12. ARCHAEOLOGY AND CULTURAL HERITAGE

12.1 Introduction

This archaeological, architectural, and cultural heritage chapter was prepared by Tobar Archaeological Services. It presents the results of an archaeological, architectural and cultural heritage impact assessment for the Cleanrath wind farm development. The development area predominantly comprises upland terrain some of which is planted with coniferous forestry.

The purpose of this chapter is to assess the potential direct and indirect effects of the Cleanrath wind farm development on the surrounding archaeological, architectural and cultural heritage landscape. The assessment is based on both a desktop review of the available cultural heritage and archaeological data, a comprehensive programme of field walking of the study area undertaken prior to the construction of the Cleanrath wind farm development, a programme of pre-development archaeological testing as well as on-site archaeological monitoring of ground works during the construction phase of the project. An assessment of potential effects, including cumulative effects, is presented. The visual effect of the development on the recorded archaeological, architectural and cultural heritage resource is also assessed.

12.1.1 The Development

The Cleanrath wind farm development comprises 9 wind turbines with an overall blade tip height of 150 metres, all associated hardstands, upgrade of existing and provision of new site roads, 1 no. borrow pit, the area used as a temporary construction compound and all associated underground cabling connecting the turbines to the existing electricity substation in the townland of Rathgaskig and connecting to the existing ESB Networks substation in the townland of Grousemount, Co. Kerry.

A full description of the development is provided in Chapter 4.

12.1.2 Statement of Authority

This chapter of the rEIAR has been prepared by Miriam Carroll and Annette Quinn of Tobar Archaeological Services. Miriam and Annette both graduated from University College Cork in 1998 with a Masters degree in Methods and Techniques in Irish Archaeology. Both are licensed by the Department of Culture, Heritage and the Gaeltacht to carry out excavations and are members of the Institute of Archaeologists of Ireland. Annette Quinn and Miriam Carroll have been working in the field of archaeology since 1994 and have undertaken numerous projects for both the private and public sectors including excavations, site assessments (EIAR) and surveys. Miriam Carroll and Annette Quinn are directors of Tobar Archaeological Services which has been in operation for 17 years.

12.1.3 Legislation and Guidelines

The chapter has been prepared in compliance with all relevant EIA legislation and guidance (see Chapter 1: Introduction for relevant guidance and legislation).

12.1.3.1 Current Legislation

Archaeological monuments are safeguarded through national and international policy, which is designed to secure the protection of the cultural heritage resource. This is undertaken in accordance

with the provisions of the European Convention on the Protection of the Archaeological Heritage (Valletta Convention). This was ratified by Ireland in 1997.

Both the National Monuments Acts 1930 to 2004 and relevant provisions of the Cultural Institutions Act 1997 are the primary means of ensuring protection of archaeological monuments, the latter of which includes all man-made structures of whatever form or date. There are a number of provisions under the National Monuments Acts which ensure protection of the archaeological resource. These include the Register of Historic Monuments (1997 Act) which means that any interference to a monument is illegal under that Act. All registered monuments are included on the Record of Monuments and Places (RMP).

The Record of Monuments and Places (RMP) was established under Section 12 (1) of the National Monuments (Amendment) Act 1994 and consists of a list of known archaeological monuments and accompanying maps. The Record of Monuments and Places affords some protection to the monuments entered therein. Section 12 (3) of the 1994 Amendment Act states that any person proposing to carry out work at or in relation to a recorded monument must give notice in writing to the Minister (Environment, Heritage and Local Government) and shall not commence the work for a period of two months after having given the notice. All works, therefore, within or around any archaeological monument are subject to statutory protection and legislation (National Monuments Acts 1930-2004).

The term 'national monument' as defined in Section 2 of the National Monuments Act 1930 means 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'*. National monuments in State care include those which are in the ownership or guardianship of the Minister for Arts, Heritage and the Gaeltacht. Section 5 of the National Monuments Act (1930) allows owners of other national monuments to appoint the Minister for the Arts, Heritage and the Gaeltacht or the relevant local authority as guardian of such monuments, subject to their consent. This means in effect that while the property of such a monument remains vested in the owner, its maintenance and upkeep are the responsibility of the State. Some monuments are also protected by Preservation Orders and are also regarded as National Monuments. National Monuments also includes (but not so as to limit, extend or otherwise influence the construction of the foregoing general definition) every monument in Saorstát Éireann to which the Ancient Monuments Protection Act, 1882, applied immediately before the passing of this Act, and the said expression shall be construed as including, in addition to the monument itself, the site of the monument and the means of access thereto and also such portion of land adjoining such site as may be required to fence, cover in, or otherwise preserve from injury the monument or to preserve the amenities thereof.

Under the Heritage Act (1995) architectural heritage is defined to include *'all structures, buildings, traditional and designed, and groups of buildings including street-scapes and urban vistas, which are of historical, archaeological, artistic, engineering, scientific, social or technical interest, together with their setting, attendant grounds, fixtures, fittings and contents...'*. A heritage building is also defined to include *'any building, or part thereof, which is of significance because of its intrinsic architectural or artistic quality or its setting or because of its association with the commercial, cultural, economic, industrial, military, political, social or religious history of the place where it is situated or of the country or generally'*.

12.1.3.1.1 Granada Convention

The Council of Europe, in Article 2 of the 1985 Convention for the Protection of the Architectural Heritage of Europe (Granada Convention), states that *'for the purpose of precise identification of the monuments, groups of structures and sites to be protected, each member State will undertake to maintain inventories of that architectural heritage'*. The Granada Convention emphasises the importance of inventories in underpinning conservation policies.

The NIAH was established in 1990 to fulfill Ireland's obligations under the Granada Convention, through the establishment and maintenance of a central record, documenting and evaluating the

architectural heritage of Ireland. Article 1 of the Granada Convention establishes the parameters of this work by defining 'architectural heritage' under three broad categories of Monument, Groups of Buildings, and Sites:

- Monument: all buildings and structures of conspicuous historical, archaeological, artistic, scientific, social or technical interest, including their fixtures and fittings;
- Group of buildings: homogeneous groups of urban or rural buildings conspicuous for their historical, archaeological, artistic, scientific, social or technical interest, which are sufficiently coherent to form topographically definable units;
- Sites: the combined works of man and nature, being areas which are partially built upon and sufficiently distinctive and homogenous to be topographically definable, and are of conspicuous historical, archaeological, artistic, scientific, social or technical interest.

The Council of Europe's definition of architectural heritage allows for the inclusion of structures, groups of structures and sites which are considered to be of significance in their own right, or which are of significance in their local context and environment. The NIAH believes it is important to consider the architectural heritage as encompassing a wide variety of structures and sites as diverse as post boxes, grand country houses, mill complexes and vernacular farmhouses.

12.1.3.2 Cork County Development Plan 2015-2020

The Cork County Development Plan 2015 outlines a number of objectives relating to archaeology as follows.

12.1.3.2.1 *HE 3-1: Protection of Archaeological Sites*

a) Safeguard sites and settings, features and objects of archaeological interest generally.

b) Secure the preservation (i.e. preservation in situ or in exceptional cases preservation by record) of all archaeological monuments including the Sites and Monuments Record (SMR) (see www.archeology.ie) and the Record or Monuments and Places as established under Section 12 of the National Monuments (Amendment) Act, 1994, as amended and of sites, features and objects of archaeological and historical interest generally.

In securing such preservation, the planning authority will have regard to the advice and recommendations of the Department of Arts, Heritage and Gaeltacht as outlined in the Frameworks and Principles for the Protection of the Archaeological Heritage.

12.1.3.2.2 *HE 3-2: Underwater Archaeology*

Protect and preserve the archaeological value of underwater archaeological sites and associated features. In assessing proposals for development, the Council will take account of the potential underwater archaeology of rivers, lakes, intertidal and subtidal environments.

12.1.3.2.3 *HE 3-3: Zones of Archaeological Potential*

Protect the Zones of Archaeological Potential (ZAPs) located within historic towns and other urban areas and around archaeological monuments generally. Any development within the ZAPs will need to take cognisance of the potential for subsurface archaeology and if archaeology is demonstrated to be present appropriate mitigation (such as preservation in situ/buffer zones) will be required.

12.1.3.2.4 HE 3-4 Industrial and Post Medieval Archaeology

Protect and preserve the archaeological value of industrial and post medieval archaeology such as mills, limekilns, bridges, piers, harbours, penal chapels and dwellings. Proposals for refurbishment, works to or redevelopment/conversion of these sites should be subject to careful assessment.

12.1.3.2.5 HE 3-5 Burial Grounds

Protect all historical burial grounds in County Cork and encourage their maintenance and care in accordance with appropriate conservation principles.

12.1.3.2.6 HE 3-6: Archaeology and Infrastructure Schemes

Have regard to archaeological concerns when considering proposed service schemes (including electricity, sewerage, telecommunications, water supply) and proposed roadwork's (both realignments and new roads) located in close proximity to Recorded Monuments and Places and their known archaeological monuments.

The CDP also outlines objectives relating to built heritage such as Protected Structures and those listed in the NIAH.

12.1.3.2.7 HE 4-1: Record of Protected Structures

a) The identification of structures for inclusion in the Record will be based on criteria set out in the Architectural Heritage Protection Guidelines for Planning Authorities (2005).

b) Extend the Record of Protected Structures in order to provide a comprehensive schedule for the protection of structures of special importance in the County during the lifetime of the plan.

c) Seek the protection of all structures within the County, which are of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest. In accordance with this objective, a Record of Protected Structures has been established and is set out in Volume 2, Chapter 1 of the Plan.

d) Ensure the protection of all structures (or parts of structures) contained in the Record of Protected Structures.

e) Protect the curtilage and attendant grounds of all structures included in the Record of Protected Structures.

f) Ensure that development proposals are appropriate in terms of architectural treatment, character, scale and form to the existing protected structure and not detrimental to the special character and integrity of the protected structure and its setting.

g) Ensure high quality architectural design of all new developments relating to or which may impact on structures (and their settings) included in the Record of Protected Structures.

h) Promote and ensure best conservation practice through the use of specialist conservation professionals and craft persons.

12.1.3.2.8 HE 4-2: Protection of Structures on the NIAH

Give regard to and consideration of all structures which are included in the NIAH for County Cork, which are not currently included in the Record of Protected Structures, in development management functions.

12.1.3.2.9 HE 4-3: Protection of Non- Structural Elements of Built Heritage

Protect important non-structural elements of the built heritage. These can include designed gardens/garden features, masonry walls, railings, follies, gates, bridges, and street furniture. The Council will promote awareness and best practice in relation to these elements.

12.1.3.2.10 HE 4-4: Areas of Special Planning Control

Establish areas of special planning control within Architectural Conservation Areas where appropriate. These areas will include a scheme setting out objectives for the conservation and enhancement of the special character of the area and will be based on an Architectural Appraisal of each town.

12.1.3.2.11 HE 4-5: Architectural Conservation Areas

Conserve and enhance the special character of the Architectural Conservation Areas included in this plan. The special character of an area includes its traditional building stock and material finishes, spaces, streetscape, shop fronts, landscape and setting. This will be achieved by;

a) Protecting all buildings, structures, groups of structures, sites, landscapes and all features considered to be intrinsic elements to the special character of the ACA from demolition and non-sympathetic alterations

b) Promoting appropriate and sensitive reuse and rehabilitation of buildings and sites within the ACA and securing appropriate infill development

c) Ensure new development within or adjacent to an ACA respects the established character of the area and contributes positively in terms of design, scale, setting and material finishes to the ACA.

d) Promoting high quality architectural design within ACAs.

e) Seek the repair and reuse of traditional shopfronts and where appropriate, encourage new shopfronts of a high quality architectural design.

f) Ensure that all new signage, lighting, advertising and utilities to buildings within ACA are designed, constructed, and located in such a manner that they do not detract for the character of the ACA.

g) Protect and enhance the quality of open spaces within ACAs and ensure the protection and where necessary reuse of street furniture and use of appropriate materials during the course of public infrastructure schemes within ACAs.

h) Protect structures from demolition, non-sympathetic alterations and the securing of appropriate infill developments.

12.1.3.3 Kerry County Development Plan 2015-2021

The Kerry County Development Plan 2015-2021 outlines a number of objectives relating to archaeology as follows:

H-25 Protect and preserve the underwater archaeological heritage of the County. In assessing proposals for development, the Council will take account of the rivers, lakes, intertidal and sub-tidal environments.

H-26 Secure the preservation of all sites, features and objects of archaeological interest within the County. In securing such preservation the Council will have regard to the advice and recommendations

of the National Monuments Service, Department of Arts Heritage & the Gaeltacht, the National Museum of Ireland and the County Archaeologist.

H-27 Ensure that proposed development (due to location, size or nature) which may have implications for the archaeological heritage of the County are subject to an Archaeological Assessment which may lead to further subsequent archaeological mitigation – buffer zones/exclusion zones, monitoring, pre-development archaeological testing, archaeological excavation and/or refusal of planning. This includes areas close to archaeological monuments, extensive in area (half hectare or more) or length (1km or more) and development that requires an Environmental Impact Statement.

H-28 Ensure the protection and preservation of archaeological monuments and features, as yet not listed in the Record of Monuments & Places (RMP), Sites & Monuments Record (SMR) and as yet unrecorded, through ongoing review of the archaeological potential of the Plan area. In securing such protection the Council will have regard to the advice and recommendations of The National Monuments Service, Department of Arts, Heritage & the Gaeltacht and the County Archaeologist.

H-29 Ensure that development (including forestry, renewable energy developments and extractive industries) within the vicinity of a recorded monument, zone of archaeological potential or archaeological landscape does not detract from the setting of the feature and is sited and designed appropriately and sympathetically with the character of the monument/ feature/landscape and its setting.

H-30 Ensure the active protection of the 18 identified, significant archaeological landscapes outlined in Volume 2 with particular emphasis on the landscape settings, views of and from the landscapes and monument/feature intervisibility within these landscapes.

H-31 Protect archaeological/historical graveyards within the County and to encourage and promote their maintenance in accordance with legislation, conservation principles and best practice.

H-32 Protect and preserve the industrial archaeological heritage of the County as reflected in such sites as mills, lighthouses, harbours, Valentia cable station etc. Proposals for refurbishment works or redevelopment of these sites should be subject to a full architectural and archaeological assessment.

H-33 Promote public awareness and facilitate appropriate advisory guidance in relation to the protection of the archaeological heritage of the County.

H-34 Protect the architectural heritage and promote conservation-led regeneration and re-use of buildings, where appropriate.

H-35 Promote and improve the understanding of the architectural heritage of Co. Kerry.

H-36 Facilitate and exercise appropriate advisory guidance in relation to maintenance and development of the architectural heritage.

H-37 Encourage the retention of original building fabric such as cut stone, thatch, timber sash windows, timber doors, lime mortar, natural slate, render and joinery detailing.

H-38 Ensure that any development, modification, alteration, or extension affecting a protected structure and/or its setting:-

- Is appropriate in terms of the proposed materials, scale, density and layout,
- Addresses the issue of reversibility,
- Respects the original design plan and form,
- Demonstrates an understanding of the historical importance of the building and its setting and does not detract from the special character / interest of the protected structure,
- Deal sensitively with historically important features and fittings,

- Takes account of any protected species that may utilise the structure and accordingly mitigate any impacts on the species.

H-39 Ensure that the special interest of protected structure is not gradually eroded by minor alterations.

H-40 Ensure that measures to upgrade the energy efficiency of protected structures and historic buildings do not damage the historic fabric.

H-41 Encourage owners or prospective owners of protected structures to seek Section 57 Declarations in order to provide certainty about the type of works that may be undertaken without planning permission.

H-42 Promote the positive enhancement of existing ACAs and review the possibility of designating additional ACAs as is deemed appropriate. ACA designation helps to protect existing street layouts, historic building lines and traditional plot widths.

H-43 Ensure that any new development or alteration to a building within or adjoining an Architectural Conservation Area positively enhances the character of the area and is appropriate in terms of the proposed materials, scale, density and layout, proportions, plot ratio and building lines.

H-44 Ensure a balanced approach to maintenance and development of the architectural heritage, having regard to both the qualities of the given architectural context and the modern requirements to safety, comfort and usage, thus facilitating continuity of use of the architectural heritage in a sustainable manner.

H-45 Encourage the protection, appreciation, retention and appropriate renovation of vernacular buildings throughout the County.

H-46 Facilitate the compilation of a comprehensive survey over the term of the plan of vernacular architecture in the south and west of the County to ensure that these buildings are identified and adequately protected in the record of protected structures.

H-47 Review the Record of Protected Structures including taking into consideration ministerial recommendations arising from the National Inventory of Architectural Heritage and add structures of special interest as appropriate, including industrial, maritime or vernacular heritage.

H-48 Implement statutory protection against unauthorized works, demolition, deterioration, dereliction or any alteration which would affect the character or special interest of a protected structure.

H-49 Support the designation of Listowel as a Historic Town.

The Kerry County Development Plan 2015-2021 also includes the Record of Protected Structures (RPS) for the county.

12.1.3.4 Statutory Consultations

The Development Applications Unit (DAU) of the Department of Culture, Heritage and the Gaeltacht (DAHG) was consulted regarding this project. No response from the DAU was received at the time of writing.

12.1.4 Location and Topography

The development area is located in County Cork approximately 3km north-west of Inchigeelagh. It is located on relatively high ground varying in height from 200-304m above OD and incorporates a

portion of Derrineanig Hill. Some portions of the site are under forestry. The wind farm development is located in the townlands of Cloontycarthy, Cleanrath North, Cleanrath South and Derrineanig. The underground grid connection which connects the turbines to Derragh substation, Co. Cork and to Grousemount substation in Co. Kerry extends mainly along public roads through the following townlands in Co. Cork: Derrineanig, Milmorane, Coombilane, Rathgaskig, Augeris, Gorteenakilla, Carrignadoura, Gurteenowen, Gurteenflugh, Lyrenageeha, Lackabaun.

