route and this comprises a levelled enclosure site (CO035-042----) in Glanakip townland (Figure 14-10). This site is now located within a forestry plantation to the east of the road and has been described as follows in the *Archaeological Inventory of North Cork* (Power *et al* 2000)

> *Enclosure (CO035-042----)*
> *In forestry, on N-facing slope. Shown only on 1842 OS 6-inch map as hachured circular enclosure. Inaccessible due to heavy afforestation.*

Table 14-9: Recorded archaeological sites within 100m of grid route

Monument No.	Class	Townland	ITM E	ITM N	Distance from route	Extant Surface Remains
CO035-042----	Enclosure	GLANAKIP	575361	594643	30m to east	No

The SMR also lists a number of archaeological features within the 100m wide corridor centred on the grid connection route as it crosses a section of the M8 road to the south of Fermoy town. These comprise a cluster of two hearths (CO035-120----and CO035-121----) and two charcoal-making sites (CO035-118---- and CO035-119----) of early medieval date (Figure 14-10). These features were identified and preserved by record during archaeological excavations undertaken in advance of the construction of the Rathcormac-Fermoy Bypass and no longer exist at this location.

There are a number of masonry road bridges over watercourses along the grid route and none of these are listed in the RPS or NIAH for County Cork (Table 14-10 below and Figure 10-15 in Chapter 10).

The majority of the existing road crossings over the watercourses are shown on the 1st edition 6-inch maps and many of the bridges are, therefore, likely to pre-date the 1840s. The crossing methodology for the cable at the bridge locations are described in Chapters 3 and 10 and are summarised in Table 14-10. These methodologies will entail trenches contained within the road material placed over the bridge structures or, alternatively, directional drilling beneath the bridge structures and channels where the existing road material is not at a depth that will facilitate trenches. Neither of these methodologies will require modifications to the masonry forming the bridges structures or impacts on the watercourse channels.

Table 14-10: Road bridges on grid connection route (see Figure 10-5)

WC ref	6-inch (1840s)	25-inch (1888)	Note	Proposed crossing method
6	Road terminates on west side of stream	Road extended to east side of stream.	Map detail suggests a late 19th century date.	Directional drill under structure within public road corridor. Alternative: Concrete bridge beam in road deck with ducts in flat profile. Reinstate road surface to existing levels
7	Road terminates on east side of stream	Road extended to west side of stream	Map detail suggests a late 19th century date.	Directional drill under structure within public road corridor.
8	Existing road over stream shown	No change	Map detail suggests a pre-1840 date.	Trench in road above structure and reinstate road surface to existing levels.
19	Existing road shown	No change	Map detail suggests a pre-1840s date	Directional drill under structure within public road corridor. Alternative: Concrete bridge beam in road deck with ducts in flat profile. Reinstate bridge surface to approximately 100mm above existing.

14.3.3.3 Turbine Delivery Routes

There are two proposed delivery routes to the energy park from Ringaskiddy, both of which will follow existing roads, and neither will require the construction of new sections of road or bridges. Minor road works will be required at certain locations, which are detailed in Chapter 13, and these were reviewed as part of this assessment. The proposed western route will follow the existing road network through an area of modern suburbs on the north side of Cork city and then along the N20 before diverting to the Bottlehill landfill area.

There are no Architectural Conservation Areas (ACAs) along this route and no recorded archaeological sites or designated architectural heritage structures are located within the road take.

The proposed eastern delivery route leaves the M8 to the north of Fermoy and then continues through the town centre before extending westwards along the N72. The SMR lists a number of archaeological sites within the road-take of the section of the M8 that forms part of the route. These comprise sites that were discovered and resolved through systematic archaeological excavations prior to the construction of the road and no longer exist at their recorded locations. The Fermoy Town Local Area Plan 2009 designates an ACA around the town centre and contains various structures listed in the SMR, RPS and NIAH. The proposed transport of turbines will not result in any impacts on any of these cultural heritage assets or any other structures of cultural heritage significance within the town. The east end of the section of the N72 between Fermoy and Ballyhooly extends along the north side of the grounds of Castlehyde House (PS 00300) and, while the house is set back from the road in the lands to the south, the roadside contains two associated Protected Structures: the East Lodge (PS 01380) and the estate entranceway (PS 01383). The roadside boundary wall extending along the length of the estate also forms a curtilage feature associated with the house. The proposed turbine delivery will not impact on any of these structures or any features associated with Cregg House, an adjoining country house estate to the west which is also a Protected Structure (PS 00299). The proposed delivery route then diverts to the southwest as it nears the outskirts of Ballyhooly village and does not extend into the ACA around this settlement. The route follows a local road extending outside the east edge of the ACA and contains two bridges that, while not included in the SMR or RPS, are listed in the NIAH (refs. 20903423 and 20903424). The route also extends in the vicinity of the Ballyhooly Lodge to the south of the bridges which is also listed in the NIAH (20903425). The proposed transport of the turbines through this area will not require any interventions to these structures.

A proposed turbine delivery turning-head node is located within a modern forestry plantation adjacent to the south side of a public road in the area of Glashaboy South townland to the south of the energy park (Figure 14-7). The known location of an extant standing stone (CO051-166----) and the recorded location of an ogham stone (CO051-039----) are located within fields on the opposite (north) side of this section of roadway (Table 14-11). These archaeological sites are located at distances of 140m-200m from the proposed turning-head area and have been described as follows by the ASI:

Ogham Stone (CO051-039----)
Found in pasture, on an E-facing slope. Recorded as an ogham stone (UCC) but no further details were given. There is no visible surface trace of this stone.

Standing stone (CO051-166----)
In pasture on a gentle E-facing slope. This standing stones (c. 0.55m x c. 0.22m; H 0.94m) is orientated NE-SW. The upper half of the stone gets thinner and it appears as though the top may have been broken off. Another stone (H 0.4m; W 0.45m), embedded in the ground, leans against the S side of the standing stone and this may be the detached upper part of the standing stone.