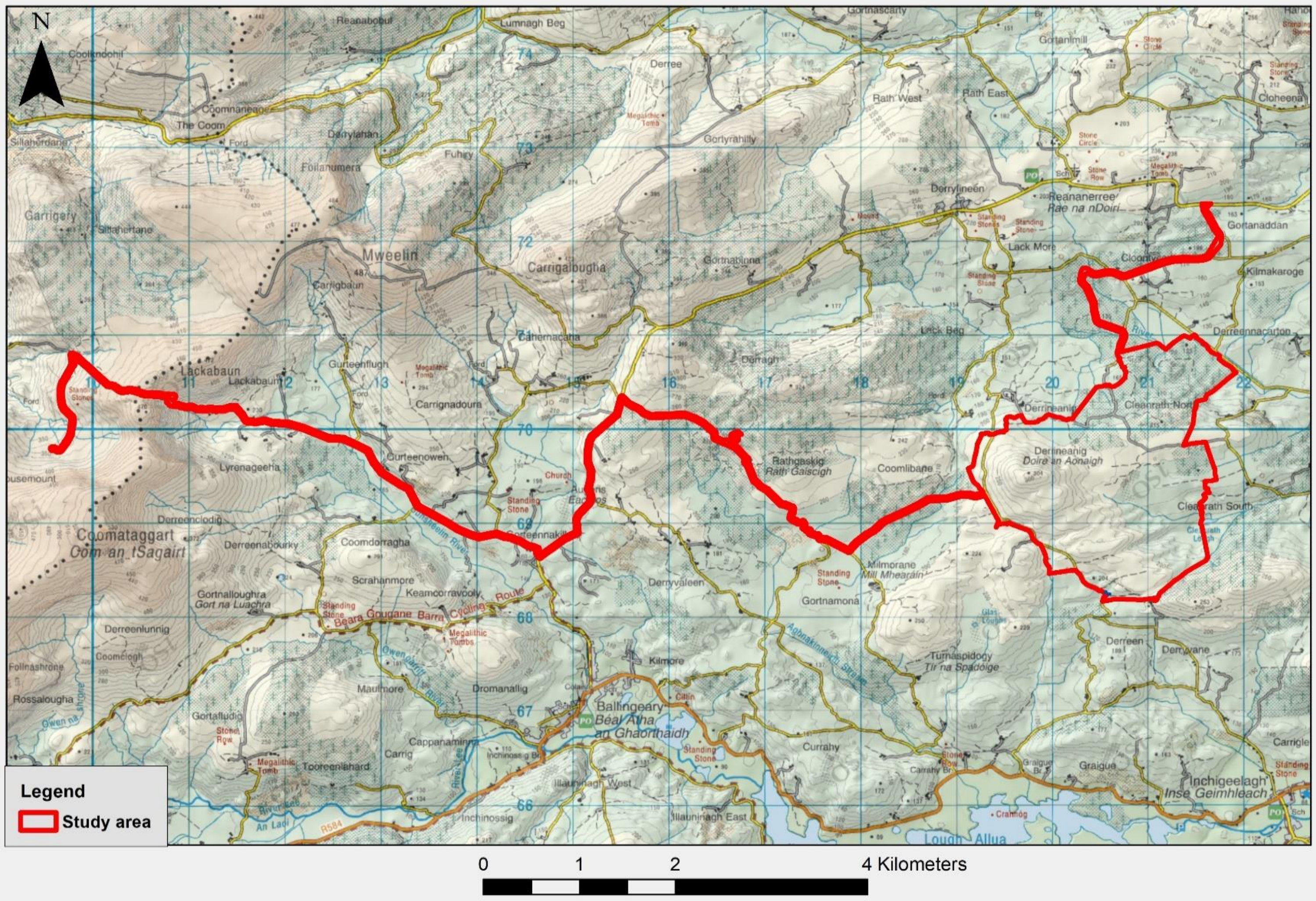

Figure 12-1: Site location map.

12.2 Assessment Methodology

The assessment of the archaeology, architecture and cultural heritage of the development area included GIS mapping and desk-based research, field inspection, pre-development archaeological testing under licence from the National Monuments Service (NMS) and archaeological monitoring of ground works, also under licence from the NMS.

12.2.1 Geographical Information Systems

GIS is a computer database which captures, stores, analyses, manages and presents data that is linked to location. GIS is geographic information systems which includes mapping software and its application with remote sensing, land surveying, aerial photography, mathematics, photogrammetry, geography and tools that can be implemented with GIS software. A geographic information system (GIS) was used to manage the datasets relevant to the archaeological and architectural heritage assessment and for the creation of all the maps in this section of the report. This involved the overlaying of the relevant archaeological and architectural datasets on georeferenced aerial photographs and road maps (ESRI), where available. The integration of this spatial information allows for the accurate measurement of distances of a development from archaeological and cultural heritage sites and the extraction of information on 'monument types' from the datasets. Areas of archaeological or architectural sensitivity may then be highlighted in order to mitigate the potential negative effects of a development on archaeological, architectural and cultural heritage.

12.2.2 Desktop Assessment

The following sources were consulted as part of the desktop assessment for the wind farm development:

- The Record of Monuments and Places (RMP)
- The Sites and Monuments Record (SMR)
- National Monuments in State Care
- The Topographical Files of the National Museum of Ireland
- First edition Ordnance Survey maps (OSI)
- Third edition Ordnance Survey Map (Record of Monuments and Places)
- Aerial photographs (copyright of Ordnance Survey Ireland (OSI)
- Excavations Database
- National Inventory of Architectural Heritage (NIAH)
- Record of Protected Structures
- Previous archaeological surveys and assessments carried out on or near to the development site (various)
- Archaeological inventory of County Cork and County Kerry

Each of these are discussed in the following sections.

12.2.2.1 Record of Monuments and Places, Sites and Monuments Record and National Monuments

A primary cartographic source and base-line data for the assessment was the consultation of the Sites and Monuments Record (SMR) and Record of Monuments and Places (RMP) for County Cork and County Kerry. All known recorded archaeological monuments are indicated on 6-inch Ordnance Survey (OS) maps and are listed in these records. The SMR/RMP is not a complete record of all monuments as newly discovered sites may not appear in the list or accompanying maps. In conjunction with the consultation of the SMR and RMP the electronic database of recorded monuments and SMRs which may be accessed at www.webgis.archaeology.ie/historicenvironment was also consulted.

A review of all National Monuments in State Care and those subject to Preservation Orders was undertaken as part of the assessment in order to ascertain any potential impacts on their setting as a result of the development.

12.2.2.2 Cartographic Sources and Aerial Photography

The 1st (1840s) and 2nd (1900s) edition OS maps for the area were consulted, where available, as was OSI aerial photography.

12.2.2.3 Topographical Files - National Museum of Ireland

Details relating to finds of archaeological material and monuments in numerous townlands in the country are contained in the topographical files held in the National Museum of Ireland. In order to establish if any new or previously unrecorded finds had been recovered from the study area these files were consulted for every townland within and adjacent to the same. Heritage Maps (www.heritagemaps.ie) also contains locational detail for Museum find spots.

12.2.2.4 Archaeological Inventory Series

Further information on archaeological sites may be obtained in the published County Archaeological Inventory series prepared by the Department of Culture, Heritage and the Gaeltacht. The archaeological inventories present summarised information on sites listed in the SMR/RMP and include detail such as the size and location of particular monuments as well as any associated folklore or local information pertaining to each site. The inventories, however, do not account for all sites or items of cultural heritage interest which are undiscovered at the time of their publication. Many sites have been discovered since the publication of the Inventory Series which have now been added to the Sites and Monuments Record.

12.2.2.5 Record of Protected Structures

The Record of Protected Structures for County Cork and County Kerry was consulted for the schedule of buildings and items of cultural, historical or archaeological interest. The development plan also outlines policies and objectives relating to the protection of the archaeological, historical and architectural heritage landscape of Cork. The digital dataset for Protected Structures was downloaded from ArcGIS online and added to the project GIS mapping (Section 12.2.1 above) used for the creation of figures in this chapter.

12.2.2.6 Excavations Database

The Excavations Database is an annual account of all excavations carried out under license. The database is available on line at www.excavations.ie and includes excavations from 1985 to 2019. This database was consulted as part of the desktop research for this assessment to establish if any archaeological excavations had been carried out within or near to the development area.

12.2.2.7 National Inventory of Architectural Heritage (NIAH)

This source lists some of the architecturally significant buildings and items of cultural heritage and is compiled on a county by county basis by the Department of Culture, Heritage and the Gaeltacht. The NIAH database was consulted for all townlands within and adjacent to the study area. The NIAH survey for Cork and Kerry has been published and the digital dataset was downloaded on to the base mapping for the Cleanrath wind farm development (www.buildingsofireland.ie). The National Inventory of Architectural Heritage (NIAH) is a state initiative under the administration of the Department of Culture, Heritage and the Gaeltacht and established on a statutory basis under the

provisions of the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999.

The purpose of the NIAH is to identify, record, and evaluate the post-1700 architectural heritage of Ireland, uniformly and consistently as an aid in the protection and conservation of the built heritage. NIAH surveys provide the basis for the recommendations of the Minister for the Environment, Heritage and Local Government to the planning authorities for the inclusion of particular structures in their Record of Protected Structures (RPS). The published surveys are a source of information on the selected structures for relevant planning authorities. They are also a research and educational resource. It is hoped that the work of the NIAH will increase public awareness and appreciation of Ireland's architectural heritage.

12.2.2.8 Previous Assessments

12.2.2.8.1 *Archaeology and Cultural Heritage Assessment*

The assessment of archaeology and cultural heritage for Cleanrath wind farm development was carried out by Tobar Archaeological Services and included desk-based research as well as a programme of field inspection (site walk-over). The site walk-over of the Cleanrath wind farm development area was carried out over a number of days in September 2010, January 2011 and December 2015.

12.2.2.8.2 *Pre-Development Archaeological Testing*

Archaeological testing (Excavation Licence number 11E0335) at T6 was also undertaken by Tobar Archaeological Services in 2011 in response to a further information request for a previous planning application associated with the development (Planning Reference no. 11/05245) (Appendix 12-1). Archaeological testing of the area of Turbine 6 and its access road was carried out under licence (11E0335) in November 2011. A total of 6 test trenches were excavated on the site in areas where most ground disturbance was likely to take place, i.e. turbine base, hardstand and access road. The trenches measured between 19m and 45m in length and 2.2m in width. A large track machine with a 2m wide grading bucket was utilised for the excavation. The stratigraphy uncovered varied somewhat throughout the site with natural rock appearing at different levels. Natural boulders were strewn across the site and natural ridges of rock became apparent as the testing progressed in a southerly direction along the access road. The sod generally measured 0.3m in depth and the natural consisted of a gravely orange material with natural rock also present in some areas. No archaeological finds, features or deposits were uncovered during the testing.

Further pre-development archaeological testing of the permitted wind farm development (ABP Ref. PL04.246742) was carried out by Tobar Archaeological Services in 2018 under excavation licence 18E0646 (Appendix 12-2). Testing was only carried out in unforested areas of the site, in accordance with the recommendation of the previous archaeology and cultural heritage chapter of the EIS. A total of 12 test trenches were excavated within the permitted development area at T7, T9, T4, T3 and along some internal access roads. Natural subsoil was exposed at the base of each trench. In general the stratigraphy encountered within the test trenches was similar throughout the site comprising grass-covered peat/peaty soil overlying a grey stoney natural or bedrock. No archaeological finds, features, structures or deposits were exposed in any of the test trenches excavated.

12.2.2.8.3 *Archaeological Monitoring of Groundworks*

Archaeological monitoring of ground works associated with the Cleanrath wind farm development was carried out by Tobar Archaeological Services under excavation licence 18E0646 between September 2018 and May 2019 (Appendix 12-3). Full time archaeological monitoring of all peat and soil removal associated with the development was undertaken within the Cleanrath wind farm development site as was monitoring of trenching associated with the underground grid connection. In general the stratigraphy noted within the wind farm consisted of shallow peat and scrub directly overlying natural

rock. The natural rock occurred in ridges within intervening pockets of peat. The grid connection cable route consisted of the clearance of the road margin followed by the excavation of a narrow trench, c. 1.2m deep. No archaeological finds, features or deposits were encountered during monitoring on the wind farm or along the grid connection route. Archaeological monitoring of the ground works associated with the grid connection in County Kerry was monitored by Laurence Dunne (Laurence Dunne Archaeology) and nothing of archaeological interest was noted during this work (Appendix 12-4).

12.2.3 Field Inspection

As outlined above the site walk-over of the then Cleanrath wind farm development area was carried out over a number of days in September 2010, January 2011 and December 2015. The Cleanrath wind farm development site and its surrounds were inspected by Annette Quinn and Miriam Carroll of Tobar Archaeological Services where access was possible. The inspection consisted of a walk-over examination of the Cleanrath wind farm development area, an assessment of any recorded monuments, architectural, built or cultural heritage items within the site and the potential direct and indirect impacts on those monuments. Any newly discovered archaeological monuments, items of built heritage or cultural heritage value within the study area were also recorded during the field inspection. A number of sites of archaeological potential were noted in some areas of the Cleanrath wind farm development site. In particular a stone enclosure (1), two adjoining hut sites (2a and 2b) and associated walls were noted in the north-western portion of the study area in the vicinity of T6. The sites were subsequently added to the Sites and Monuments Record (SMR) and are listed in the Record of Monuments and Places (RMP) as follows: CO069-094 – Enclosure, CO069-095001 and 002 – hut sites, CO069-096 – field boundary.

A windscreen survey of the grid connection route was also carried out.

12.2.3.1 Limitations Associated with Fieldwork

A minor limitation in carrying out the field work aspect of the assessment was the dense and mature forestry plantations that existed in the northern portion of the survey area. The presence of existing forestry roads and unforested areas, however, allowed good general access to the study area. As outlined above, permitted turbines and access roads within forestry were not subject to pre-development archaeological testing. All areas were subject to subsequent monitoring of topsoil/peat removal during the construction stage of the wind farm development.

12.2.4 Assessment of Likely Significant Effects

The likely effects on the existing archaeological, architectural and cultural heritage environment are assessed using the criteria as set out in the draft *Guidelines on the Information to be contained in Environmental Impact Assessment Reports* (EPA, 2017) and as outlined in Section 1.7 of this rEIAR. The following terminology is used when describing the likely effects of the development from a Cultural Heritage perspective.

12.2.4.1 Types of Impact

- Direct impacts arise where an archaeological heritage feature or site is physically located within the footprint of the development whereby the removal of part, or all of the feature or site is thus required.
- Indirect impacts may arise as a result of subsurface works undertaken outside the footprint of the development, secondary environmental change such as a reduction in water levels and visual impacts.
- Cumulative Impacts arise when the addition of many impacts create a larger, more significant impact.

- Residual Impacts are the degree of environmental changes that will occur after the mitigation measures have been implemented.

12.2.4.1.1 *Magnitude of Effects (Significance)*

- Profound: Applies where mitigation would be unlikely to remove adverse effects. Reserved for adverse, negative effects only. These effects arise where an archaeological site is completely and irreversibly destroyed.
- Very Significant: An effect which by its character, magnitude, duration or intensity significantly alters most of the sensitive aspect of the environment.
- Significant: An effect which by its character, magnitude, duration or intensity alters a sensitive aspect of the environment. An effect like this would be where part of a site would be permanently impacted upon, leading to a loss of character, integrity and data about an archaeological site.
- Moderate: A moderate effect arises where a change to an archaeological site is proposed which though noticeable, is not such that the integrity of the site is compromised and which is reversible. This arises where an archaeological site can be incorporated into a modern day development without damage and that all procedures used to facilitate this are reversible.
- Slight: An effect which causes changes in the character of the environment which are not high or very high and do not directly impact or affect an archaeological site.
- Not Significant: An effect which causes noticeable changes in the character of the environment but without significant consequences.
- Imperceptible: An effect on an archaeological site capable of measurement but without noticeable consequences.

12.2.5 Methodology for the assessment of impacts on visual setting (indirect effects)

A standardised approach was utilised for the assessment of impacts of visual setting (indirect effects) according to types of monuments and cultural heritage assets which may have varying degrees of sensitivity. This assessment does not include visits to each and every site outside the rEIAR Study Area as the monuments are located in private lands. The assessment of impacts on visual setting was undertaken using both the Zone of Theoretical Visibility (ZTV) map in the Landscape and Visual Impact Assessment (LVIA), as presented in Chapter 13 of this rEIAR, Viewshed analysis and any relevant photomontages.

While direct physical impacts to a site or monument can easily be assessed in quantitative terms, the assessment of impacts on setting can be subjective and as such is a matter of qualitative, professional judgement and experience. The distances below used in the assessment of impacts on setting are regarded as appropriate and are based on professional judgement. Cultural heritage assets which do not occur within the distances listed below are scoped out of the assessment, e.g. UNESCO World Heritage sites.

Table 12-1: Cultural Heritage Assets considered according to sensitivity (where relevant only)

Cultural Heritage Asset	Distance Considered
UNESCO World Heritage Sites (including tentative sites)	20km
National Monuments (State Ownership and Preservation Order Sites)	10km
Recorded Monuments, RPS	5km
NIAH structures	5km
Undesignated sites, if relevant	500m from Cleanrath wind farm development

12.3 Existing Environment

12.3.1 Wind Farm

12.3.1.1 Archaeological Heritage

Archaeological heritage includes National Monuments, sites which are subject to a preservation order, sites listed in the RMP/SMR and newly discovered archaeological sites. Each of these are addressed in the following sections.

12.3.1.1.1 *National Monuments*

National Monuments are those recorded monuments which are in the ownership / guardianship of the Minister for Culture, Heritage and the Gaeltacht (DCHG). They are frequently referred to as being in 'State Care'. An assessment of all National Monuments in State Care and those subject to Preservation Orders within 10km of the 9 turbines was undertaken to ascertain any potential impacts on their visual setting (See Section 12.2.5 for methodology of assessment). No monuments subject to a Preservation Order are located within 10km of the as built turbines while four National Monuments in State Care are located within 10km of the turbines. The four monuments are listed in Table 12-2 with the distance to the nearest turbine shown therein. They are also shown on Figure 12-2. The nearest National Monument comprises the stone circle at Lissacresig (NM No. 571) which is 7.9km to the north-east of T3.