Table 14-11: Recorded Archaeological Sites within environs of delivery turning-head

Monument No.	Class	Townland	ITM E	ITM N	Distance from turning-head	Extant Surface Remains
CO051-039----	Ogham stone	GLASHABOY SOUTH	563061	586840	140m to north	No
CO051-166----	Standing stone	GLASHABOY SOUTH	562965	586873	200m to north	Yes

14.3.4 Field Survey

14.3.4.1 Energy Park

The proposed energy park site and grid connection route were inspected on a number of occasions between 2018 and 2020 in clear weather conditions that allowed good landscape visibility. The southwest area of the proposed energy park extends across an undulating landscape to the southwest of the Nagle Mountains with proposed turbine locations within generally level ground on natural prominences which are surrounded by more low-lying lands. The proposed locations of number of turbines in the northeast end of the development (Turbines 17 to 23) are situated within a forestry plantation on gradual, south-facing hillside slopes.

In general, the current use and layout of the proposed energy park development areas when compared to the detail shown on the historic OS maps demonstrates the extent of the 20th century interventions during the creation of the forestry plantations within the former areas of open heathland. The character of the surrounding landscape has also been much altered with extensive expansion of the localised areas of enclosed, semi-improved pasture fields shown on the historic OS maps.

Apart from Turbine 11 and sections of Turbines 9 and 12, the majority of proposed energy park development locations are within forestry plantations under dense tree cover with localised areas that had been harvested at the time of inspections. The presence of thick branch cover combined with areas of dense undergrowth restricted access to proposed turbine development locations but an assessment of the ground disturbance activities resulting from the forestry plantations, such as ground preparation, land drains and forest roads as well as extensive root networks, was carried out within the environs of all development areas.

The topsoil layer within all planted areas has been extensively disturbed by close set, deep furrows, root systems and frequent earth-cut drains extending between the regular tree rows. The underlying natural subsoil was noted within many exposed cut sections not obscured by vegetation and, in general, the topsoil cover appears to be shallow throughout the area. The construction of the stone-surfaced and earth-cut forestry roads and trackways, as well as their flanking drains, within the plantation all appear to have resulted in the reduction of ground levels down into the natural subsoil. There were no traces of potential archaeological features, unrecorded built structures, pre-forestry field boundaries or trackways noted during the visual inspections of accessible areas of the plantations.

The field survey included inspections or visual appraisals of the locations of recorded archaeological sites within the environs of the energy park. The locations of a number of cairn sites located within the forestry plantations outside the west end of the north end of the energy park were inaccessible due to thick tree growth. Their recorded locations were subject to a visual appraisal from surrounding lands and no visible trace of any example was noted. The location of one accessible cairn (CO034-054----) within the margins of a forestry plantation 1.3km to the north of the nearest element of the proposed energy park (Turbine 23) was inspected and survives as an overgrown mound of stones measuring approx. 2m in height. The existing forestry plantation has removed all views from this monument towards the proposed energy park location to the south. An area of open heathland to the north of this cairn was also inspected to determine if any surface traces of an unrecorded section the Claidh Dubh trackway (CO018-001----) were visible and none were noted. In addition, there were no visible traces of any element of the recorded extent of this trackway, which is within a forestry plantation approx. 700m to the north of the cairn, noted from this location due to the combined screening effect of vegetation and the natural topography in this area. There were also no views from the cairn location towards a standing stone (CO034-083----), located close to the margin of forestry approx. 800m to the west, due to the presence of a natural ridgeline between their locations.

The location of Island wedge tomb (National Monument ref. 502), which is 2.3km to the west of the nearest element of the energy park (Turbine 2) was subject to a visual analysis undertaken by the Landscape and Visual Impact Assessment consultant , in consultation with the Archaeological consultant, and further details of the results of this analysis are presented in Section 14.4.3 and Chapter 15. This monument comprises an approx. 0.8m high structure located within a pasture field in private ownership and, as is typical with this monument type, has a long axis on a NW-SW alignment with an entrance facing to the southwest, which is orientated away from the location of the energy park to the east. The field boundary to the east of the monument is tree-lined which screens its location from outside the field and it is not visible at ground level from the direction of the energy park. The existing structure, which was excavated in the 1950s, remains well-preserved within an informal setting in a pasture field and no visitor facilities or access features exist. There are no surface traces of a second wedge tomb (CO042-056002-) in the west corner of the same field which was recorded to have been levelled in the 19th century (Power *et al* 2000). The recorded location of a standing stone pair (CO042-057----) is within a field located approx. 300m to the east of Island wedge tomb and the two upright stones which formed this monument were levelled in the 1970s (*ibid.*).

The River Bride and a number of its small tributary streams flow in a generally southerly direction within low-lying lands located between proposed energy park development areas and no construction works or new crossings are proposed within these watercourses. There are no wide watercourses located within the environs of proposed energy park development areas and where narrow, shallow streamlets were noted within the forestry plantations they have been collected into modern earth-cut drains and are carried under the existing forest roads by modern pipe culverts.

Table 14-12 (below) provides a summary of the existing environment at the locations and environs of each proposed turbine, associated access routes, substations, met masts, compounds and borrow pits. The table also provides a summary of the character of each development area as shown on the historic OS maps as well as distances to the nearest recorded archaeological site and the results of a review of aerial and LiDAR imagery.

Table 14-12: Description of wind farm development areas with references to consulted desktop sources

Project Element	Townland	Turbine and access route	Approx. distance to nearest archaeological site	Historic OS Maps	Aerial and LiDAR images
Turbine 2	Tooreen South (Barretts By.)	Within forestry in generally level terrain. Access route extends 290m through forestry from an existing forest road to southwest	Holy well located adjacent to public road is 1.1km to southwest (CO042-081----)	Unenclosed, marginal vacant land.	Shown within forestry on 1995 OSI aerial image. No potential archaeological sites or built structures visible on LiDAR.
Turbine 3	Glashaboy North	Within area of partially harvested forestry in level terrain. Access route will extend for 120m through forestry from existing forest road to turbine location	Possible single burial located in forestry 0.96km to southwest (CO042-082----)	Unenclosed, marginal vacant land.	Shown within forestry on 1995 OSI aerial image. No potential archaeological sites or built structures visible on LiDAR.
Turbine 4	Coom (Fitzgerald)	Within margins of level area of forestry on west side of landfill facility. Access route will comprise a *c.*320m long offshoot from the existing forest road to west	Possible single burial located in forestry 1.12km to southwest (CO042-082----)	Unenclosed, marginal vacant land.	Shown within forestry on 1995 OSI aerial image. No potential archaeological sites or built structures visible on LiDAR.
Turbine 5	Coom (Fitzgerald)	Within level area of forestry to east of landfill facility. Access route will comprise a *c.*500m long offshoot from the existing landfill road to west side	Barrow located in pasture field is 1.9km to north (CO043-004----)	Unenclosed, marginal vacant land.	Shown within forestry on 1995 OSI aerial image. No potential archaeological sites or built structures visible on LiDAR.
Turbine 6	Coom (Hudson)	Within forestry in level area on north side of landfill site. Access route comprises a *c.*440m long offshoot through forestry from Turbine 5 to southwest	Barrow located in pasture field is 0.77km to north (CO043-004----)	Unenclosed, marginal vacant land.	Shown within forestry on 1995 OSI aerial image. No potential archaeological sites or built structures visible on LiDAR.
Turbine 7	Coom (Hudson)	Within forestry in level area. Access route will comprise a *c.*150m long offshoot through forestry from an existing forest road to east	Barrow located in pasture field is 0.44km to north (CO043-004----)	Unenclosed, marginal vacant land.	Shown within forestry on 1995 OSI aerial image. No potential archaeological sites or built structures visible on LiDAR.