Table 12-2: National Monuments within 10km of nearest turbine

NM No.	RMP NO.	IG E	IG N	MONUMENT	TD.	WTG ID	DISTANCE (M)
255	CO070-035—	129514	73487	Stone Circle	Carrigaphooca	3	9035
571	CO070-016—	126876	75337	Stone Circle	Lissacresig	3	7911
571	CO070-017—	126692	75643	Ringfort	Lissacresig	3	8124
374	CO093-043—	121475	60844	Stone Row	Farranahineeny	10	7968

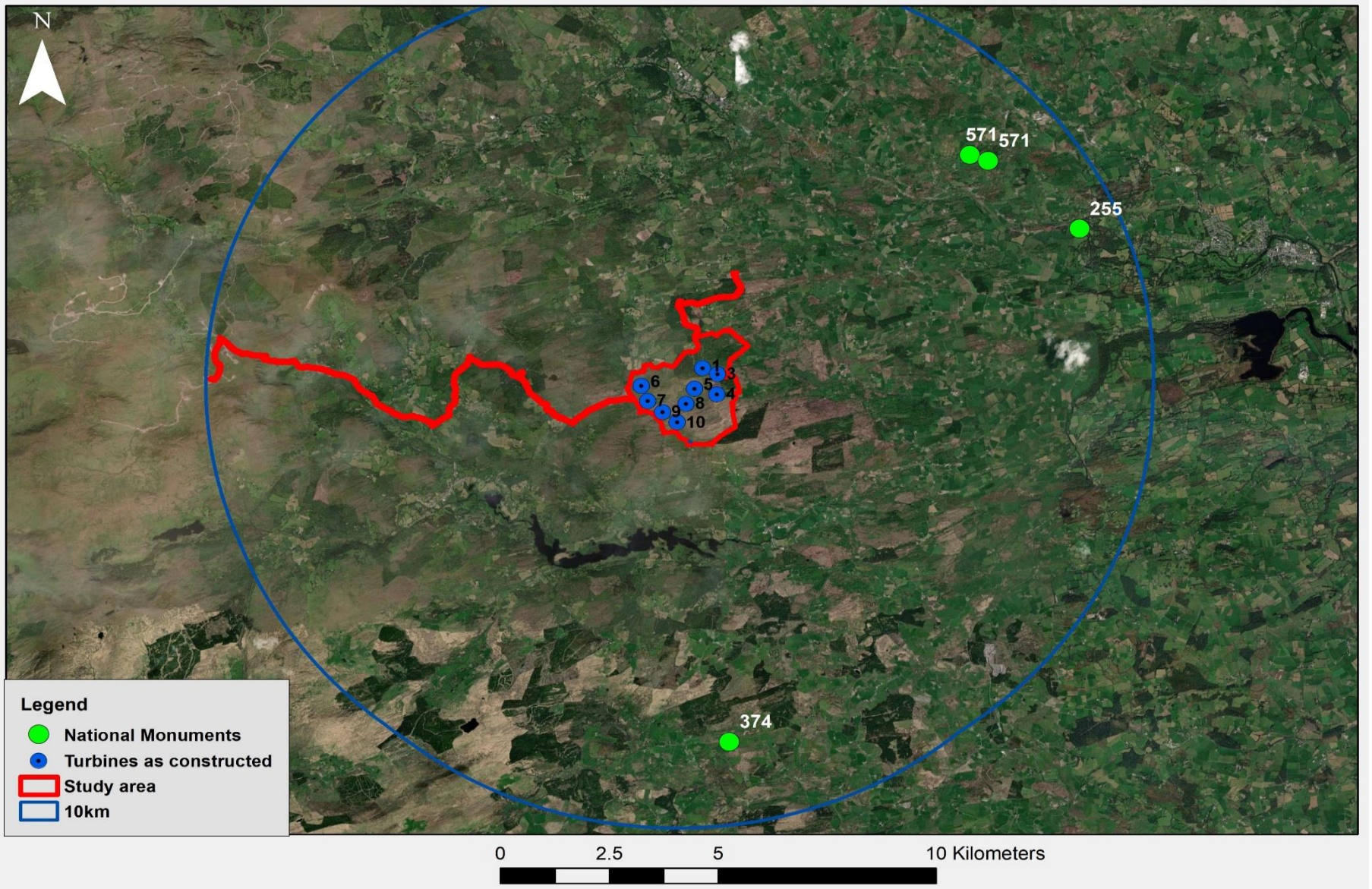

Figure 12-2: National Monuments within 10km of the nearest turbine.

Visibility from National Monuments

National Monument No 571 Stone Circle, Lissacresig

Description of the Monument:

CO070-016—

Class: Stone circle - five-stone

Townland: LISSACRESIG

Scheduled for inclusion in the next revision of the RMP: Yes

Description: On ridge on S-facing slope overlooking Sullane River valley. Circle complete; partly incorporated in field fence. Orthostats are 1m to 2.6m L, 0.5m to 1m T and 1.1m to 1.65m H. Internal measurement along main axis, aligned E-W, is 3.5m. (O Nualláin 1984a, 37, no. 68).

Viewshed analysis results are a worst case scenario as the model does not take natural screening such as vegetation, boundaries or buildings into consideration. Figure 12-3 shows that potentially one turbine (T8, in green shaded area) may theoretically be seen in full from the stone circle at Lissacresig. It shows that eight turbines (T1-6 and T8-10 in red hatched area) are potentially visible from mid-shaft up and that the upper portion of all turbines (blue shaded area) may theoretically be seen from this monument. The Zone of Theoretical Visibility used in the LVIA Chapter 13 shows that this monument is located within an area that shows visibility of potentially 7-9 turbines. This accords with the viewshed in that some level of potential visibility was demonstrated for all turbines.

Given the distance of the monument from the nearest turbine (just under 8km), the impacts on setting are regarded as Not Significant. Furthermore the distance of 7.9km is such that no impacts on potential sun alignments of the monument would be possible.

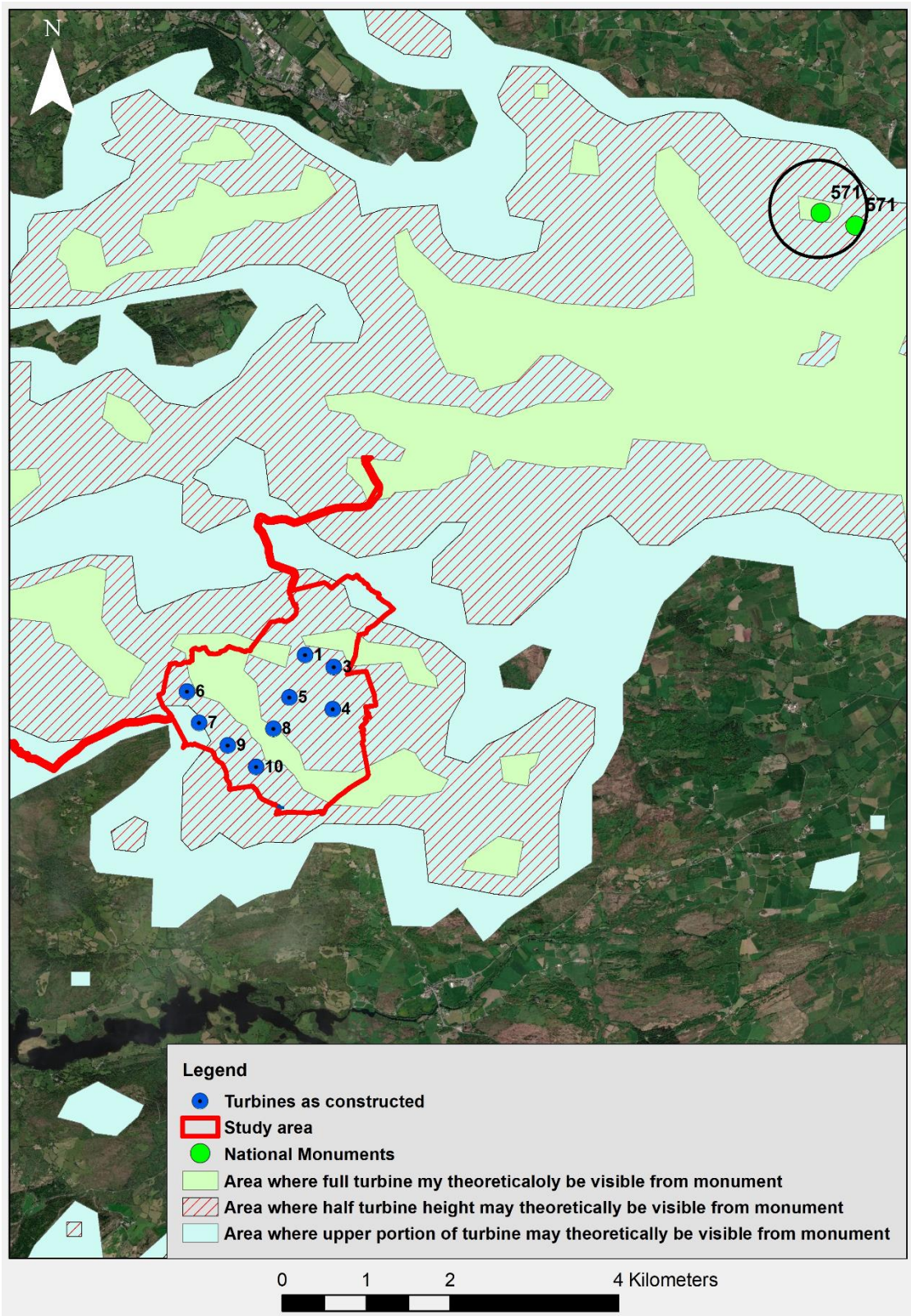

Figure 12-3: Viewshed analysis showing theoretical visibility of turbines from National Monument 517 Lissacresig stone circle.

National Monument No 571 Ringfort, Lissacresig

Description of the Monument:

CO070-017—

Class: Ringfort - rath

Townland: LISSACRESIG

Scheduled for inclusion in the next revision of the RMP: Yes

Description: In pasture, on SW-facing slope, overlooking Sullane River valley to S. Roughly circular area (48.5m E-W; 44.2m N-S) defined by earthen bank (int. H 2.55m); fosse (D 3.1m); counterscarp or remains of second bank (H 0.2m) SSE->W; laneway skirts enclosure NNW->NE, separated from fosse by stone-faced earthen bank. Inner bank height as low as 0.2m internally to SW where interior raised to compensate for hillslope. Entrance (Wth 2.5m) with causeway to E, blocked by collapsed stone wall; gap (Wth 1m) in bank to NW. Remains of cultivation ridges cross interior on N-S axis; two low cairns of field clearance stones in E half; hone stone (c. 0.4m x c. 0.2m x c. 0.15m) lies off-centre to E. Standing stone (CO070-014—) visible in field to N of enclosure.

Viewshed analysis results are a worst case scenario as the model does not take natural screening such as vegetation, boundaries or buildings into consideration. Figure 12-4 shows that potentially one turbine (T8, in green shaded area) may theoretically be seen in full from the ringfort at Lissacresig. It shows that eight turbines (T1-6 and T8-10 in red hatched area) are potentially visible from mid-shaft up and that the upper portion of all turbines (blue shaded area) may theoretically be seen from this monument. The Zone of Theoretical Visibility used in the LVIA Chapter 13 shows that this monument is located within an area that shows visibility of potentially 7-9 turbines. This accords with the viewshed in that some level of potential visibility was demonstrated for all turbines.

Given the distance of the monument from the nearest turbine (just over 8km), the impacts on setting are regarded as Not Significant.

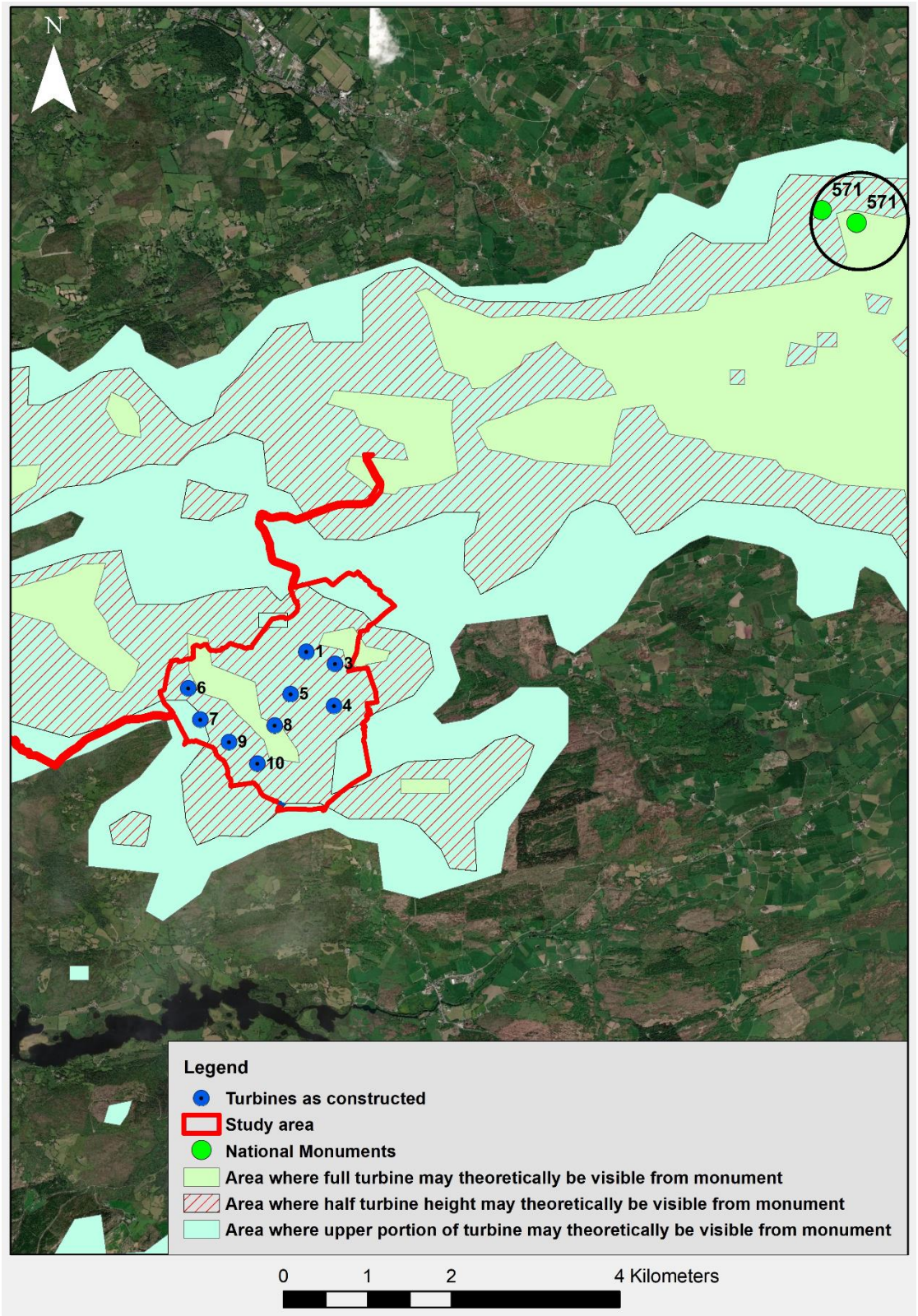

Figure 12-4: Viewshed analysis showing theoretical visibility of turbines from National Monument 517 Lissacresig ringfort.

National Monument No 255 Stone circle, Carrigaphooca

Description of the Monument:

CO070-035—

Class: Stone circle - multiple-stone

Townland: CARRIGAPHOOCA

Scheduled for inclusion in the next revision of the RMP: Yes

Description: In flat pasture, c. 300m NW of confluence of Foherish and Sullane Rivers. Three stones survive indicating diameter of at least 5.5m. Orthostats are 1m L, 0.3m to 0.4m T and 0.75m to 2m H. Not possible to determine number of stones originally forming circle. (O Nualláin 1984a, 15, no. 11)

Viewshed analysis carried out to determine theoretical visibility of the 9 turbines from this monument shows that none of the structures are visible from the stone circle (Figure 12-5). This accords with the ZTV which also demonstrates that no turbines are visible from this area.

National Monument No 374 Stone row, Farranahineeny

Description of the Monument:

CO093-043—

Class: Stone row

Townland: FARRANNAHINEENY

Scheduled for inclusion in the next revision of the RMP: Yes

Description: On bog-covered S spur of Carrigarierk at E end of Shehy mountain. Row of four stones, aligned NE-SW, and 8.2m in overall length. NE stone is 0.8m L, 0.5m T and 1.3m H. The second stone, 2.55m to SW, is 0.65m L, 0.4m T and 1.25m H. Third stone, 1.2m further to SW, is 1.1m L, 0.3m T and 1.6m H. SW and tallest stone, 1.2m from last, is 0.8m L, 0.65m T and 2.8m H. Fifth stone lies to N of second stone; it measures 2.45m by 0.7m and is 0.3m T. It is not clear if this formed part of the row. Group of stones, partly covered by fence, 6m to SW. (National Monument No. 374; Ó Nualláin 1988,235, no.35).

Viewshed analysis carried out to determine theoretical visibility of the 9 turbines from this monument shows that none of the structures are visible from the stone row (Figure 12-6). This accords with the ZTV which also demonstrates that no turbines are visible from this area.

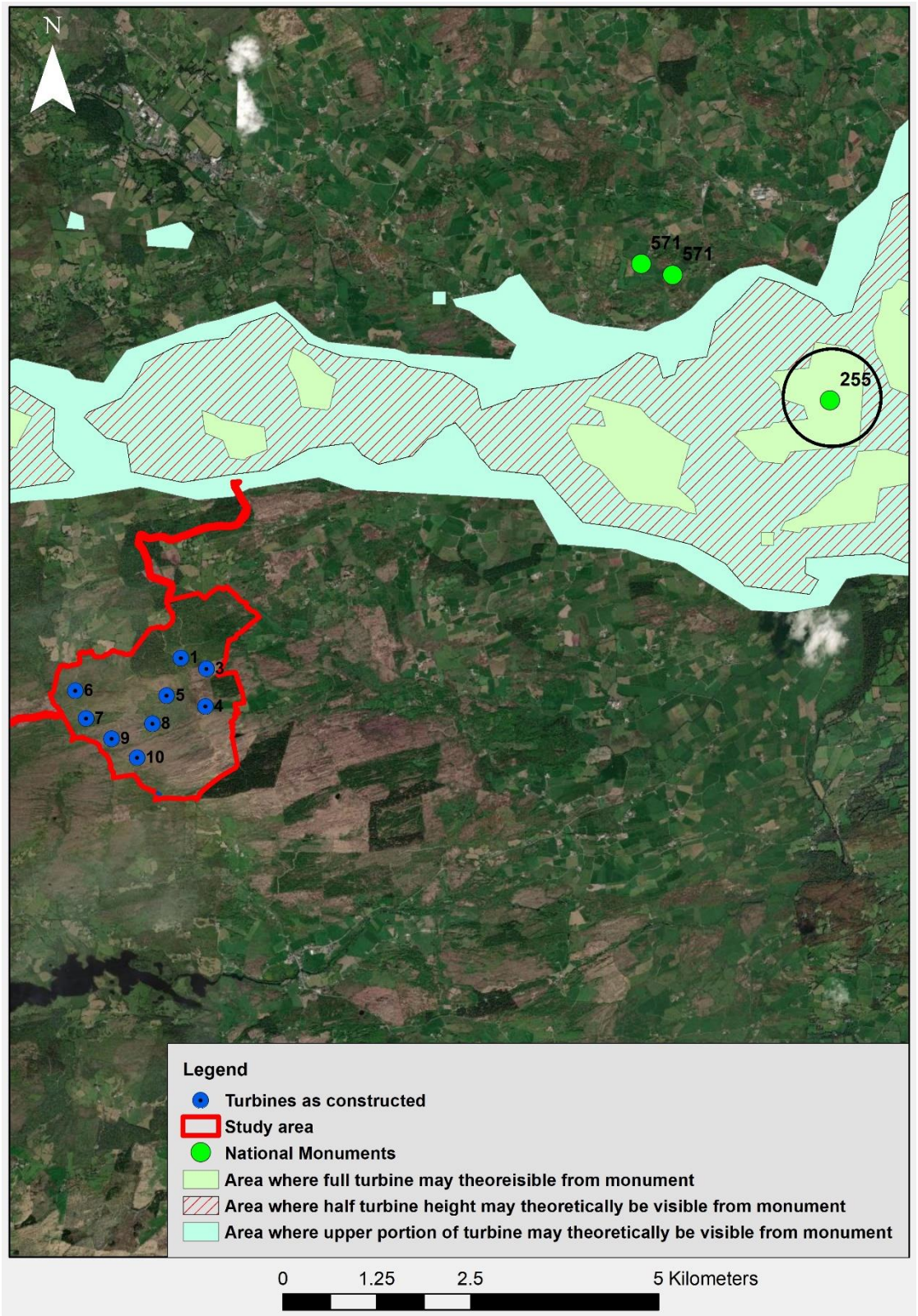

Figure 12-5: Viewshed analysis showing theoretical visibility of turbines from National Monument 255 Carrigaphooca stone circle.