Project Element	Townland	Turbine and access route	Approx. distance to nearest archaeological site	Historic OS Maps	Aerial and LiDAR images
Turbine 8	Knuttery	Within level area of forestry. Access route will comprise new offshoot extending *c.*420m through forestry from existing forest track to east	Levelled rectangular enclosure located 0.53km to northwest (CO043-003----)	Unenclosed, marginal vacant land.	Shown within forestry on 1995 OSI aerial image. No potential archaeological sites or built structures visible on LiDAR.
Turbine 9	Coom (Hudson)	Turbine base extends into slightly sloping pasture field at west and forestry at east. Access route will comprise a *c.*80m long offshoot extending through field from existing farm track to west	Barrow located 0.22km to southeast (CO043-004----)	Field at west is present on OS maps and area now in forestry is shown as part of marginal, unenclosed land	Existing layout visible on 1995 OSI aerial image. No potential archaeological sites or built structures noted on LiDAR.
Turbine 10	Coom (Hudson)	Within forestry in level terrain. Access route will comprise new offshoot extending for *c.*280m through forestry from an existing forest road to southwest	Fulacht fiadh located 0.31km to north (CO043-005----)	Unenclosed area of marginal land to east of fields	Shown within marginal field on 1995 OSI aerial image, forestry ploughing visible in 2000 and trees present in 2005. No potential archaeological sites or built structures visible on LiDAR
Turbine 11	Knuttery	Within level area of semi-improved pasture field. Access route will comprise a c570m long new section of road through the field from an existing forest road to south. No surface traces of a recorded barrow site (CO043-001----) located within forestry to north or potential unrecorded archaeological sites within the field were noted. The access route extends outside the west side of a levelled farmyard indicated on historic OS maps and the partial remains of a gable of a demolished building in a field	Levelled possible barrow 0.21km to northeast (CO043-001----)	Unenclosed area of marginal land with fields to west and south. Farmyard indicated to east of access route on 6-inch OS map has been levelled	Existing layout visible on 1995 OSI aerial image. No potential archaeological sites or built structures noted on LiDAR.

Project Element	Townland	Turbine and access route	Approx. distance to nearest archaeological site	Historic OS Maps	Aerial and LiDAR images
		boundary further to the east are the only extant remains			
Turbine 12	Knuttery	Within level area of forestry with section of east end of turbine base extending into pasture field. Access route follows existing forest road from east. No potential unrecorded archaeological sites were noted within pasture area	Levelled possible barrow 0.67km to north (CO043-001----)	Unenclosed area of marginal land with adjacent field present	Forestry ploughing visible on 1995 OSI aerial image and forestry thereafter. No potential archaeological sites or built structures noted on LiDAR.
Turbine 13	Mullenaboree	Within level area of harvested forestry. Access route will extend towards location from existing forest track *c.*80m to west. An approx. 600m long new section of road will be constructed from south end of existing forest road and will extend through plantation and marginal land to public road to south	Fulacht fiadh 0.76km to south (CO043-005----)	Unenclosed, marginal vacant land (including new section of road extending south)	Shown within forestry on 1995 OSI aerial image. No potential archaeological sites or built structures visible on LiDAR.
Turbine 14	Mullenaboree	Within level area of forestry. Access route follows existing forest road from west with a *c.*150m offshoot through forestry to turbine location	Fulacht fiadh located 0.61km to southwest (CO043-005----)	Unenclosed, marginal vacant land	Forestry ploughing visible on 1995 OSI aerial image and trees thereafter. No potential archaeological sites or built structures visible on LiDAR.
Turbine 15	Mullenaboree	Within level area of forestry. Access route follows existing forest road with *c.*80m long offshoot through forestry to turbine location	Levelled possible barrow 0.51km to west (CO043-001----)	Unenclosed, vacant area on 6-inch map with field boundary in area on 25-inch edition	No potential archaeological sites or built structures visible
Turbine 16	Mullenaboree	Within slightly sloping, south-facing area of forestry. Access route extends from existing forest road to south with *c.*380m long offshoot through forestry to turbine location	Levelled possible barrow 1km to west (CO043-001----)	Unenclosed, vacant area on 6-inch map and within large	No potential archaeological sites or built structures visible

Project Element	Townland	Turbine and access route	Approx. distance to nearest archaeological site	Historic OS Maps	Aerial and LiDAR images
				marginal field on 25-inch edition	
Turbine 17	Glannasack	Within slightly sloping, south-facing area of forestry. Access route extends from existing forest road to north with c.100m long offshoot through forestry to turbine location	Ringfort located 1.4km to southwest (CO043-008----)	Within area of irregular fields with small farm buildings *c.*90m to southeast (now under forestry)	No visible trace of former field boundaries. No potential archaeological sites or built structures visible
Turbine 18	Glannasack	Within slightly sloping, south-facing area of harvested forestry. Access route extends from north for *c.*430m through forestry to turbine location	Ringfort located 1.9km to southwest (CO043-008----)	Within an area occupied by rectangular fields and located 0.63m to southwest of Glannasack House (now farm)	Shown within forestry on 1995 OSI aerial image. No potential archaeological sites or built structures visible on LiDAR.
Turbine 19	Killeagh	Within slightly sloping, south-facing area of forestry. Access route extends for *c.*160m through forestry from forest road to west	Cairn located 1.7km to west (CO043-002----)	Unenclosed, vacant area on 6-inch map and within a large rough pasture field on 25-inch map. An associated farmyard is shown 0.6km to the northwest	Shown within forestry on 1995 OSI aerial image. No potential archaeological sites or built structures visible on LiDAR.
Turbine 20	Killeagh	Within forestry on south-facing slope. Access route from adjacent existing forest road on east side	Cairn located 1.6km to west (CO043-002----)	Unenclosed, vacant area	Shown within forestry on 1995 OSI aerial image. No potential archaeological sites or built structures visible on LiDAR.
Turbine 21	Knoppoge	Within forestry on south-facing slope. Access route extends through forestry for *c.*290m from Turbine 20 to east	Cairn located 1.2km to southwest (CO043-002----)	Unenclosed, vacant area	Shown within forestry on 1995 OSI aerial image. No potential archaeological sites or built structures visible on LiDAR.

Project Element	Townland	Turbine and access route	Approx. distance to nearest archaeological site	Historic OS Maps	Aerial and LiDAR images
Turbine 22	Knockdoorty	Within forestry on south-facing slope. Access route extends for *c.*220m through forestry from existing forest road to north	Cairn located 1.68km to northeast (CO034-054----)	Unenclosed, vacant area	No potential archaeological sites or built structures visible
Turbine 23	Knockdoorty	Within forestry on south-facing slope. Access route extends for *c.*220m through forestry from existing forest road to south and then curves for *c.*900m to northeast to location of temporary compound	Cairn located 1.3km to northeast (CO034-054----)	Area of fields on both OS maps with no structures present at turbine location. Small farm buildings shown *c.*220m to west	No visible trace of former field boundaries. No potential archaeological sites or built structures visible
Substation	Lackendarragh North	Within level area of forestry accessed via an existing forest track on east side	Cairn located 1.35km to north (CO034-054----)	Unenclosed, marginal vacant land	Shown within forestry on 2000 OSI aerial image. No potential archaeological sites or built structures visible on LiDAR.
Substation	Knockacullta	Within level area of forestry accessed via an existing forest track on east side	Levelled possible barrow 0.4km to southwest (CO043-001----)	Unenclosed, marginal vacant land	Forestry ploughing visible on 1995 OSI aerial image and trees thereafter. No potential archaeological sites or built structures visible on LiDAR.
Temporary Compound	Knockdoorty	Within slightly sloping area of forestry adjacent to south side of existing forest road	Cairn located 1.6km to northeast (CO034-054----)	Unenclosed, marginal vacant land	Within forestry on 1995 OSI aerial image. No potential archaeological sites or built structures visible on LiDAR.
Temporary Compound	Tooreen South	Within level area of forestry to south of landfill access road and area is accessed directly by existing forest road which extends along the south side of location	Possible single burial located in forestry 0.58km to southwest (CO042-082----)	Unenclosed, marginal vacant land with a farm track on south side now occupied by existing forest road. The location of a farm building shown on all	Shown within forestry on 1995 OSI aerial image. No potential archaeological sites or built structures visible on LiDAR.

Project Element	Townland	Turbine and access route	Approx. distance to nearest archaeological site	Historic OS Maps	Aerial and LiDAR images
				editions *c.*200m to the north is now occupied by the landfill road	
Temporary Compound and Borrow Pit	Lackendarragh North	Within area of partially excavated ground at entrance into forestry plantation from public road to south. Inspection of exposed cut section indicates presence of a shallow, peaty topsoil directly over natural subsoil	Cairn located 0.72km to northeast (CO034-054----)	Unenclosed, marginal vacant land with farm lane on the line of an existing forest track	Shown within forestry on 1995 OSI aerial image. No potential archaeological sites or built structures visible on LiDAR.
Borrow Pit	Mullenaboree	Within level area of forestry adjacent to west side of existing forest road	Levelled possible barrow 0.4km to west (CO043-001----)	Unenclosed, marginal vacant land	Within forestry on 1995 OSI aerial image. No potential archaeological sites or built structures visible on LiDAR.
Met Mast 1	Toreen South	Within level area of forestry adjacent to west side of existing forest road which forms the access to the location	Holy well located adjacent to public road is 0.8km to southwest (CO042-081----)	Unenclosed, marginal vacant land	Within forestry on 1995 OSI aerial image. No potential archaeological sites or built structures visible on LiDAR.
Met Mast 2	Knoppoge	Within forestry on south-facing slope. Access will be via an approx. 475m long track will extend through forestry from an existing farm road to southwest	Cairn located 1.25km to southwest (CO043-002----)	Unenclosed, marginal vacant land	Shown as vacant, marginal field until 2005 OSI image shows forestry at location. No potential archaeological sites or built structures visible on LiDAR

14.3.4.2 Grid Route Connection Route

The grid connection route extends eastwards from the proposed energy park along tarmac-covered, third-class local roads until it reaches the existing Barrymore substation located *c.*4km to the southeast of Fermoy town (Figure 14-10). The route does not extend through any settlement centres and the adjoining undulating farmlands are dominated by vacant pasture fields with dispersed 20th century detached houses flanking areas of the roadside. The existing road network that will carry the route is present on the 6-inch OS map apart from a section in Coolnakilla townland which is shown on the 25-inch OS map, indicating a late 19th century date for its construction in this area.

There is one existing recorded archaeological site located within the 100m wide corridor centred on the grid connection route and this comprises a levelled enclosure (CO035-042----) within a forestry plantation in Glanakip townland (Figure 14-10). Its recorded location is 30m to the east of the section of road that will carry the cable and no visible surface traces of the enclosure were observed during the inspection. There were no potential unrecorded archaeological sites noted during the inspection of the road margins. There are no designated architectural heritage structures located within the 100m study area centred on the grid route connection and it does not extend into any Architectural Conservation Areas.

The existing road bridges along the grid connection route comprise single-arched road bridges with roughly dressed voussoirs and low random rubble stone parapets, some of which display sections of modern repair or replacement. While none of the bridges are listed in the RPS or NIAH for County Cork, they are interpreted as being of low architectural heritage significance. The proposed crossing methodology at the watercourse crossings will entail inserting the cable into the road material over the bridge structure with the option of directional drilling under the structures, and channels, where there is insufficient depth of material. No interventions to the masonry that forms the bridge structures or the watercourses are proposed. The environs of all watercourse crossings were inspected, and no surface traces of potential unrecorded archaeological sites or architectural heritage features other than the road bridges were noted.