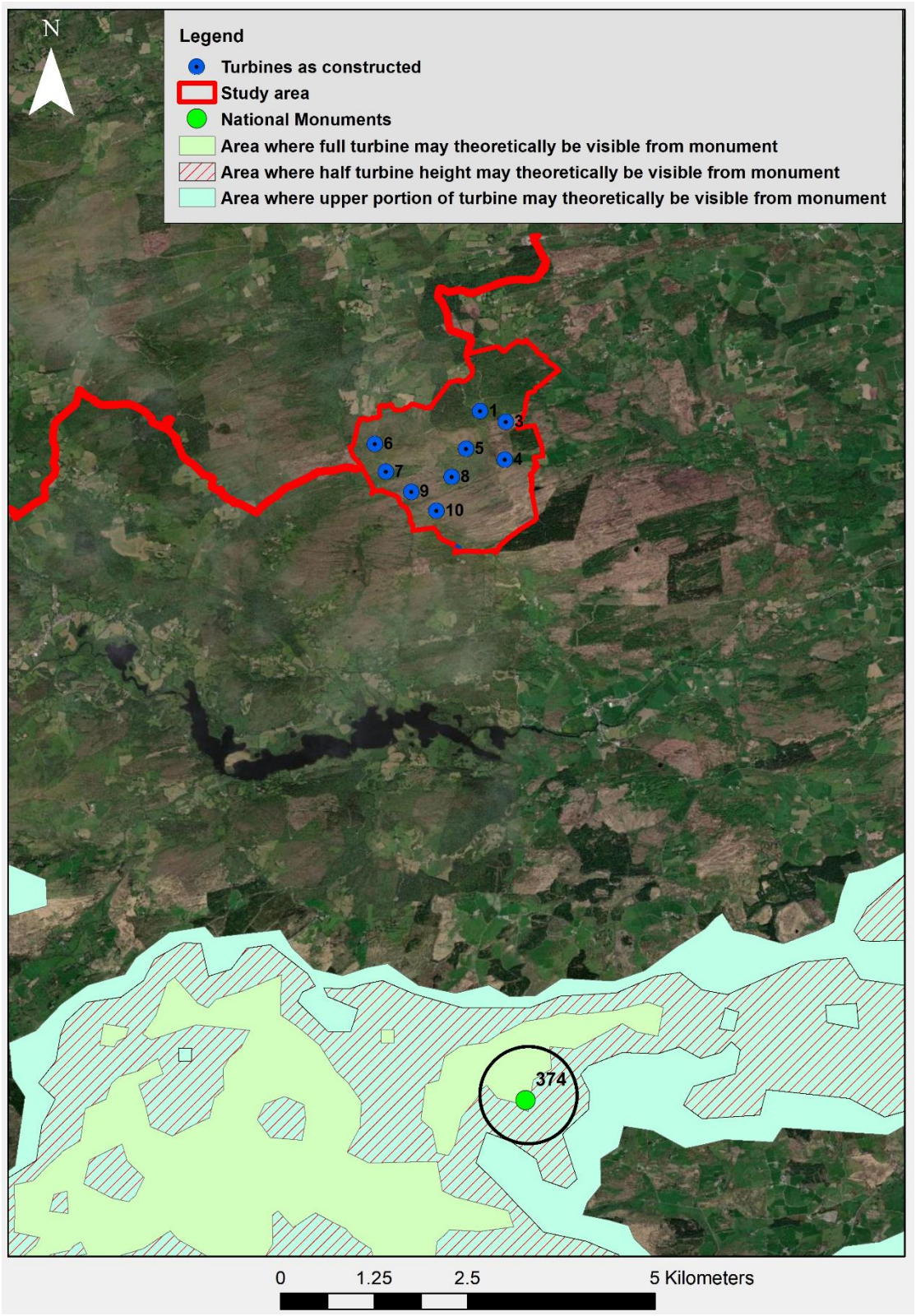

Figure 12-6: Viewshed analysis showing theoretical visibility of turbines from National Monument 374 Farrannahineeny stone row.

12.3.1.1.2 Recorded Monuments within the rEIAR Study Area

Four recorded monuments (CO069-094 – Enclosure, CO069-095001 and 002 – hut sites, CO069-096 – field boundary) subject to statutory protection as defined in the Record of Monuments and Places or Sites and Monument Record are located within the site boundary of the Cleanrath wind farm development (see section 12.3.2 for monuments along the grid connection route). The monuments are listed in Table 12-3 below and described thereafter and shown on Figure 12-7. The monuments are located to the north-west of T6 in rough pasture and were detected during field survey carried out by Tobar Archaeological Services as part of the previous Archaeology and Cultural Heritage assessment. They are not described on the Historic Environment Viewer (www.webgis.archaeology.ie/historicenvironment) therefore the descriptions provided are from the original survey notes.

Table 12-3: Recorded monuments within the development site boundary.

RMP NO.	IG E	IG N	CLASS	TOWNLAND	WTG ID	DISTANCE (M)
CO069-095001-	119421	69696	Hut site	DOIRE AN AONAIGH	T6	85
CO069-094—	119364	69666	Enclosure	DOIRE AN AONAIGH	T6	100
CO069-095002-	119417	69702	Hut site	DOIRE AN AONAIGH	T6	90
CO069-096—	119352	69635	Field boundary	DOIRE AN AONAIGH	T6	90

Descriptions of the Monuments within the development site boundary

RMP CO069-095001 and 002 Huts

Two adjoining huts were recorded to the north-west of T6 during a previous walk-over survey. The huts are in a poor state of preservation and are largely collapsed and overgrown. The dense overgrowth present at the time did not allow a thorough examination of the structures. They would appear to consist of circular or sub-circular stone-built structures whose precise form is not readily discernible due to collapse.

The primary function and date of hut sites is ambiguous. Examples of hut sites are known throughout the country, particularly in upland regions, and are frequently associated with the practice of transhumance or booleying. Transhumance refers to the practice of the seasonal movement of people and their livestock typically to higher pastures in the summer and lower valleys in the winter. In Ireland this practice is known as booleying and is believed to date to the early medieval period, although it continued well into the nineteenth and early twentieth century. The huts at Derrineanig may have functioned as temporary accommodation for semi-nomadic herders, however, their precise date cannot be determined without further investigation. Furthermore, the potentially lengthy chronology of hut sites means that while some may be prehistoric in date others may date to the early or later medieval period or indeed to more modern times. The huts at Derrineanig are not indicated on the 1st edition OS map and the 2nd (25 inch) edition is not available for the area.

Plate 12-1: Hut sites CO069-095001 and 002 at Derrineanig townland, north-west of T6.

RMP CO069-094 Enclosure

A circular stone enclosure is located c. 55m to the south-west of the two huts described above. It is located in a relatively flat, small area of pastureland adjacent to the public road. It is one of the few parcels of land in the area under pasture and much of the surrounding lands consist of natural rocky outcrops. The enclosure consists of a circular area defined by a stone wall, roughly one course in height and 2-3 courses in width. The wall measures approximately 0.3m-0.4m in height, 1m in width and encloses an area which measures 8m in diameter internally. Much of the enclosing wall has collapsed and both the wall and interior are very overgrown and would not be easily discernible in high growth periods.

Plate 12-2: Northern portion of circular enclosure CO069-094, looking NE.

RMP CO069-096 Field boundary

A number of portions of stone walls are located in the southern portion of the small area of pastureland, approximately 20m to the south of the aforementioned stone enclosure. All sections of walls are in poor condition and are largely collapsed and highly overgrown. One apparent section of wall measured 0.7m in width, 0.3m in height and is of a random rubble construction.

Plate 12-3: Field boundary CO069-096.

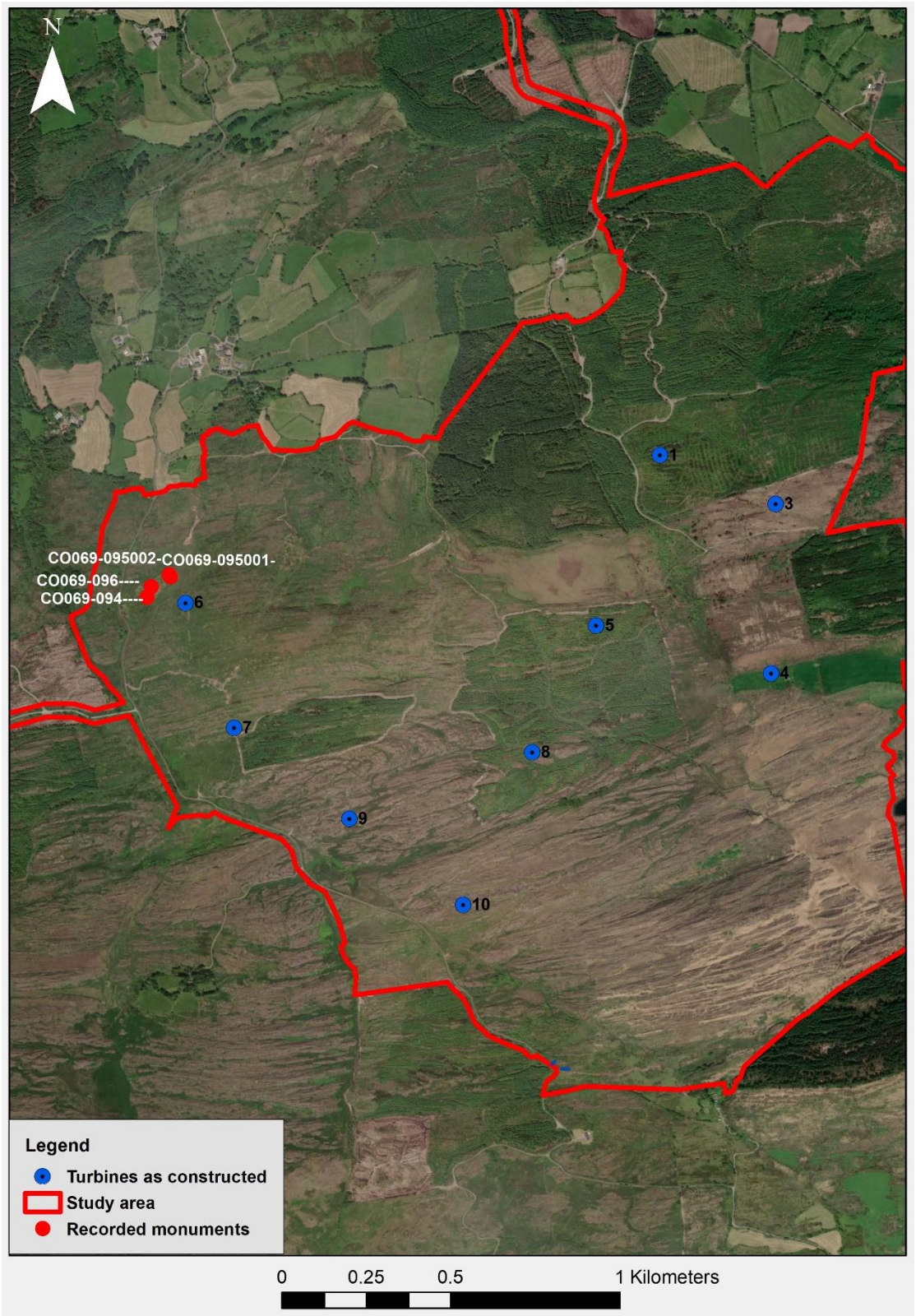

Figure 12-7: Recorded monuments within the Cleanrath wind farm development site boundary.

12.3.1.1.3 Newly recorded monuments within the rEIAR Study Area

The recorded monuments described above were detected on the site during a previous site walk-over survey of the then Cleanrath wind farm development area. They were subsequently added to the Sites and Monuments Record (SMR) and are scheduled for inclusion in the next revision of the Record of Monuments and Places (RMP).

No additional monuments were discovered within the development site during the pre-development testing of the wind farm or during archaeological monitoring of the construction stage of the development.

12.3.1.1.4 Recorded Monuments within 5km of the Turbines

One hundred and twenty-six (126) monuments are located within 5km of the nearest turbine are listed below in Table 12-4. The distance (5km) criteria methodology is described in Section 12.2.5. The monuments are labelled from 1-126 (Map ID) for ease of reference on Figure 12-9. Monuments within 5 kilometres of the turbines are included here for purposes of assessing potential visual impacts in the wider landscape setting. Four of the monuments (CO069-094 – Enclosure, CO069-095001 and 002 – hut sites, CO069-096 – field boundary) are located within the development site boundary and are described above.

Only one monument (CO069-051 Ringfort) apart from those within the rEIAR Study Area (described above) is located within 1km of the nearest turbine (T4). Six monuments are located between 1and 2km from the nearest turbine, with 30 monuments being located between 2-3km from the nearest turbine. Thirty-seven monuments are located between 3-4km with the remainder (48) being located between 4 and 5km of the nearest turbine. A breakdown of the monuments by type is depicted on Figure 12-8. Direct and Indirect effects are addressed in Section 12.4.2 and 12.4.3 below.

All monuments within 5km of the nearest turbine are included in the table below. As the sites date from the prehistoric period through to the medieval period, they are discussed in their relevant date-range/category below.

Table 12-4: RMPs within 5km of the nearest turbine

Map ID	RMP NO.	IG E	IG N	DESCRIPTION	TOWNLAND	WTG ID	DISTANCE (M)
1	CO069-095001-	119421	69696	Hut site	DOIRE AN AONAIGH	6	89
2	CO069-095002-	119417	69702	Hut site	DOIRE AN AONAIGH	6	96
3	CO069-094—	119364	69666	Enclosure	DOIRE AN AONAIGH	6	112
4	CO069-096—	119352	69635	Field boundary	DOIRE AN AONAIGH	6	115
5	CO069-051—	122190	69519	Ringfort - rath	CLAONRÁTH THEAS	4	996
6	CO069-050—	120914	71583	Ringfort - rath	CLUAIN TÍ CAIRTIGH	1	1527
7	CO069-047—	120040	71551	Fulacht fia	CLUAIN TÍ CAIRTIGH	1	1710
8	CO069-041—	119226	71478	Ringfort - rath	LEAC BHEAG	6	1873
9	CO069-049—	120354	71881	Water mill - horizontal-wheeled	CLUAIN TÍ CAIRTIGH	1	1896
10	CO069-046—	119471	71530	Standing stone	AN LEAC MHÓR	6	1910
11	CO069-048—	120097	71840	Ringfort - rath	CLUAIN TÍ CAIRTIGH	1	1944
12	CO081-006001-	117606	68731	Ringfort - rath	RÁTH GHAISCÍGH	6	2060
13	CO081-006002-	117606	68731	Souterrain	RÁTH GHAISCÍGH	6	2060
14	CO081-007—	117766	68295	Standing stone	MILL MEARÁIN	7	2075

Map ID	RMP NO.	IG E	IG N	DESCRIPTION	TOWNLAND	WTG ID	DISTANCE (M)
15	CO069-045—	119357	71725	Ringfort - rath	AN LEAC MHÓR	6	2108
16	CO081-044—	118597	67259	Fulacht fia	TURNASPIDOGY	9	2190
17	CO081-051—	118578	67257	Burnt mound	TURNASPIDOGY	9	2203
18	CO069-052—	123154	71266	Ringfort - rath	AN LIOS BUÍ MÓR	3	2366
19	CO069-044002-	119574	72082	Standing stone	AN LEAC MHÓR	1	2405
20	CO069-044001-	119560	72117	Ringfort - rath	AN LEAC MHÓR	1	2442
21	CO081-011—	119282	66438	Ringfort - cashel	TURNASPIDOGY	10	2498
22	CO069-042—	119187	72116	Standing stone	DOIRE FHÍNÍN	6	2512
23	CO081-010—	118876	66646	Stone row	TURNASPIDOGY	10	2513
24	CO069-039001-	116914	69588	Ringfort - cashel	RÁTH GHAISCÍGH	6	2551
25	CO069-039002-	116914	69588	Souterrain	RÁTH GHAISCÍGH	6	2551
26	CO069-043—	119136	72284	Standing stone	DOIRE FHÍNÍN	6	2684
27	CO069-030—	121954	72537	Ritual site - holy well	CLOCH EIDHNEACH	1	2706
28	CO069-030001-	121954	72537	Redundant record	CLOCH EIDHNEACH	1	2706
29	CO069-029—	121074	72760	Megalithic tomb - wedge tomb	RÉ NA NDOIRÍ	1	2711

Map ID	RMP NO.	IG E	IG N	DESCRIPTION	TOWNLAND	WTG ID	DISTANCE (M)
30	CO069-024001-	120239	72731	Bullaun stone	RÉ NA NDOIRÍ	1	2748
31	CO069-024002-	120239	72731	Bullaun stone	RÉ NA NDOIRÍ	1	2748
32	CO069-053—	123204	71814	Bullaun stone	CILL MIC CRANRÓG	3	2753
33	CO069-083—	123229	71865	Ecclesiastical enclosure	CILL MIC CRANRÓG	3	2806
34	CO069-022—	123245	71885	Burial ground	CILL MIC CRANRÓG	3	2832
35	CO069-027—	120466	72861	Stone row	RÉ NA NDOIRÍ	1	2833
36	CO069-028—	120737	72927	Ringfort - rath	RÉ NA NDOIRÍ	1	2873
37	CO069-026—	120376	72954	Stone circle - five-stone	RÉ NA NDOIRÍ	1	2939
38	CO069-025—	120362	72992	Fulacht fia	RÉ NA NDOIRÍ	1	2979
39	CO069-023—	120156	72949	Fulacht fia	RÉ NA NDOIRÍ	1	2979
40	CO081-012—	119366	65886	Crannog	TURNASPIDOGY	10	2984
41	CO069-092—	123561	71779	Enclosure	CNOC SATHAIRN	3	2998
42	CO069-040—	117887	72218	Cairn - radial-stone cairn	GORT NA BINNE	6	3040
43	CO081-005—	117141	67101	Redundant record	NA CURRAITHE	7	3272
44	CO081-046—	117117	67068	Mass-house	NA CURRAITHE	7	3312

Map ID	RMP NO.	IG E	IG N	DESCRIPTION	TOWNLAND	WTG ID	DISTANCE (M)
45	CO069-035—	123776	72048	Standing stone	CNOC SATHAIRN	3	3335
46	CO070-093—	124564	69640	Standing stone	ÁTH AN CHONNAIDH	3	3361
47	CO069-012—	119923	73285	Fulacht fia	GORT AN IMILL	1	3364
48	CO081-014006-	122458	66125	Rock scribing - folk art	CARRIGLEIGH (Muskerry West By., Inchigeelagh Par.)	10	3386
49	CO081-014003-	122479	66105	Church	CARRIGLEIGH (Muskerry West By., Inchigeelagh Par.)	10	3415
50	CO081-014002-	122492	66112	Graveyard	CARRIGLEIGH (Muskerry West By., Inchigeelagh Par.)	10	3418
51	CO081-016—	122971	66478	Country house	GLEBE (Muskerry West By., Inchigeelagh Par.)	4	3425
52	CO069-034—	123821	72170	Standing stone	CNOC SATHAIRN	3	3448
53	CO081-014004-	122512	66063	Standing stone	CARRIGLEIGH (Muskerry West By., Inchigeelagh Par.)	10	3468
54	CO081-014001-	122442	65992	Church	CARRIGLEIGH (Muskerry West By., Inchigeelagh Par.)	10	3479
55	CO081-014005-	122525	66020	Barracks	CARRIGLEIGH (Muskerry West By., Inchigeelagh Par.)	10	3509

Map ID	RMP NO.	IG E	IG N	DESCRIPTION	TOWNLAND	WTG ID	DISTANCE (M)
56	CO081-040—	122457	65880	Bridge	CARRIGLEIGH (Muskerry West By., Inchigeelagh Par.),CAPPANCLARE	10	3577
57	CO069-079—	122475	73285	Burial ground	CLOCH EIDHNEACH	3	3600
58	CO081-015001-	122924	66234	Graveyard	GLEBE (Muskerry West By., Inchigeelagh Par.)	4	3613
59	CO081-015002-	122925	66233	Church	GLEBE (Muskerry West By., Inchigeelagh Par.)	4	3614
60	CO069-080—	122444	73315	Ritual site - holy well	CLOCH EIDHNEACH	1	3618
61	CO070-055—	124335	71746	Ringfort - rath	DOIRE AN TÓCHAIR	3	3619
62	CO069-068—	123797	72472	Fulacht fia	CNOC SATHAIRN	3	3636
63	CO069-032—	122454	73355	Ecclesiastical site	CLOCH EIDHNEACH	1	3658
64	CO069-062—	122454	73355	Cross-slab	CLOCH EIDHNEACH	1	3658
65	CO069-055—	122443	73396	Bullaun stone	CLOCH EIDHNEACH	1	3691
66	CO081-048—	120516	65040	Boulder-burial	COORAGREENANE	10	3691
67	CO081-053—	115779	69087	Enclosure	EACHROS	6	3724
68	CO081-052—	120478	65004	Enclosure	COORAGREENANE	10	3725

Map ID	RMP NO.	IG E	IG N	DESCRIPTION	TOWNLAND	WTG ID	DISTANCE (M)
69	CO069-074—	118557	73235	Enclosure	AN RÁTH THIAR	6	3727
70	CO069-011—	119698	73654	Ringfort - rath	AN RÁTH THOIR	1	3783
71	CO069-093—	116022	71250	Megalithic tomb - wedge tomb	GORT NA BINNE	6	3810
72	CO069-033—	123492	73062	Standing stone	CNOC SATHAIRN	3	3887
73	CO081-043—	116166	67443	Fulacht fia	KILMORE (Muskerry West By.)	7	3888
74	CO070-119—	124737	71560	Fulacht fia	DOIRE AN TÓCHAIR	3	3889
75	CO081-017—	123896	66593	Castle - tower house	CARRIGNACURRA	4	3899
76	CO082-001—	123942	66588	Country house	CARRIGNACURRA	4	3934
77	CO069-031—	122276	73734	Standing stone	CLOCH EIDHNEACH	1	3936
78	CO082-116—	125137	69240	Standing stone	CLOONSHEAR MORE	4	3940
79	CO069-013—	120875	74074	Stone circle - multiple-stone	GORT AN IMILL	1	4017
80	CO081-013—	121899	64951	Mass-rock	CURRAHEEN (Muskerry West By., Inchigeelagh Par.)	10	4103
81	CO081-041—	115978	67255	Mass-rock	KILMORE (Muskerry West By.)	7	4142
82	CO081-042—	115884	67378	Fulacht fia	KILMORE (Muskerry West By.)	7	4168

Map ID	RMP NO.	IG E	IG N	DESCRIPTION	TOWNLAND	WTG ID	DISTANCE (M)
83	CO081-003—	116014	67129	Burial ground	KILMORE (Muskerry West By.)	7	4174
84	CO081-035—	116014	67129	Souterrain	KILMORE (Muskerry West By.)	7	4174
85	CO081-038—	116014	67129	Ecclesiastical site	KILMORE (Muskerry West By.)	7	4174
86	CO081-004—	116296	66692	Standing stone	NA CURRAITHE	7	4185
87	CO081-050—	119011	64725	Megalithic structure	COORNAHAHILLY	10	4198
88	CO069-005001-	120508	74267	Country house	GORT AN IMILL	1	4226
89	CO069-005002-	120533	74301	Designed landscape - belvedere	GORT AN IMILL	1	4257
90	CO069-072—	115160	69353	Bullaun stone	EACHROS	6	4313
91	CO069-084—	115143	69666	Ritual site - holy well	EACHROS	6	4322
92	CO081-002—	115615	67570	Mill - fulling	KILMORE (Muskerry West By.)	7	4333
93	CO081-024—	119975	64350	Ringfort - rath	COORAGREENANE	10	4385
94	CO069-004001-	117905	73807	Ringfort - cashel	GORT UÍ RAITHILE	6	4468
95	CO069-004002-	117905	73807	Souterrain	GORT UÍ RAITHILE	6	4468
96	CO070-067—	125475	71417	Ritual site - holy well	BAILE AN BHUAIDH	3	4519
97	CO069-088—	120579	74579	Mass-rock	GORT AN IMILL	1	4531

Map ID	RMP NO.	IG E	IG N	DESCRIPTION	TOWNLAND	WTG ID	DISTANCE (M)
98	CO069-038001-	114924	69445	Burial ground	GOIRTÍN NA COILLE	6	4544
99	CO069-038002-	114924	69439	Church	GOIRTÍN NA COILLE	6	4545
100	CO070-066—	125483	71487	Burial ground	BAILE AN BHUAIDH	3	4550
101	CO082-003—	125693	68453	Standing stone	COOLEEN (Muskerry West By.)	4	4593
102	CO069-020—	123454	73981	Standing stone - pair	CEANN DROMA	3	4644
103	CO069-091—	123632	73942	Standing stone	CEANN DROMA	3	4699
104	CO069-090—	123650	73959	Megalithic tomb - wedge tomb	CEANN DROMA	3	4723
105	CO069-019—	122750	74396	Standing stone	RAHOONAGH EAST	1	4728
106	CO081-047—	119146	64135	Megalithic tomb - wedge tomb	GORTNACARRIGA (Muskerry West By.)	10	4729
107	CO069-036—	114774	70288	Enclosure	CATHAIR NA CÁITHE	6	4738
108	CO070-004—	124363	73459	Standing stone	CEANN DROMA	3	4742
109	CO069-010—	120064	74745	Redundant record	GORT NA FUINSEANN	1	4757
110	CO070-117—	124039	73745	Fulacht fia	CEANN DROMA	3	4761
111	CO070-054—	124759	73092	Standing stone - pair	NA CÚLACHA	3	4762

Map ID	RMP NO.	IG E	IG N	DESCRIPTION	TOWNLAND	WTG ID	DISTANCE (M)
112	CO069-009—	119982	74752	Redundant record	CÚIL AN MHOTHAIR	1	4778
113	CO070-056—	125185	72593	Ringfort - rath	CATHAIR DAITHÍ	3	4791
114	CO081-025—	120277	63907	Standing stone	COORAGREENANE	10	4817
115	CO070-057001-	125252	72617	Ringfort - rath	CATHAIR DAITHÍ	3	4860
116	CO081-034—	117239	64920	Redundant record	GORTNAREA	10	4874
117	CO070-057002-	125279	72631	Standing stone	CATHAIR DAITHÍ	3	4890
118	CO070-059—	124915	73152	Standing stone	CATHAIR DAITHÍ	3	4918
119	CO069-087—	119943	74891	Mass-rock	GORT NA FUINSEANN	1	4922
120	CO070-003—	124198	73830	Fulacht fia	CEANN DROMA	3	4924
121	CO070-058—	125336	72623	Standing stone	CATHAIR DAITHÍ	3	4933
122	CO069-066—	120430	74995	Fulacht fia	GORT AN ACRA	1	4958
123	CO069-063—	123854	74110	Fulacht fia	CEANN DROMA	3	4958
124	CO070-069—	126015	71190	Ringfort - rath	BAILE AN BHUAIDH	3	4968
125	CO069-058—	122938	74608	Ringfort - rath	RAHOONAGH EAST	1	4998
126	CO069-059—	122938	74608	Souterrain	RAHOONAGH EAST	1	4998

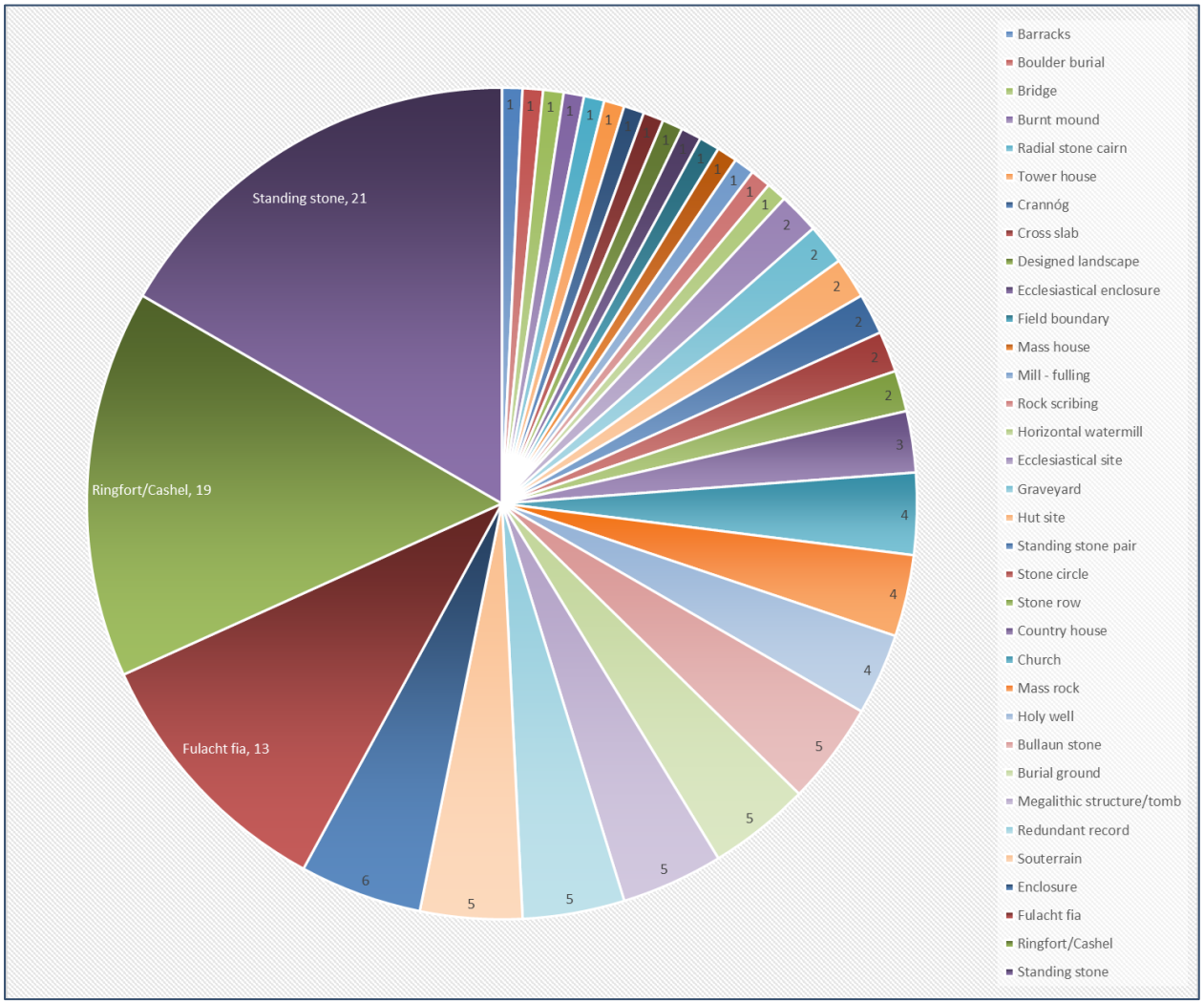

Figure 12-8: Monument numbers within 5km of the nearest turbine.

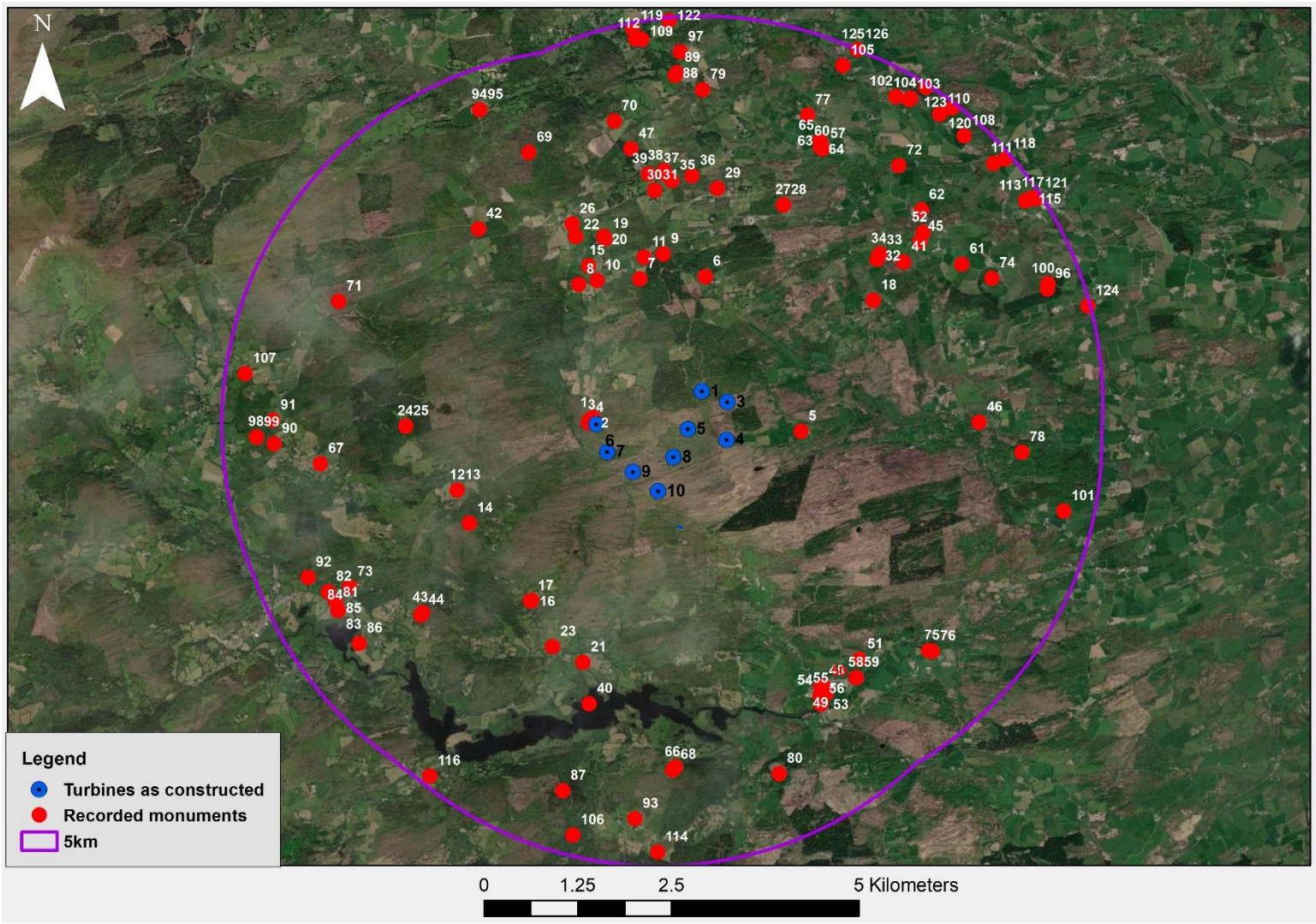

Figure 12-9: Recorded monuments within 5km of the nearest turbine.

The Prehistoric Period

The prehistoric period is strongly represented within the 5km study area containing a number of standing stones, fulachta fia, hut sites, stone rows, stone circles, a radial stone cairn and megalithic tombs.

Fulachta Fia

Fulachta fia account for thirteen (13) monuments within the 5km study area with one burnt mound also located therein. This monument type may span from the Bronze Age (c. 2400-500 BC) to the early medieval period (5th - 12th century AD) but more typically are accepted to belong to the Bronze Age. They consist of a horseshoe, circular or irregularly shaped mound of material consisting of burnt stones, ash and charcoal with no surface evidence of a trough or depression. Levelled examples can appear as a spread containing burnt stones.

The fulacht fias are at varying distances from the nearest turbine (1.7-4.9km). The Zone of Theoretical Visibility (ZTV) (LVIA Chapter 13) shows that varying numbers of turbines are visible from these monuments.

Radial Stone Cairn

Radial stone cairns are somewhat enigmatic monuments which are believed to be Bronze Age in date through their occasional association with stone circles, stone rows and pairs of standing stones (Power *et al.* 1992, 26). The monument consists of a circular arrangement of twelve radially set stones with the two tallest stones at the south-west forming an entrance like feature. Radial cairns are distinctive monuments and are so-called due to the alignment of the stone's long axes towards the centre of the circle. They are known in small numbers and are concentrated in the south-west of Ireland in counties Cork and Kerry. One radial stone cairn is located within 5km of the nearest turbine and is c. 3km from T6.

The Zone of Theoretical Visibility (ZTV) (LVIA Chapter 13) shows that 7-9 turbines are visible from this location. At a distance of 3km, however, the impact to the wider setting of the monument is regarded as Not Significant.

Hut Sites

Hut sites account for only 2 of the 126 monuments within 5km of the nearest turbine and are those at Derrineanig townland which were discovered during previous, field survey (described above). The primary function and date of hut sites is slightly ambiguous. Examples of hut sites are known throughout the country, particularly in upland regions, and are frequently associated with the practice of transhumance or booleying. Transhumance refers to the practice of the seasonal movement of people and their livestock typically to higher pastures in the summer and lower valleys in the winter. In Ireland this practice is known as booleying and is believed to date to the early medieval period, although it continued well into the nineteenth and early twentieth century. Other uses for hillside huts have been noted at Mount Brandon, County Kerry, where it is suggested that they functioned as temporary habitations for seabourne pilgrims. It is also thought that they were used as habitation sites such as booleying huts during the year when pilgrimage was not taking place.

The Zone of Theoretical Visibility (ZTV) (LVIA Chapter 13) shows that 1-3 turbines are visible from the hut sites which are located c. 89-96m from T6. A change to their wider setting is therefore acknowledged and is regarded as slight.