14.3.4.3 Turbine Delivery Routes

As noted in Section 14.3.3.3, the Sites and Monuments Record (SMR), Record of Protected Structures (RPS) and National Inventory of Architectural Heritage (NIAH) record various archaeological sites and designated architectural structures within lands adjacent to the relevant sections of the road network that will form the two delivery routes and no impacts on these cultural heritage assets are predicted by the use of the existing roads.

The proposed western route will follow the existing road network through an area of modern suburbs on the north side of Cork city and then along the N20 before diverting to the Bottlehill landfill area. There are no Architectural Conservation Areas (ACAs) along this route and no interventions to any recorded archaeological sites or designated architectural heritage structures will occur. No unrecorded examples were noted along the road margins during the inspection of the route.

The proposed eastern delivery route extends north along the M8 and diverts to the west to the north of Fermoy where it then continues through the town centre before extending westwards along the N72. The SMR lists a number of archaeological sites within the road-take of the section of the M8 that forms part of the route. These comprise sites that were discovered and resolved through systematic archaeological excavations prior to the construction of the road and no longer exist at their recorded locations. The Fermoy Town Local Area Plan 2009 designates an ACA around the town centre and contains various structures listed in the SMR, RPS and NIAH. The proposed transport of turbines will not result in any impacts on any of these cultural heritage assets or any other structures of cultural significance within the town.

The east end of the section of the N72 between Fermoy and Ballyhooly extends along the north side of the grounds of Castlehyde House (PS 00300) and, while the house is set back from the road in the lands to the south, the roadside contains two associated Protected Structures: the East Lodge (PS 01380) and the estate entranceway (PS 01383). The roadside boundary wall extending along the length of the estate also forms a curtilage feature associated with the house. The proposed turbine delivery will not impact on any of these structures or any features associated with Cregg House, an adjoining country house estate to the west which is also a Protected Structure (PS 00299).

The proposed delivery route then diverts to the southwest as it nears the outskirts of Ballyhooly village and does not extend into the ACA around this settlement. The route follows a local road extending outside the east edge of the ACA and contains two bridges that, while not included in the SMR or RPS, are listed in the NIAH (refs. 20903423 and 20903424). The route also extends in the vicinity of the Ballyhooly Lodge to the south of the bridges and this is also listed in the NIAH (20903425). The proposed transport of the turbines through this area will not require any interventions to these structures. A proposed turning-head in Glashaboy South townland to the south of the proposed energy park will be located within a forestry plantation on the south side of the public road. There are no recorded archaeological sites or designated architectural structures within the location. The nearest archaeological sites comprise an extant standing stone (CO051-166----) and the recorded location of an ogham stone (CO051-039----) within fields on the opposite (north) side of this section of roadway (Table 14-11).

Both routes will require localised areas of widening works along the margins of the existing road network, including areas along the margins of the N72 extending west from Fermoy. These locations were reviewed and inspected as part of the assessment and no interventions to any recorded archaeological sites or designated architectural heritage structures within the environs of the works will occur. No potential unrecorded archaeological sites or structures of architectural heritage significance were identified in these areas during the assessment.

14.4 Potential Impacts

The following sections present assessments of potential impacts on identified cultural heritage assets within the environs of the various elements of the proposed development and these are then collated in table format (Tables 14-13 to 14-16). The values assigned to the various assets are identified in these tables were determined based on the results of the desktop study and sites inspections and follow the guidelines outlined in Table 14-1 (Section 14.2.3).

14.4.1 Do Nothing Scenario

A ‘Do Nothing Scenario’ will see to the continued preservation of recorded and potential cultural heritage features within the study area.

14.4.2 Construction Phase

Energy Park Direct Impacts
There are no recorded archaeological sites located on the footprint of the proposed energy park and no potential unrecorded archaeological sites, including any previously unrecorded sections of the Claidh Dubh route, were identified within this area during the desktop study and field inspections carried out as part of this assessment. The proposed energy park will, therefore, have no predicted direct impacts on the known archaeological resource.

The forestry plantations that occupy the majority of the proposed energy park have resulted in extensive ground disturbance which has the potential to remove or severely degrade archaeological sites and associated sub-surface deposits (Johnson 1998). It is noted that nothing of archaeological significance was identified during archaeological monitoring of ground works within the forestry that formerly occupied the existing Bottlehill landfill facility which is adjacent to the southwest end of the proposed energy park (Lehane and Richardson 2005). While there is a low potential for the presence of unrecorded, archaeological sites within the forestry plantations, the survival of elements of unrecorded archaeological remains cannot be completely discounted. As the existence, nature and extent of any such unrecorded archaeological remains are unknown; the level of potential impacts is indeterminable but ground works during the construction phase will have the potential to result in permanent, direct, negative effects on any unrecorded archaeological sites that may exist within the footprint of the development.

There were no designated or undesignated architectural heritage structures or other features of cultural heritage significance, such as extant townland boundaries, identified within the proposed energy park development area, the majority of which is depicted as unenclosed, vacant heathland on the consulted historic OS map sources.

Energy Park Indirect Impacts

There are no recorded archaeological sites located within 215m of the proposed energy park and of the seven recorded sites within the surrounding 1km study area only one has any visible surviving surface traces (Barrow CO043-004----). This is located *c.*240m from the nearest element of the proposed energy park (Turbine 9). None of these sites are located in the vicinity of access routes to the proposed construction areas, or ancillary borrow pits and temporary compounds, and no indirect impacts to the known archaeological resource are predicted during the construction phase.

Grid Route Connection Direct Impacts

There are no recorded archaeological sites or designated architectural heritage structures located on the footprint of the grid connection route and it does not extend into any historical villages or towns. The proposed grid connection will, therefore, result in no impacts to known elements of these resources. A number of undesignated stone masonry bridges, of potential early 19th century date, were identified along the public road network that forms the grid connection route. While these are not listed in the NIAH or RPS they are interpreted as being of low architectural heritage significance. The grid connection works will not require any interventions to the masonry that forms the bridge structures or their associated watercourses and will result in no predicted impacts on these assets.