Megalithic Tombs

Four wedge tombs and one megalithic structure are located within 5km of the nearest turbine. All are located in excess of 2.5km, ranging from 2.7km-4.7km, from the nearest turbine and are distributed to the north, north-east, north-west and south of the rEIAR Study Area where any existing potential inter-

visibility or alignments will not be impacted. They are the most widespread of the megalithic tomb types found in Ireland. Their name is derived from a wedge-shaped chamber which is usually higher and wider at one end. Wedge tombs were used as places of burial and can contain both burnt and unburnt human remains as well as grave goods such as pottery. Radiocarbon dates from a number of excavated wedge tombs suggests a late Neolithic-Early Bronze Age (2500-1800BC) date for these monuments.
The Zone of Theoretical Visibility (ZTV) (LVIA Chapter 13) shows that 7-9 turbines are visible from these recorded monuments. At a distance of 2.7km-4.7km, however, the impact to the wider setting of the monuments is regarded as Not Significant.

Standing Stones

Twenty-one standing stones are distributed within the 5km study area. The majority of these stones occur in excess of 2km from the nearest turbine, with the nearest stone 1.9km to the north. Standing stones are a common feature of the prehistoric Irish landscape consisting of single, upright stones. They are known by various names such as gallán, dallán and long stone. All standing stones are not necessarily of the same date or have the same function. Excavations of standing stones have shown that some mark prehistoric burials and some may have had a ritual or commemorative function. They have similar axis to standing stone pairs and may therefore date to the Bronze Age (2400-500BC).

The Zone of Theoretical Visibility (ZTV) (LVIA Chapter 13) shows that 7-9 turbines are visible from 15 standing stones, 4-6 turbines are visible from one standing stone and 1-3 turbines from another. There is no visibility of turbines from four of the monuments. A change to the wider setting of many of these monuments is therefore acknowledged but at distances ranging from 1.9km-4.9km this impact is regarded as Not Significant.

Stone Rows and Pairs
Two stone rows and two standing stone pairs are located within the 5km study area, all in excess of 2.5km from the nearest turbine. Two main types of stone row have been recognised - a Cork and Kerry group, in which the row comprises up to six stones, typically about 2m in height, with their long axes usually set in line, and a mid-Ulster group, where the row comprises numerous stones, usually not exceeding 1m in height, often found in association with cairns and stone circles. They are considered to have been aligned on various solar and lunar events and date to the Bronze Age (c. 2400-500 BC).

Standing stone pairs are considered to be a small subgroup of stone rows comprising two stones, typically about 2m in height, generally set with their long axes in line. They are also considered to have been aligned on various solar and lunar events and date from the Bronze and Iron Ages (c. 2400 BC - AD 500).

The Zone of Theoretical Visibility (ZTV) (LVIA Chapter 13) shows that 7-9 turbines may be visible from one of the standing stone pairs (Map ID 102) and one of the stone rows (Map ID 35). A change to the wider setting of these monuments is therefore acknowledged but at distances ranging from 2.8km-4.6km this impact is regarded as Not Significant. The ZTV also shows that no turbines will be visible from the other stone row (Map ID 23) and standing stone pair (Map ID 111).

Stone Circles
One five-stone circle and one multiple-stone circle are located within the 5km study area. The five-stone circle is situated 2.9km to the north of the nearest turbine, T1 while the multiple stone circle is 4km to the north of T1. Multiple stone circles are a distinctive form of stone circle found only in counties Cork and Kerry. They comprise a ring of free-standing stones, uneven in number (between 7 and 19) and symmetrically arranged so that one stone, the axial stone, is set directly opposite two stones, usually the tallest, marking the entrance to the circle. Characteristically, the stones reduce in height to the axial stone, which is set consistently in the south-western part of the circle. The diameters of these circles rarely exceed 10m. These circles form part of the funerary/ritual tradition of the Bronze Age (c. 2400-500 BC). Five stone circles are also a distinctive form of stone circle found only in counties Cork and

Kerry. They comprise a ring of five free-standing stones, symmetrically arranged so that one stone, the axial stone, is set directly opposite two stones, usually the tallest, marking the entrance to the circle. Characteristically, the stones reduce in height to the axial stone, which is set consistently in the south-western part of the circle. These circles are thought to have a ritual function and are dated to the Bronze Age (c. 2400-500 BC).

The Zone of Theoretical Visibility (ZTV) (LVIA Chapter 13) shows that 7-9 turbines may be visible from both stone circles (Map ID 79 and 37). At a distance of between 2.9km-4km, however, the change to their wider setting is regarded as Not Significant.

Boulder Burials

One boulder burial is located 3.6km to the south of the nearest turbine, T10. These monuments comprise a large boulder or capstone of megalithic proportions, resting on a number of supporting stones, usually three or four in number, which, in most cases, do not form a recognisable chamber structure. Excavations suggest a Bronze Age date for this burial monument (c. 2400-500 BC).

The ZTV shows that 7-9 turbines may be visible from this monument, however at a distance of 3.6km to the nearest turbine the change to the wider setting of the boulder burial is regarded as Not Significant.

The Early Medieval Period

The majority of the remaining monuments (32) within 5km of the nearest turbine consist of those which may be definitively attributed to the Early Medieval period (crannóg, ringforts, enclosures and souterrains and a horizontal watermill). The Zone of Theoretical Visibility (ZTV) (LVIA Chapter 13) shows that 7-9 turbines may be visible from the majority of ringforts and enclosures located within 5km of the wind farm. While a change to the wider setting of these monuments is acknowledged it is regarded as Slight-Not Significant.

Ringforts comprise earthen monuments while cashels take a similar form to the latter but are constructed using stone. Enclosures may represent the remains of ringforts or cashels but may not retain enough features to classify them as such or fall outside the acceptable size range for these monuments. Ringforts consist of a circular or roughly circular area enclosed by an earthen bank formed by material thrown up from the digging of a concentric ditch on its outside. Ringforts are usually enclosed by a single bank (univallate) while bivallate or trivallate ringforts i.e. those enclosed by double or triple rings of banks are less common. The number of banks and ditches enclosing these monuments are considered to reflect the status of the site, rather than the strengthening of its defences. Archaeological excavation has shown that the majority of ringforts functioned as enclosed farmsteads, built during the Early Christian period (5th – 9th century A.D.). Excavation within the interior of the monuments has traced the remains of circular and rectangular dwelling houses as well as smaller huts probably used to stall animals. The enclosing earthworks would also have protected domestic livestock from natural predators such as wolves and foxes. Souterrains are frequently associated with ringforts, cashels and enclosures. Souterrains derive their name from the French sous terrain meaning ‘underground’ and comprise an underground structure consisting of one or more chambers connected by narrow passages or creepways, usually constructed of drystone-walling with a lintelled roof over the passages and a corbelled roof over the chambers. Most souterrains appear to have been built in the early medieval period by ringfort inhabitants (c. 500 - 1000 AD) as a defensive feature and/or for storage.

Sites with religious or ritual association

Twenty-nine monuments within 5km of the wind farm development have religious associations and include churches (4), burial grounds (5), graveyards (2), holy wells (4), bullaun stones (5), ecclesiastical sites and enclosures (3), mass rocks (4), a mass house (1) and a cross slab (1). Holy wells may have their origins in prehistory but are associated with devotions from the medieval period (5th-16th centuries AD) onwards. Mass rocks of which there are 4 are rocks or earthfast boulders used as an altar or a stone-

built altar used when mass was being celebrated during Penal times (1690s to 1750s AD), though there are some examples which appear to have been used during the Cromwellian Period (1650s AD). Mass houses are often associated with mass rocks and consisted of a secular building used to celebrate Mass during Penal times (1690s to 1750s AD). Churches, graveyards and burial grounds are also present within 5km of the development, the majority of which are situated between 3.4km-4.5km from the nearest turbine.

Five bullaun stones are located within the 5km study area. The term 'bullaun' (from the Irish word 'bullán', which means a round hollow in a stone, or a bowl) is applied to boulders of stone or bedrock with hemispherical hollows or basin-like depressions, which may have functioned as mortars. They are frequently associated with ecclesiastical sites and holy wells and so may have been used for religious purposes. Other examples which do not appear to have ecclesiastical associations can be found in bedrock or outcrop in upland contexts, often under blanket bog, and are known as bedrock mortars. They date from the prehistoric period to the early medieval period (5th-12th centuries AD). The nearest of these stones is situated over 2.7km from the nearest turbine, T1. Two ecclesiastical sites and one ecclesiastical enclosure are situated between 2.8km-4.1km from the nearest turbine.

The Zone of Theoretical Visibility (ZTV) (LVIA Chapter 13) shows that varying numbers of turbines are visible from these monuments. For examples, of the four churches within 5km of the nearest turbine three are in an area where 4-6 turbines may be visible while no turbines will be visible from the fourth church. The monuments range in distance from the nearest turbine between 2.7km-4.9km and while a change to their wider setting is acknowledged this is regarded as Not Significant.

The Medieval Period

A tower house (CO081-017) at Carrignacurra townland, c. 3.8km from the nearest turbine, T4, dates to the medieval period. The structure is extant and roofed and is situated c. 1km north-east of the village of Inchigeelagh. Tower houses comprise a fortified residence in the form of a tower, usually four or five storeys high, and for the most part slightly more rectangular than square in plan. They were constructed by a lord or landholder and were often partially or completely enclosed by a bawn. The majority date to the 15th and 16th centuries AD.

The Zone of Theoretical Visibility (ZTV) (LVIA Chapter 13) shows that no turbines are visible from this monument.

The Post-Medieval Period

A number of monuments (7) within 5km of the wind farm development may be attributed to the post-medieval period (post-1700 AD). All are located in excess of 3.4km from the nearest turbine.

A barracks (CO081-014005) is located within 5km of the wind farm development in the village of Inchigeelagh at a distance of 3.5km from the nearest turbine (T10). No information exists in the Archaeological inventory of County Cork pertaining to this monument. The outline of this barracks is traceable on the 1st edition OS historic map by which time this ‘star-shaped’ fort had gone out of use. It is depicted as ‘Site of Military Barracks’ (not to be confused with Constabulary Barracks further to the south). The outline of the fort in question appears 17th century in date, not unlike the star-shaped forts of Elizabeth and Charles in Kinsale, although perhaps on a smaller scale.

Three country houses and a designed landscape feature are also located within 5km of the development. Country houses comprise the rural residence of the landed gentry. These houses date from the late 17th century to the first half of the 19th century AD. Frequently associated with country houses are landscape features such as follies and other structures/features found within the demesne of the house.

The Zone of Theoretical Visibility (ZTV) (LVIA Chapter 13) shows that no turbines are visible from the country houses.

12.3.1.1.5 Archaeological Investigations/Excavations undertaken within the wind farm development site

As outlined above in section 12.2.2.8, two phases of pre-development archaeological testing were carried out on the Cleanrath wind farm development site in 2011 and 2018. The 2018 phase of testing was followed by a programme of archaeological monitoring of topsoil/peat removal associated with the wind farm development which typically comprised a daily archaeological presence on site to supervise such works. No archaeological finds, features or deposits were uncovered in the Cleanrath wind farm development site during the pre-development archaeological testing or the construction-phase programme of archaeological monitoring. This work is summarised on the excavations database (www.excavations.ie) in entry numbers 2011:088 and 2019:382.

12.3.1.1.6 Topographical Files of the National Museum of Ireland

The topographical files of the National Museum of Ireland were consulted for archaeological finds from the townlands within the wind farm development or along the associated grid connection route. The majority of townlands so not have any such finds recorded apart from Milmorane (see below).

Augeris - nothing recorded

Carrignadoura - nothing recorded

Cleanrath North - nothing recorded

Cleanrath South - nothing recorded

Cloontycarthy - nothing recorded

Coomlibane - nothing recorded

Derreen - nothing recorded

Derreennacarton - nothing recorded

Derrineanig - nothing recorded

Gorteenakilla - nothing recorded

Gurteenflugh - nothing recorded

Gurteenowen - nothing recorded

Lackabawn - nothing recorded

Lyrenageeha - nothing recorded

Milmorane - 1944:225 -226, Two late bronze age amber beads found in upland bog in 1943. OS6" sheet no. 69, 81. 1944:227 - Gold mount found with two amber beads (1944:225,226) in upland bog. OS6" sheet no. 69, 81.

Rathgaskig - nothing recorded

12.3.1.1.7 *Cartographic Evidence*

1st and 2nd Edition OS maps

The Ordnance Survey came to Ireland in 1824 in order to carry-out a precise admeasurement of the country's 60,000 or so townlands as a preliminary to the larger task of reforming Ireland's local taxation system. The townland boundaries were demarcated by a Boundary Commission, and the Ordnance Survey had the task of measuring them. In addition to boundaries the maps are truly topographical in content. Drawn at the large scale of six inches-to-one-mile (1:10,560) it was important to mark all buildings, roads, streams, placenames, etc, that were required for valuation purposes. Ultimately the maps were used as a basis for the rateable valuation of land and buildings in what became known as Griffith's Valuation. Working from north to south, the survey began in Antrim and Derry in 1829 and was completed in Kerry in 1842. It was published as thirty-two county maps between 1832 and 1846, the number of sheets per county varied from 153 for County Cork to 28 for Dublin, each of the 1,994 sheets in the series depicting an area 21,000 by 32,000 feet on the ground. Each county was projected on a different central meridian and so the maps of adjacent counties do not fit neatly together at the edges. Map content stops at the county lines.

The First Edition

The early Ordnance Survey maps are an unrivalled source for the period immediately before the Great Irish Famine (1847-50) when the population was at the highest level ever recorded. Only the first edition OS map is available for the area of the wind farm.

The map depicts a largely open landscape in the area of the wind farm with only small pockets of land enclosed for agriculture and settlement, primarily further to the north and east. The aforementioned hut sites, enclosure and field boundary to the north-west of T6 (see Section 12.3.1.1.2) are not depicted on the first edition mapping. As mentioned above, the second edition mapping for this area is not available.

12.3.1.2 Architectural and Cultural Heritage

A number of documentary and cartographic sources were utilised in order to ascertain the potential for the presence of architectural /cultural heritage features on or within the area of the wind farm. The RPS for County Cork and Kerry and the NIAH were downloaded onto the base mapping to ascertain if any known architectural or cultural heritage features were located in the area of the development. Cultural heritage includes items such as buildings, farmhouses, gates, bridges, piers, and stone field boundaries.

12.3.1.2.1 *Protected Structures within the Cleanrath wind farm development site boundary*

No Protected Structures subject to statutory protection are located within the Cleanrath wind farm development site boundary.

12.3.1.2.2 *NIAH structures within the Cleanrath wind farm development site boundary*

No structures or items listed in the NIAH are located within the Cleanrath wind farm development site boundary.

12.3.1.2.3 Protected Structures within 5km of the nearest turbine

The RPS for County Cork, as well as any additions was obtained as a dataset on ArcGIS online (from Cork County Council) and added to the project base mapping. Structures within 5km are included here (See Section 12.2.5 above for distance criteria). The RPS is largely based on the NIAH and therefore some repetition/overlap occurs between both datasets. All RPS structures within 5km of the nearest turbine are listed in Table 12-5 and are also shown on Figure 12-10. The distances to the relevant turbines are also detailed.

Three RPS structures (419, 543 and 542) are located within 5km of the nearest turbine and range in distance from 2.7-4.3km from same. Two of the RPS are also included in the Record of Monuments and Places and therefore are also listed in Table 12-4 above.

Table 12-5: RPS structures within 5km of the nearest turbines

RPS ID	STRUCTURE	LOCATION	IG E	IG N	RMP	WTG ID	DISTANCE (M)
419	Roman Catholic Church	Reananerree	120220	72742	N/A	1	2766
543	Carrignacurra Castle	Carrignacurra	123896	66592	CO081-017	4	3894
542	Tuck Mill	Kilmore	115614	67570	CO081-002	7	4351

The ZTV shows that no turbines will be visible from Protected Structures 542 and 543, with 7-9 turbines visible from the church at Reananeree. A change to the wider setting of this structure is therefore acknowledged but is regarded as Not Significant given the distance of 2.7km to the nearest turbine.

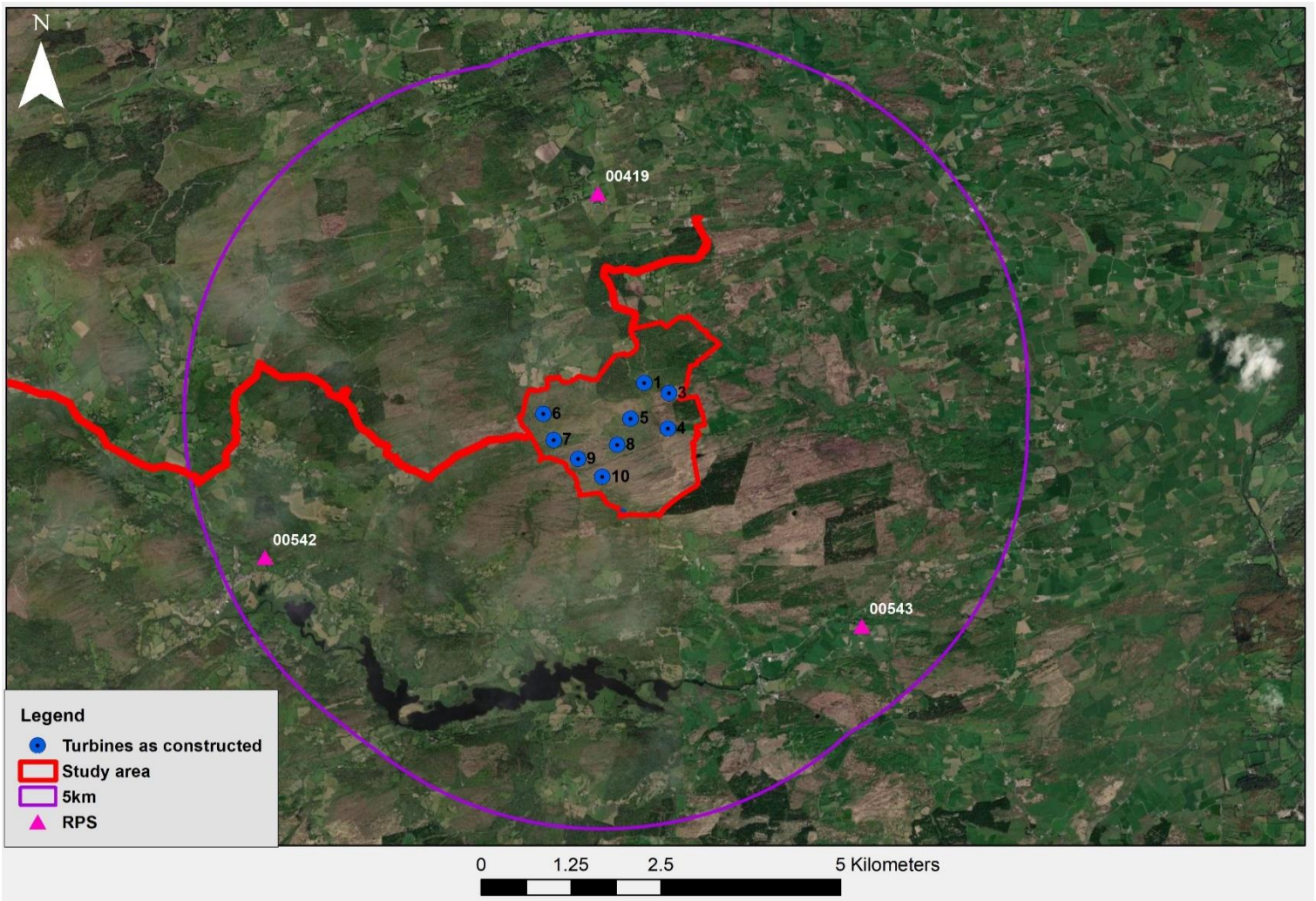

Figure 12-10: Protected structures within 5km of the nearest turbine.

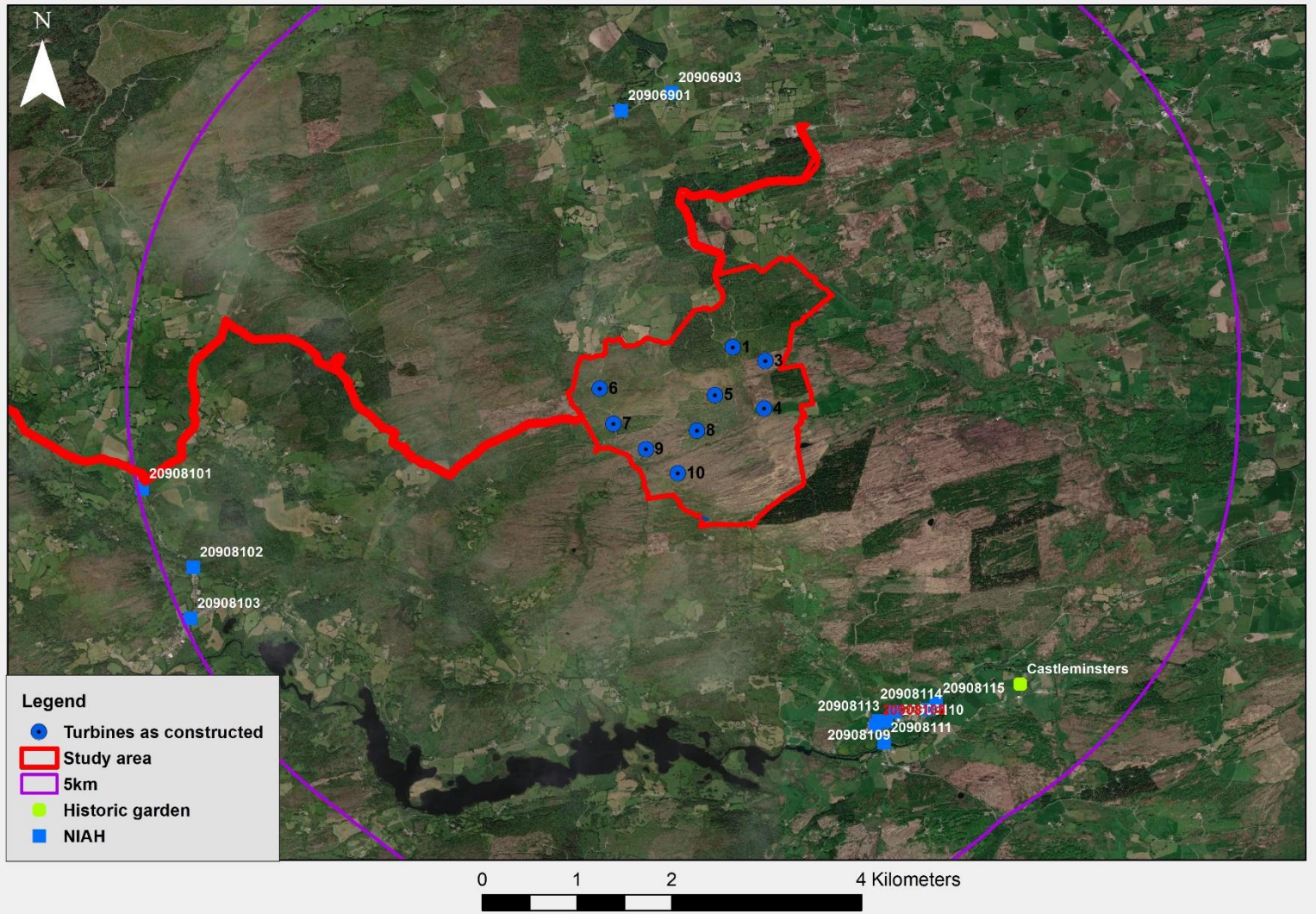

Figure 12-11: NIAH structures and historic gardens within 5km of the nearest turbine.

12.3.1.2.4 NIAH structures and Historic Gardens Located within 5km of the nearest turbine

The NIAH building survey and garden survey (desktop only) for County Cork was obtained as a dataset and added to the project base mapping. Structures within 5km are included here (See Section 12.2.5 above for distance criteria). All NIAH structures and historic gardens within 5km of the nearest turbine are listed in Table 12-6 and are also shown on Figure 12-11. The distances to the relevant turbines are also detailed.

Table 12-6: NIAH structures and historic gardens within 5km of the nearest turbine.

NIAH Reg. /ID	STRUCTURE	LOCATION	DATE	IG E	IG N	VALUE RATING	WTG ID	DISTANCE (M)
20906901	House	Derryfineen	1870 - 1890	119687	27543	Regional	1	2762
20906903	Church/chapel	Reananerree	1860 - 1880	120221	27734	Regional	1	2764
20908114	Church of Ireland church	Carrigleagh	1810 - 1815	122933	66236	Regional	4	3616
20908115	Signpost	Carrigleagh	1930 - 1950	123012	66296	Regional	4	3602
20908101	House	Gorteennakilla	1880 - 1900	114632	68565	Regional	6	4947
20908102	Signpost	Gorteennakilla	1930 - 1950	115168	67736	Regional	7	4693
20908103	Bridge	Dromanallig,kilmore	1780 - 1820	115141	67195	Regional	7	4917
20908108	Shop/retail outlet	Inchigeelagh	1910 - 1930	122375	66065	Regional	10	3380
20908109	House	Carrigleagh	1860 - 1900	122409	66116	Regional	10	3362
20908110	Surgery/clinic	Carrigleigh	1940 - 1960	122578	66208	Regional	10	3402
20908111	Bridge	Cappanclare,carrigleigh	1780 - 1820	122463	65883	Regional	10	3579
20908113	Church/chapel	Inchigeelagh	1840 - 1845	122487	66107	Regional	10	3417
5849		Castleminsters		123900	66500		4	3969

Twelve structures listed in the NIAH and one historic garden are located within 5km of the nearest turbine. The majority of the structures (7) are located c. 3.4km to the south-east in Inchigeelagh village.

The only historic garden (ID 5849) with the 5km study area is also located to the south-east of the wind farm, c. 1km to the east of Inchigeelagh in the vicinity of Carrignacurra Castle (tower house and Protected Structure discussed above) and is known as Castleminsters.

The ZTV shows that 4-6 turbines will be visible from the NIAH structures located in Inchigeelagh village, 3.4km to the south while 7-9 turbines will be visible from the NIAH structures located in Reananerree and Derryfineen c. 2.7km to the north of the nearest turbine. While a change to the wider setting of these structures is acknowledged it is regarded as Not Significant.

The ZTV shows that no turbines will be visible from the NIAH structures further to the west.

12.3.1.2.5 Townlands and administrative boundaries

Townlands and administrative boundaries may indicate the presence of archaeological features within a development site. Administrative counties are subdivisions of pre-established counties which were formed for administrative purposes in the nineteenth and twentieth centuries. Baronies are administrative units larger than civil parishes and originally established as the primary subdivision of counties by the British administration in Ireland. Irish baronies which were formed at the time of the Norman conquest were usually named either after Irish territories, or from places which had been of importance in pre-Norman times. Irish baronies came into existence at different periods. The division of Ireland into counties and baronies was a process which continued down to the reign of James I. The original baronies in Ireland were the domains of the Norman barons; in the final stage of development they were divisions of counties created merely for greater convenience of administration. The word barony is of feudal origin, and was applied to a tenure of a baron, that is, of one who held his land by military service, either directly from the king, or from a superior feudal lord who exercised royal privileges. The origin of the Irish barony (a division of land corresponding to the English hundred) is to be found in the grants of lands which were made to the barons of Leinster and the barons of Meath (Liam Price, 'Ráith Oinn', Éigse VII, lch. 186-7). Civil parishes are administrative units larger than townlands and based on medieval ecclesiastical parishes. Civil parishes, modern Catholic parishes and Church of Ireland parishes may differ in extent and in nomenclature. Counties are administrative units larger than baronies and originally established by the British administration in Ireland between the twelfth and the seventeenth centuries. Some of these were subsequently subdivided into smaller administrative county units.

Townlands are the smallest land units which were determined and established in the Irish administrative system in the first half of the nineteenth century. Many of the townlands were in existence prior to that. Townland names are a valuable source of information, not only on the topography, land ownership and land use within the landscape, but also on its history, archaeological monuments and folklore. Logainm.ie was utilised to ascertain the origin of the townland names.

Table 12-7: Townlands within the Cleanrath wind farm development

Townland Name	Meaning
Derrineanig – 'Dhoire an Aonaigh' (Loganim.ie).	Derry or Dhoire refers to an oak grove or wood (Burnell, 131). The word Eanig refers to a fair although it is not certain if this is the meaning in this context. It may also refer to birds (ean). The placename is recorded since 1631 and is translated as wood of the fair by Joyce (1923).
Cleanrath – Claon Rath.	Claon means sloping (Burnell, 80) and rath refers to fort i.e. sloping fort.

12.3.1.2.6 The Gaeltacht

The Cleanrath wind farm development is located within the Gaeltacht (Figure 12-12). The site is located within the Lee Valley catchment, a culturally distinct area of the Múscraí Gaeltacht. This includes Baile Bhúirne (Ballyvourney), Baile Mhic Íre (Ballymakeera) and Cúil Áodha (Coolea) on the river Sullane, Beál Átha 'n Ghaorthaidh (Ballingeary) and Guagán Barra (Gougane Barra) on the river Lee and the villages of Reidh na nDoirí (Renaniree) and Cill na Martra (Kilnamartra) astride the ridge that forms a watershed between the two valleys.

According to the County Development Plan 2015-2020 'These areas (Gaeltachtaí) require special treatment to protect their linguistic and cultural heritage without hindering development and with an appropriate response to opportunities and challenges' (CDP, 199).

It is considered that this project has not impacted on the Irish language.

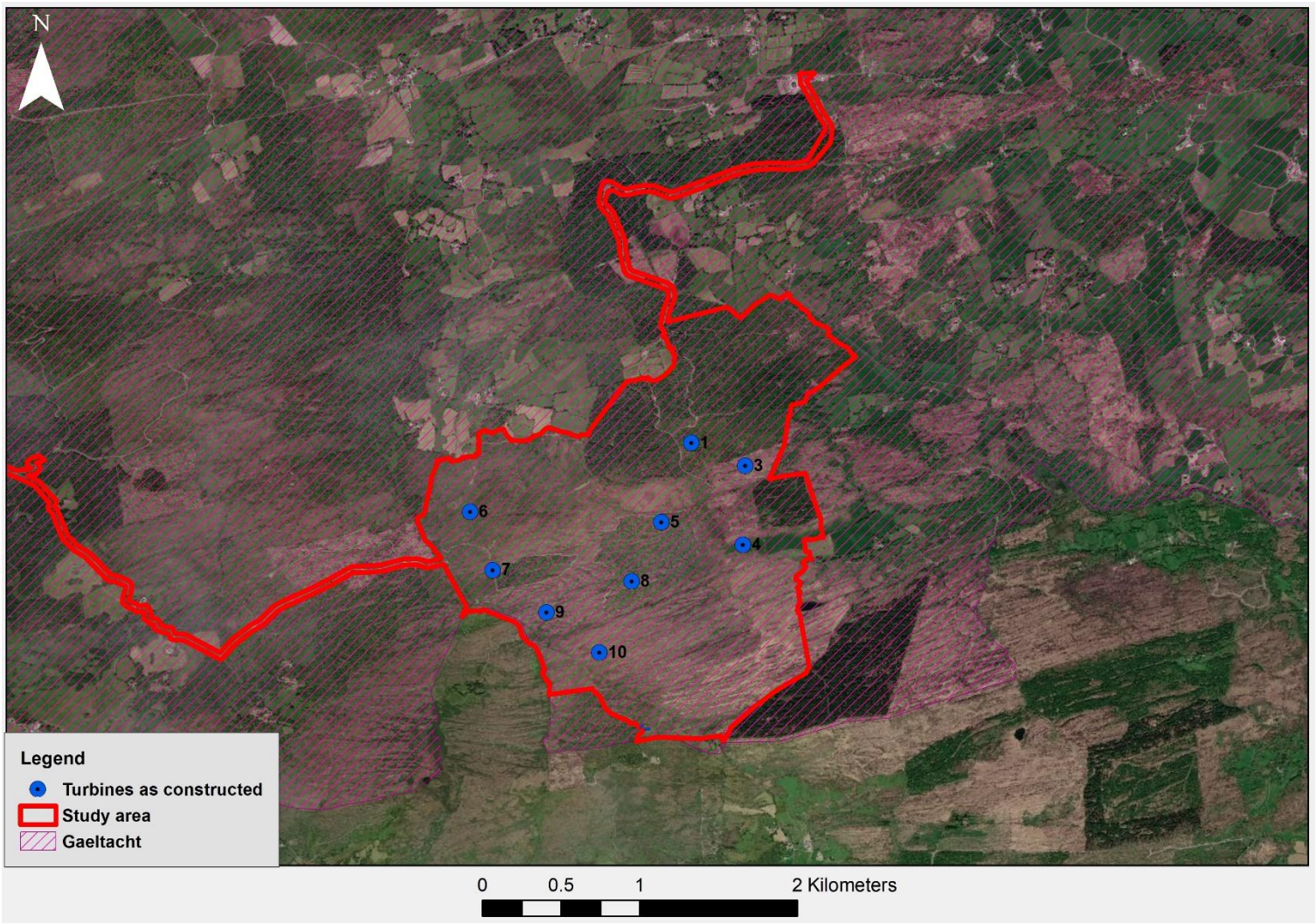

Figure 12-12: Wind farm in relation to Gaeltacht area shown hatched.

12.3.2 The Grid Connection

The grid connection cable route comprises an underground 38kV cable extending within the public road corridor from the Cleanrath wind farm development to the existing Derragh Wind Farm Substation and on to the 110kV Coomataggart substation located in the townland of Grousemount, Co. Kerry. The grid connection route originates from the Cleanrath wind farm development from Turbine No.7. From Turbine No. 7, the cabling route extends west on to the permitted Operational Access/Inspection Road (Pl Ref. 18/04458) and on to the local road in the townland of Derrineanig. The cabling runs in a single circuit trench on the local road to the townland of Rathgaskig where it turns north into the access track of the constructed Derragh Wind Farm development and connecting into the constructed 38KV electricity substation. The cabling returns from the substation to the public road in the townland of Rathgaskig and continues along the public road through Augeris, Gorteenakilla, Carrignadoura, Gurteenowen, Gurteenflugh, Lyrenageeha and Lackabaun townlands as far as the Coomataggart substation in Grousemount townland, Co. Kerry.

12.3.2.1 Archaeological Heritage

Archaeological heritage includes all recorded archaeological monuments listed in the RMP/SMR maps and also includes newly discovered archaeological sites. These monuments are addressed separately for clarity. National Monuments are those recorded monuments which are in the ownership / guardianship of the Minister for Culture, Heritage and the Gaeltacht (DCHG). They are frequently referred to as being in 'State Care'. Archaeological heritage also includes sites which are subject to a preservation order.

As the grid connection comprises an underground cable only monuments within 100m of the route are considered as part of this assessment in terms of potential direct impacts.

12.3.2.1.1 *National Monuments*

No National Monuments in State Care are located within 100m of the grid connection route.

12.3.2.1.2 *Recorded Monuments*

Seven recorded monuments are located within 100m of the grid connection route. They are listed in Table 12-8 below and shown on Figure 12-13.

Table 12-8: RMPs within 100m of the underground grid connection route.

SMR/RMP	MONUMENT TYPE	IG E	IG N	TOWNLAND	DISTANCE (M)
KE095-005-	Anomalous stone group	109830	70197	GROUSEMOUNT	77
CO069-039001-	Ringfort - cashel	116914	69588	RÁTH GHAISCÍGH	51
CO069-039002-	Souterrain	116914	69588	RÁTH GHAISCÍGH	51
CO069-072—	Bullaun stone	115160	69353	EACHROS	17

SMR/RMP	MONUMENT TYPE	IG E	IG N	TOWNLAND	DISTANCE (M)
CO069-084—	Ritual site - holy well	115143	69666	EACHROS	21
CO081-006001-	Ringfort - rath	117606	68731	RÁTH GHAISCÍGH	86
CO081-006002-	Souterrain	117606	68731	RÁTH GHAISCÍGH	86

Ringfort CO069-039001 and Souterrain CO069-039002

These monuments are situated approximately 51m to the east of the underground cable route and is located in and surrounded by forestry to the east of the public road. It is described in the historic Environment Viewer (www.webgis.archaeology.ie/historicenvironment) as follows:

CO069-039001-
Class: Ringfort - cashel
Townland: RÁTH GHAISCÍGH
Scheduled for inclusion in the next revision of the RMP: Yes
Description: In forestry, on SW-facing slope. Circular area (31m N-S; 29m E-W) enclosed by substantial stone wall (H 2.2m; T 2.3m) of dump construction, faced with coursed stone work; ledge (Wth 0.3m) forms possible walkway, on inner face c. 1.3m below wall top. Two niches (Wth 0.9m; D 0.4m; H 0.8m) at walkway level on inner face to NE and SW. Entrance (Wth 3m) to SE; recess in bank on either side of entrance may have held lintels to cover entrance way. Interior uneven and overgrown. Souterrain (CO069-039002-) in interior. Stone structure with lintelled ope visible (Wth 0.51m; D 1.2m; H 0.6m) abutting inner bank face to SSW, partially covered by collapse from bank.

CO069-039002-
Class: Souterrain
Townland: RÁTH GHAISCÍGH
Scheduled for inclusion in the next revision of the RMP: Yes
Description: In NE quadrant of cashel (CO069-039001-). Depression revealed lintelled entrance and passage extending to W. Inaccessible. Further depression a short distance to SE.

Ringfort CO081-006001 and Souterrain CO081-006002

This monument is located on top of a hill adjacent to a farm yard approximately 86m to the south of the cable route. It is described as follows:

CO081-006001-
Class: Ringfort - rath
Townland: RÁTH GHAISCÍGH
Scheduled for inclusion in the next revision of the RMP: Yes
Description: In pasture, atop natural knoll, SW of farmyard. Roughly circular area (37m E-W; 34m N-S) defined by earthen bank (int. H 0.2m; ext. H 2.8m) N->SE; scarp with slight internal lip elsewhere. Entrance (Wth 3.4m) in bank to NE. Interior used as dump for old farm machinery; large slabs of rock in W half; souterrain (CO081-006002-) at centre.