Grid Route Connection Indirect Impacts

There is one existing recorded archaeological site within the 100m wide study area centred on the proposed grid connection route and this comprises a levelled enclosure (CO035-042----) in Glanakip townland. The recorded location of this site is within a forestry plantation adjoining the public roadway and its nearest enclosing element, as shown on the 6-inch OS map, was c.30m to the east of the section of road that will carry the grid connection route. No visible surface traces of this enclosure were identified during the site inspection and no indirect impacts are predicted during the construction phase. There are no designated architectural heritage structures or Architectural Conservation Areas located within the 100m study area centred on the route and the grid connection will have no indirect impacts on the architectural heritage resource.

Turbine Delivery Route Direct Impacts

The delivery of the turbines to the proposed energy park will not require the construction of any new sections of road or bridges and will not require any interventions to any recorded archaeological sites or designated architectural heritage structures or conservation areas.

This element of the proposed development will, therefore, result in no impacts on the known cultural heritage resource. The delivery of turbines to the proposed energy park will require localised widening works in green field road margins that will include ground excavations that may reveal unrecorded, sub-surface archaeological features in such locations.

Turbine Delivery Route Indirect Impacts
The use of public roads to transport the turbines will not result in any predicted indirect impacts on the cultural heritage resource.

14.4.3 Operational Impacts

Energy Park Direct Impacts
The operational phase of the proposed development will result in no predicted direct impacts on the known archaeological, architectural and cultural heritage resources. The successful implementation of the construction phase mitigation measures outlined in Section 14.5 will result in the preservation *in situ*, by avoidance, or the preservation in record, by archaeological excavation, of any unrecorded, sub-surface archaeological sites or features that may exist within proposed development areas. There will, therefore, be no predicted direct impacts on any such potential unrecorded archaeological sites during the operational phase.

Energy Park Indirect Impacts
There are seven recorded archaeological sites located within 1km of the proposed wind farm development and, of these, none are located within 170m of proposed development areas and only one has any surviving surface expression (Barrow CO043-004----). This barrow site is located within a pasture field outside the proposed energy park and is c.240m from the nearest turbine (Turbine 9). The field is surrounded by forestry in all directions which screen the site's location and no indirect impacts on its setting are predicted during the operational phase. The potential for indirect impacts on the setting of the barrow in the event of future felling of the screening treelines is addressed below as a potential cumulative impact (Section 14.4.5).

The recorded archaeological resource within an area extending for 5km from the proposed development was assessed to determine the presence of National Monuments and other monuments that may have potential visual alignments across the wider landscape. There is one National Monument in State Guardianship (Island wedge tomb) located within this 5km study area, at a distance of 2.3km to the west of Turbine 2, and further details on this monument are presented in Section 14.3.3.1. The orientation of the long axis of this monument (NE-SW) does not intersect with any element of the proposed energy park and this alignment will not be impinged upon by the proposed energy park. The monument, which is not in state ownership, comprises a low stone structure (*c.*0.8m high) located within a pasture field in private farm property and is infrequently visited. Following the consultations undertaken between the present writers and the Landscape and Visual Impact Assessment consultant during the assessment process, this monument was subject to a visual analysis assessment (Chapter 15). The photomontages from its location were then subject to a combined review which determined that the blade set of one turbine and the partial and filtered view of blades from two further turbines will be visible from the monument through a gap in foreground vegetation to the east. The most exposed turbine is visible at a noticeable scale to the east on the consulted photomontages but does not impose on the foreground context of the monument or its immediate setting. The blades form a background feature in terms of both scale and landscape context and do not impinge on the setting of the monument and, as noted above, their location to the east does not impinge on views extending on the NE-SW alignment created by its long axis. The magnitude of visual impact on this monument created by the blades located 2.3km to the east is, therefore, deemed to be low and with a predicted slight, long term, negative significance of visual impact.

The assessment of visual impacts undertaken by the Landscape and Visual Impact Assessment consultant within the wider region included a number of cultural heritage receptors which are identified in Chapter 15.

The assessment of the sensitivities and impacts on the cultural heritage receptors presented in that chapter were determined in consultation with the Archaeologist and included a review of photomontages prepared for these receptors. No significant visual impacts were identified and, as detailed in Chapter 15, they range from imperceptible to moderate in significance.

There are a number of cairn sites located on surrounding forested hillsides outside the proposed energy park that may have had potential visual alignments with one another prior to the development of the plantations. The majority of these cairns are inaccessible due to thick tree growth, which precluded site inspections or the preparation of photomontages from their locations, and their existing condition could not be ascertained. Their recorded locations were assessed from surrounding lands outside the plantations and no visible traces of any examples, or associated protrusions within the treelines, were noted. The presence of the forestry plantations at the majority of their locations, therefore, currently removes any views to or from these sites and has also had the potential to create severe negative direct impacts on their surface remains. There is one accessible cairn (CO034-054----) located within the margin of a forestry plantation approx. 1.3km to the north of the proposed energy park and an inspection of its location revealed that its overgrown remains are screened by surrounding trees. The forested nature of the surrounding landscape has, therefore, currently removed any potential visual relationship between the cairns as well as views across the wider landscape from their locations. No felling works associated with the proposed energy park will be undertaken at their locations and no turbines will be constructed within lands between the recorded locations of the examples within the forested ridgeline extending to the west of the north end of the energy park. The proposed energy park will, therefore, have no predicted indirect impacts on the existing settings of the cairn sites during the operational phase. The potential for indirect impacts on the setting of the cairn sites within the surrounding plantations in the event of future felling of the screening tree cover is addressed below as a potential cumulative impact (Section 14.4.5). No traces of a potential unrecorded section of the Claidh Dubh routeway (CO018-001----), which terminates in forestry approx. 2km to the north of the nearest element of the proposed energy park (Turbine 23), were noted within the environs of the proposed energy park during the desktop study or site inspection. The low earthen bank that marks its known location 2km to the north is within a forestry plantation which, in combination with the natural topography noted in the area, screens it from the proposed energy park and no indirect impacts to the setting of this low set feature are predicted during the operational phase.

Grid Connection Route
The grid connection will comprise a buried cable within the existing road network and will result in no predicted direct or indirect impacts on the cultural heritage resource during the operational phase.

Turbine Delivery Route
No impacts relating to the turbine delivery route will arise during the operational phase.

14.4.4 Decommissioning Phase

No direct impacts on known elements of the cultural heritage resource are predicted during the decommissioning phase while the removal of the turbines will reverse the slight, indirect, negative impact on the setting of Island wedge tomb (National Monument no. 502) located 2.3km to the west of the energy park as well as the slight to moderate visual impacts on other cultural heritage receptors within the wider landscape which are identified in Chapter 15. As noted above (Section 14.4.3), the assessment of visual impacts on those cultural heritage receptors were determined through a process of consultation between the Landscape and Visual Impact Assessment and the Archaeological consultants.

14.4.5 Cumulative Impacts

A review of a number of developments within the environs of the proposed development as well as within the wider landscape was undertaken in order to assess the potential for cumulative impacts on the cultural heritage resource.

The locations of the proposed replant lands in Moneygorm, Co. Cork, which is in proximity to the north end of the proposed energy park, and in Ballard, Co. Wicklow were reviewed as part of the assessment and the results are provided in the Environmental Assessment of these lands (Appendix 3.3). In summary, there are no recorded archaeological, architectural or cultural heritage assets located within the greenfield Moneygorm lands and a program of advance archaeological investigations will be carried out in this area prior to planting works. The recorded location of a levelled archaeological site (Enclosure WI034-006----) is situated within the previously planted Ballard lands. The location of this enclosure, including its surrounding Zone of Notification, will be avoided and it will be preserved in situ within a cordoned off area during the proposed replanting works. All required ground excavations within other areas of this previously planted landholding will be subject to archaeological monitoring during the replant works. It is, therefore, concluded that following mitigation that the proposed replanting works in Moneygorm and Ballard will not result in any predicted cumulative impacts on the cultural heritage resource in combination with other elements of the proposed development.

The development of the existing landfill facility adjacent to the proposed energy park area did not impact on any recorded archaeological sites or architectural heritage structures and no unrecorded examples were uncovered during archaeological supervision of ground works during the construction phase of that development (Lehane and Richardson 2005). The proposed development will not result in any predicted cumulative impacts on the cultural heritage resource in combination with the landfill development.

The widespread forestry plantations within the wider landscape around the proposed energy park contain the recorded locations of archaeological sites that are in unknown states of preservation. Any future tree felling as part of the commercial forestry operations within the wider environs of the energy park will have the potential to remove the screening effect of the plantation and potentially result in the proposed energy park development having slight, indirect, long term, negative cumulative impacts on the setting of such sites. Any felling works within the Zones of Notification around the recorded archaeological sites within the surrounding plantations or in their margins as part of the commercial plantation operations will require the submission of advance notification to the National Monuments Service who will likely require the preparation of an archaeological impact assessment of such proposed works, to include an assessment of impacts on their settings and mitigation measures for the felling works.

The location of a single consented wind turbine in Moneygorm townland, which remains to be constructed, is within the environs of the north end of the proposed energy park (Cork County Council ref. 11/06168). There are no recorded archaeological sites or designated architectural heritage structures within 1km of the proposed location of this structure or its access route which will extend from the public road to the north. The grant of planning for this development issued by An Bord Pleanála (ref. PL04.241037) includes a condition (No. 15) requiring the developer to employ a suitably qualified archaeologist who shall monitor all site investigations and other excavation works. The construction of this single turbine will not result in any predicted cumulative impacts on the cultural heritage resource in combination with the proposed energy park development.

Table 14-13: Summary of construction phase impacts on cultural heritage sites within energy park study area

Monument No.	Class	Distance from development	Value of Asset	Type of Impact	Quality of impact	Magnitude of impact	Duration	Significance of Impact
CO043-001----	Ring barrow (levelled)	215m northeast of Turbine 11	Low/Medium	None predicted	Neutral	n/a	n/a	None
CO043-003----	Enclosure (Levelled)	540m northwest of Turbine 8	Low/Medium	None predicted	Neutral	n/a	n/a	None
CO042-082----	Burial (In forestry)	580m southwest of temporary compound	Low/Medium	None predicted	Neutral	n/a	n/a	None
CO043-004----	Ring barrow (Extant)	240m to southeast of Turbine 9	Medium	None predicted	Neutral	n/a	n/a	None
CO043-005----	Fulacht Fia (In forestry)	310m northwest of Turbine 10	Medium	None predicted	Neutral	n/a	n/a	None
CO042-083----	Fulacht fia (Levelled)	660m southwest of temporary compound	Low/Medium	None predicted	Neutral	n/a	n/a	None
CO043-022----	Burnt mound (levelled)	910m east of Turbine 14	Low/Medium	None predicted	Neutral	n/a	n/a	None

Table 14-14: Summary of operation phase impacts on cultural heritage sites within energy park study area

Monument No.	Class	Distance from development	Value of Asset	Type of Impact	Quality of impact	Magnitude of impact	Duration	Significance of Impact
CO043-001----	Ring barrow (levelled)	215m northeast of Turbine 11	Low/Medium	None predicted	Neutral	n/a	n/a	None
CO043-003----	Enclosure (Levelled)	540m northwest of Turbine 8	Low/Medium	None predicted	Neutral	n/a	n/a	None
CO042-082----	Burial (In forestry)	580m southwest of temporary compound	Low/Medium	None predicted	Neutral	n/a	n/a	None
CO043-004----	Ring barrow (Extant)	240m to southeast of Turbine 9	Medium	None predicted	Neutral	n/a	n/a	None
CO043-005----	Fulacht Fia (In forestry)	310m northwest of Turbine 10	Medium	None predicted	Neutral	n/a	n/a	None
CO042-083----	Fulacht fia (Levelled)	660m southwest of temporary compound	Low/Medium	None predicted	Neutral	n/a	n/a	None
CO043-022----	Burnt mound (levelled)	910m east of Turbine 14	Low/Medium	None predicted	Neutral	n/a	n/a	None

Table 14-15: Summary of operational phase impacts on National Monuments within 5km of proposed energy park

Monument No.	Name	Distance from development	Value of Asset	Type of Impact	Quality of impact	Magnitude of impact	Duration of impact	Significance of Impact
Nat. Mon. 502 RMP CO042-056001-	Island Wedge Tomb	2.3km to west of Turbine 2	High	Indirect	Negative	Low	Long term	Slight

Table 14-16: Summary of construction phase impacts within grid route connection study area

Monument No.	Class	Distance from development	Value of Asset	Type of Impact	Quality of impact	Magnitude of impact	Duration of impact	Significance of Impact
CO035-042----	Enclosure	30m east of grid connection route	Low/Medium	None predicted	Neutral	n/a	n/a	None
None	Masonry bridge structures on grid connection route	0m	Low	None predicted	Neutral	n/a	n/a	None

Table 14-17: Summary of turbine delivery turning-head impacts (construction and operation)

Monument No.	Class	Distance from development	Value of Asset	Type of Impact	Quality of impact	Magnitude of impact	Duration of impact	Significance of Impact
CO051-039----	Ogham stone	140m to north	Low/Medium	None predicted	Neutral	n/a	n/a	None
CO051-166----	Standing stone	200m to north	Medium	None predicted	Neutral	n/a	n/a	None

14.5 Mitigation Measures

Energy Park

The extensive forestry plantation that dominates the lands within the proposed energy park will preclude advance archaeological site investigations such as geophysical survey and test trenching. A systematic advance programme of archaeological site inspections will be undertaken within all development areas following pre-construction tree felling to assess whether there are any surface traces of any potential unrecorded archaeological or architectural heritage sites within the forestry plantations. Archaeological monitoring of ground excavation works during the construction phase will then be carried out under licence by the National Monument Service. In the event that any archaeological sites are identified during these site investigations they will be recorded and cordoned off while the National Monuments Service are consulted to determine further appropriate mitigation measures, which may include preservation by avoidance or preservation by record through a systematic archaeological excavation.

The operational phase of the proposed energy park will result in a slight, indirect, long term, negative impact on the setting of Island wedge tomb, a National Monument in State Guardianship (ref. 502) located 2.3km from the proposed energy park. A number of slight to moderate visual impacts on other cultural heritage receptors within the wider region have also been identified by the Landscape and Visual Impact Assessment consultants following consultation with the Archaeologist and these are presented in Chapter 15. No mitigation measures have been identified which will ameliorate these visual impacts but they will be reversible during the decommissioning phase.

Grid Connection

A programme of licensed archaeological monitoring of all ground excavation works within the section of road to the west of the recorded location of the levelled Enclosure (CO035-042----) in Glanakip townland and within green field areas at joint bay locations will be undertaken during the construction phase. Trenching works within the road material over the masonry bridges along the route will also be subject to archaeological monitoring. An archaeological watching brief of ground excavation works will be maintained for the remainder of the grid connection route and the extent of this supervision will be agreed in advance with the National Monuments Service as part of the licence application process.

Turbine Delivery Route

The delivery of turbines to the proposed energy park will require localised widening works in green field road margins that will include ground excavations that may reveal unrecorded, sub-surface archaeological features and works in such locations will be subject to archaeological monitoring. These works will not result in any interventions to any structures of architectural heritage significance and there are, therefore, no mitigation measures required for this element of the cultural heritage resource.

Monitoring of mitigation measures

There a number of obligatory processes to be undertaken as part of archaeological licence applications and these will allow for monitoring of the successful implementation of the archaeological mitigation measures. Method statements detailing the proposed strategy for all site investigations will submitted for approval to the National Monuments Service as part of the licence application. These will clearly outline the proposed extent of works and outline the onsite and consultation processes to be enacted in the event that any unrecorded archaeological sites or features are identified. A report will be compiled on all site investigations which will clearly present the results in written, drawn and photographic formats and copies will be submitted to the National Monuments Service, the Planning Authority and the National Museum of Ireland.

14.6 Residual Impacts

The mitigation measures presented in Section 14.5 will provide for either the avoidance of the unrecorded archaeological resource or the proper and adequate recording of this resource. The grid connection and turbine delivery routes will not result in any residual impacts on the cultural heritage resource. The proposed energy park will result in a slight, indirect, long term, negative residual impact on Island wedge tomb, a National Monument in State Guardianship located 2.3km to the west of the nearest element of the energy park (Turbine 2). It will also result in slight to moderate, negative residual visual impacts on a number of cultural heritage receptors within the wider landscape which were assessed by the Landscape and Visual Impact Assessment consultant in consultation with the Archaeologist and these are identified in Chapter 15. These visual impacts will be reversible during the decommissioning phase of the proposed energy park.

No residual impacts on the architectural heritage and undesignated cultural heritage resources are predicted to arise following decommissioning of the energy park. No residual impacts on the architectural heritage and undesignated cultural heritage resources are predicted to arise from the grid connection route or turbine delivery route at any stage of the development.

14.7 References

Publications

Buckley, J. 1911. 'The Fight of Bottle Hill, 1691' *Journal of the Cork Historical and Archaeological Society* XVII (1911), 64-5

Coyne, F. 2006 *Islands in the clouds: an upland archaeological study on Mount Brandon and the Paps, Co. Kerry*. Kerry.

Daly, A. and Grogan, E. 1993. *Excavation of Four Barrows in Mitchelstowndown West, Knocklong, County Limerick*, Discovery Programme Reports 1, 44-60.

Doody, M. 1993 'Castleblagh and Ballydague: Licence 93E0122'. www.excavations.ie

Johnson, G. 1998. *Archaeology and Forestry in Ireland*. The Heritage Council

O'Kelly, M.J. 1958. 'A wedge-shaped gallery grave at Island, Co. Cork', *Journal of the Royal Society of Antiquaries of Ireland* **88**, 1-23.

Lehane, J. and Richardson, A. 2005 'Glashaboy, Coom (Hudson), Coom (Fitzgerald) and Tooreen South: Licence 05E0508'. www.excavations.ie

Lewis, S. 1837. *Topographical Dictionary of Ireland*. 2 Volumes, Lewis & Company, London

Power. D. *et al*. 2000. *Archaeological Inventory of Co. Cork. Vol. 4. North Cork (Parts 1 & 2)*. Stationary Office, Dublin.

Waddell, J. 1998. *The Prehistoric Archaeology of Ireland*. Galway: Galway University Press.

Consulted online sources

http://gis.teagasc.ie/soils/map.php (Soils)

http://map.geohive.ie/mapviewer.html (Geology)

http://maps.osi.ie/publicviewer/#V2,591271,743300,1,10 (Historic maps)

http://downsurvey.tcd.ie/down-survey-maps.php (Down Survey)

http://spatial.dcenr.gov.ie/imf/imf.jsp?site=GSI_Simple (Bedrock)

www.archaeology.ie (SMR and NIAH)

www.excavations.ie (Archaeological investigations)

www.logainm.ie (Placenames)

www.heritagemaps.ie/WebApps/HeritageMaps/index.html (Various heritage datasets)

www.duchas.ie (Irish National Folklore Collection)