CO081-006002-
Class: Souterrain

Townland: RÁTH GHAISCÍGH
Scheduled for inclusion in the next revision of the RMP: Yes
Description: In ringfort (CO081-00601-). McCarthy (1977, 379-80) noted 'opening [which] slopes downwards, stone-lined. Chambers'. No further details. Opening and two areas of collapsed ground in centre of ringfort indicate position; inaccessible.

Bullaún Stone CO069-072

The nearest recorded monument to the cable route is a bullaún stone (CO069-072), located c. 17m west of the cable. A description from the Historic Environment Viewer describes the monument as follows: 'In field fence, on W side of road. Stone (Wth 1.1m; T 0.35m) standing on its side, protrudes 0.7m above ground level. Hollow (D 0.07m) just above ground level. Traditionally associated with Augeris church (CO069-038002-) c. 250m to NW and moved to its present location pre-1917 (pers. comm. M. Uí Leime, from notes compiled by Fr O'Donoghue in 1917)'.

The cable route extended along the east side of the public road in this area therefore no impacts to this monument occurred.

Holy Well CO069-084

A holy well (CO069-084) is located approximately 313m south of the aforementioned bullaún stone. The well is situated c. 21m west of the cable route on the west side of the public road. The monument is recorded by the Archaeological Survey of Ireland (www.archaeology.ie) as follows: 'On gentle SW-facing slope, close to road and adjacent to field fence. Natural ledge (0.9m X 0.4m) onto which water flows (now directed via pipe) from higher ground to NE. Some water collects in slight hollow on ledge, to a depth of 0.05m. According to information collected by Fr O'Donoghue in 1917, well was associated with Augeris church and graveyard (CO069-03802-; CO069-03801-) c. 300m to SW; rounds were made at well after visiting church (pers. comm. M. Uí Léime)'.

The cable route extended along the east side of the public road in this area therefore no impacts to this monument occurred.

Anomalous Stone Group KE095-005

The cable route extends across the county boundary into County Kerry. Here is extends along an existing access track which was built for the nearby Grousemount substation. The cable route is c. 77m to the south-west of this recorded monument in County Kerry. The monument is extant and was visited as part of the field survey for a previous assessment. It is described on the Historic Environment Viewer as follows:

KE095-005—
Class: Anomalous stone group
Townland: GROUSEMOUNT
Scheduled for inclusion in the next revision of the RMP: Yes
Description: In pasture, on the SW-facing slopes of Lacabaun Mountain. This anomalous stone group consists of a rectangular arrangement (long axis NE-SW) of four non-contiguous stone slabs. The NE slab (H 0.8m; 0.7m x 0.1m) is upright and lies parallel to the SW slab (H 1.22m; 1.2m x 0.12m) at a distance of 3.4m. The SW slab is also upright and has a notch carved on its upper surface. The SE slab (H 1.22m; 1m x 0.15m) is upright and has a notch carved on its SW edge while the NW slab (H 0.15m; 0.95m x 0.06m), which is parallel, barely protrudes above the surface of the bog at a distance of 2.9m.

Plate 12-4: Anomalous stone group KE095-005, looking W.

The construction of the underground grid connection which comprised the excavation of a cable trench along the public road in County Cork was archaeologically monitored by Tobar Archaeological Services. No archaeological finds, features or deposits were uncovered during this work and no direct impacts to those monuments within 100m of the cable route occurred. Archaeological monitoring of the ground works associated with the grid connection in County Kerry was monitored by Laurence Dunne (Laurence Dunne Archaeology) and nothing of archaeological interest was noted during this work (Appendix 12-4).

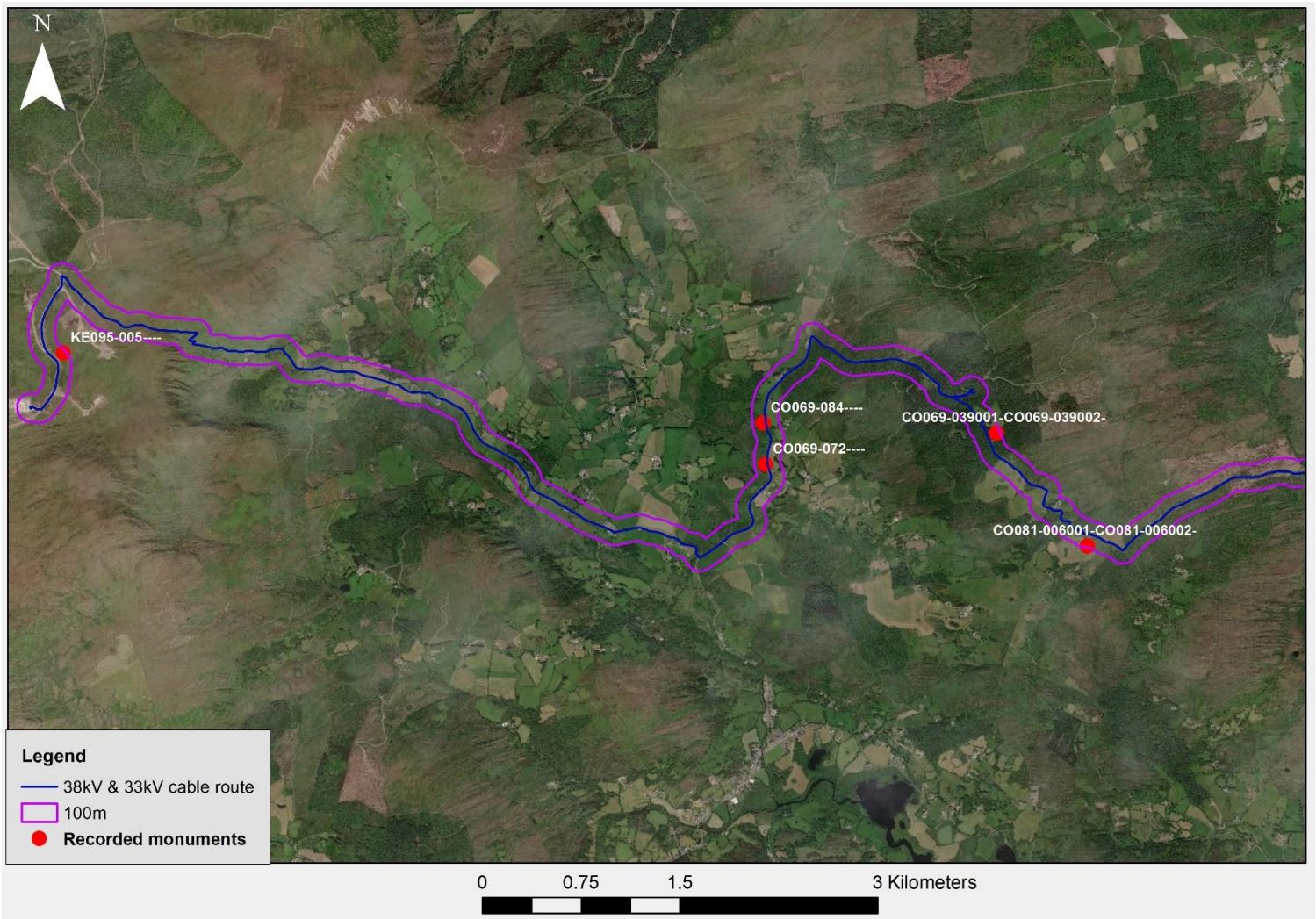

Figure 12-13: Recorded monuments within 100m of the as constructed cable route.

12.3.2.1.3 Newly Recorded Monuments

No new potential archaeological sites or monuments were uncovered along the grid connection route during the previous assessment of same or during archaeological monitoring of ground works associated with the laying of the cable in 2018/2019.

12.3.2.1.4 Archaeological Investigations

A search of the excavations database (www.excavations.ie) for any archaeological work undertaken in all townlands through which the cable route extends was undertaken. A number of entries were returned for Grousemount townland, Co. Kerry and are largely concerned with various programmes of archaeological testing and monitoring carried out for Grousemount Wind Farm which is located to the west of Coomataggart substation. The entry for testing and monitoring of Cleanrath wind farm and monitoring of the associated cable route (by Tobar Archaeological Services in 2018 and 2019) was also returned (see below).

2015:139 - Ballagh/Grousemount/Knockanruddig, Kerry
County: Kerry Site name: Ballagh/Grousemount/Knockanruddig
Sites and Monuments Record No.: n/a Licence number: Unlicensed
Author: Brian Halpin
Site type: Testing
IG: E 108253m, N 69675m
Testing was carried out on a mountainous area for two weeks prior to the development of a windfarm project. The testing was carried out in a centre line for the haul road and platforms. The project was to have continued for a period of three months but the client, the ESB, has halted the monitoring testing aspect of the project for the time being. It is believed that further testing will commence in 2016. At the end of this period of testing nothing of an archaeological or historical nature had been encountered.

2016:173 - Grousemount Wind Farm, Kerry
County: Kerry Site name: Grousemount Wind Farm
Sites and Monuments Record No.: N/A Licence number: 16E0127
Author: David Murphy
Site type: Testing
IG: E 109264m, N 69150m
John Cronin and Associates were commissioned by ESBI to undertake a phased programme of test trenching at the Grousemount Wind Farm development near Kilgarvan, Co. Kerry in order to comply with a grant of planning issued by Kerry Co. Co. (planning ref. 10/1333). The wind farm development involved the amalgamation of two previously approved wind farms: Barnastooka Wind Farm (14 wind turbines) and Grousemount Wind Farm (24 wind turbines). Phase 1 of test trenching was carried out between 05/04/16 and 14/04/16. Testing began to the south of the substation location and progressed upslope in a south-westerly direction. A total of 1.5km of 2m wide centre line test trenching and 615m of test trenching at the locations of BP-H and BP-Q was completed during the Phase 1 investigations at Grousemount Wind Farm.

Two relict field boundaries, of probable post-medieval date, were observed in the general location of BP-Q. The presence of such boundaries in the general wind farm development area was noted in the Cultural Heritage chapter of the EIS prepared for the development. These features were not designated as Cultural Heritage Sites in the EIS and no mitigation strategy was recommended. Aside from the field boundaries no finds, features, deposits of archaeological interest were uncovered during Phase 1 of testing.

Phase 2 was carried out between 28/04/16 and 01/06/16, an approximate total of 7,310m of trenching was completed along the proposed centre line of the main wind farm access roads, turbine access spurs, met mast locations and the turbine base/hardstand locations. While the vast majority of the excavated

trenches proved to be sterile with no finds, features or deposits of archaeological interest generally encountered, a number of previously unrecorded archaeological sites, both extant and sub-surface, were encountered along, and in the vicinity of, the trench route and proposed construction areas. As well as that, a number of previously recorded sites proved to be either in the path of or in close proximity to the proposed access roads. Appropriate mitigation procedures will be implemented at the location of these sites prior to the construction phase of the project in order to protect them and their immediate environment. Mitigation recommendations for the affected sites are:

- On the approach to the T12, 13 and 14 access spurs the cultural heritage chapter of the E.I.S. has identified a number of hut sites/booley huts to the north-east of the access road (CH 19, 20, 21, 22, 24), while they will not be directly impacted by construction works, a marked 20m protective buffer zone will be erected around them to prevent against any accidental damage or encroachment of plant or materials to their vicinity.
- A previously unrecorded probable hut site/booley hut was observed c.40m to the west of the T12 access spur at Irish Grid co-ordinate 109264, 69150. A marked 20m protective buffer zone will be erected around this feature prior to the construction phase to prevent against any encroachment of plant or materials to its vicinity.
- A previously recorded site identified in the Cultural Heritage chapter of the E.I.S., CH25 – hut site/booley hut, at Irish Grid co-ordinate 108784, 69643, was found to be directly in the centre line of the main wind farm access route leading to BP-F. A 20m buffer zone was maintained to the north and south of the site. It has been recommended that it would be appropriate to re-align the road a distance of at least 20m to the west of the existing site, a marked protective buffer zone will also be erected prior to the construction phase of the project to prevent against any encroachment of plant or materials to the vicinity of the site.
- A previously unrecorded probable hut site/booley hut was observed 15m east of the centre line of the proposed access road to BP-F, at Irish Grid co-ordinate 108756, 68774. The planned route of the access road will be re-aligned to the west of the structure to allow for the erection of a marked 20m protective buffer zone around the site.
- A previously unrecorded sub-surface deposit of charcoal-enriched peaty soil and heat-shattered stone, which has been interpreted as a possible burnt spread, was uncovered beneath 0.3m of peaty soil on the centre line of the proposed access road to the west of BP-F at Irish Grid co-ordinate 108225, 68529. Approximately 40m to the west of this deposit the top of the sub-surface remains of a stone bank were also uncovered beneath 0.3m of peaty soil, also on the centre line of the proposed access route, at Irish Grid co-ordinate 108199, 68531. The stone bank, which was constructed of loosely placed, large sub-angular and sub-rounded stones, measured 1.5m in width (east-west) and 0.45m in height. Additional test trenches which were excavated 15m north of the northern extent of both discoveries proved to be sterile. To allow for the possible burnt spread and stone bank to be preserved in situ, the main access road will be re-aligned to follow a more due west orientation (a minimum of 30m from the identified features) as it exits Borrow Pit – F. This will facilitate a route to the north of the sites to be taken before rejoining the original proposed route to the east of the Roughty River.
- Approximately 95m of the access spur to T09 could not be tested due to excessive peat depths. It is recommended that this area be monitored during the construction phase of the project.
- A possible bedrock mortar was observed on small rock measuring 0.83m east-west by 0.5m at Irish Grid co-ordinate 109380, 69577. The hollow is oval in shape measuring 0.2m east-west by 0.16m and is c.60mm in depth, it is located approximately 30m south-east of the main access road between the substation location and Borrow Pit H. A marked 20m protective buffer zone will be erected around the possible feature prior to the commencement of the construction phase of the project to protect against any encroachment of plant or materials to the vicinity of the rock.

2017:189 - Grousemount Wind Farm, Kilgarvan, Kerry
County: Kerry Site name: Grousemount Wind Farm, Kilgarvan
Sites and Monuments Record No.: N/A Licence number: 16E0127 (ext.)
Author: David Murphy
Site type: Testing
IG: E 108486m, N 72299m
Phase 3 testing at the Grousemount wind farm development commenced on 20/10/17 and progressed for the remainder of the year on a staggered basis; works will also extend into 2018. 2017 works saw the completion of testing along the most northerly portion of the route of the new access road in Sillahertane and Coolnagoppoge townlands as well as at the new site compound location. Nothing of archaeological interest was revealed.

Testing was also undertaken along a 125m long portion of the route of the new access road to the immediate south of the new site compound location. A potential feature of archaeological interest was revealed along this section underlying c. 0.8m of undisturbed greyish brown clayey peat at approximate Irish Grid co-ordinate 108407, 72034. Comprised of a number of fragments of apparently worked wood, the feature will be further investigated and assessed during January 2018, following which an appropriate mitigation strategy will be agreed upon by the relevant stakeholders.

2018:451 - Grousemount Wind Farm, Grousemount, Ballagh, Knocknaruddig and Gortlahard, Kerry
County: Kerry Site name: Grousemount Wind Farm, Grousemount, Ballagh, Knocknaruddig and Gortlahard
Sites and Monuments Record No.: N/A Licence number: 16E0127 ext.
Author: David Murphy
Site type: Monitoring and testing
IG: E 109830m, N 69837m
The archaeological mitigation programme undertaken by John Cronin & Associates (JCA) at the Grousemount Wind Farm development site continued throughout 2018. This entailed the completion of Phases 3 and 4 of testing as well as the undertaking of a watching brief of groundworks which ensured a constant archaeological presence was maintained at the development site.

Phase 3 of the testing programme commenced on 20 October 2017 and continued on an intermittent basis until 13 February 2018. Phase 3 comprised testing of the centre-line (or closest possible alignment thereof) of the main wind farm access road which extends from the SID entrance at Sillahertane (to the north-east of the Roughty River) (approx. IG 108671, 72478), south-westwards and upslope as far as the previously tested Barnastooka element of the project (approx. IG 107054, 71440), a distance of c.2.4km. As the final c.400m of the new access road follows the line of an existing farm track which cuts into the surrounding hillside, it was not considered necessary to test this portion of the route. As a result, approximately 2000m of 1.8m-wide linear test trench was excavated along the centre-line of the route of the c.5m wide new access road. Phase 3 also comprised the testing of the new site compound location in Coolnagoppoge townland (approx. IG centre-point 108446, 72210). Three 120m long and 1.8m wide test trenches, spaced 20m apart, were excavated along the long axis (orientated north-east to south-west) of the new compound location. In general, the stratigraphy revealed consisted of c.0.3-1m of dark brown to black peat overlying varying colour stony, clayey silts. No artefacts, features or deposits of archaeological significance were revealed during Phase 3 testing at the Grousemount wind farm development site.

Phase 4 of the testing programme at Grousemount Wind Farm was undertaken between 9 and 12 April 2018. Phase 4 testing comprised the excavation of a 1.8m wide centre-line trench along the route of the proposed main wind farm spine road in portions of Cummeen Upper and Knockanruddig townlands, between approx. IG grid co-ordinates 105865, 70844 and 106685, 70687. A total distance of c.920m was tested before trenching was terminated due to inaccessible terrain. Ultimately, no further testing was undertaken beyond this point due to factors such as excessive peat depths, inaccessible terrain and environmental, logistical and safety concerns. No artefacts, features or deposits of archaeological significance were revealed during Phase 4 testing at the Grousemount wind farm development site.

Monitoring of groundworks at the Cleanrath wind farm development site commenced in January 2018 and continued throughout the year. The stratigraphy observed in the areas of excavation varied depending on the location within the site. In the lower lying areas of improved pasture in the north of the Cleanrath wind farm development site 0.2-0.7m of peaty clay overlay a mix of light grey, brownish grey and yellowish grey sandy, clayey silt with frequent inclusions of varying sized glacial stones and frequent outcrops of sandstone bedrock. In the upland areas of the site, peat depths generally corelated with the gradient of the ground. In some level areas, for example adjacent to River Crossing 26, in the vicinity of T.22 or along the access spur to T.09, peat cover was sometimes over 2.5m in depth. Alternatively, in areas of steeper gradient, such as the main spine road between River Crossing 24 and Junction 06 or along the high ridge between T.19 and the proposed BP-E location, rock outcropping was far more prevalent and there was often only a residual covering of peat (0.3m or less). The underlying subsoil generally comprised a mix of stony, clayey silts and sandstone bedrock. The colouration of the stony, clayey silts generally varied from light brownish grey to purplish grey to reddish brown.

As a result of the daily on-site archaeological presence required to undertake the monitoring and watching brief programme, an additional 35 sites of archaeological/cultural heritage interest (designated Newly Identified Cultural Heritage Sites 13 to 47 (NICH13 to NICH47)) were identified within, or immediately adjacent to, the development land take. In the case of the majority of newly identified sites (mainly hut sites and post-medieval agricultural features), the establishment of a fenced 20m radius protective zone or the erection of development boundary fencing provided the necessary level of archaeological mitigation and protection as these sites were not located in the immediate vicinity of construction zones (i.e. within 20m). However, three of the sites identified were located in positions where additional mitigation was required. Mitigation in the form of access track realignment and protective zone establishment allowed for two of the three sites (NICH20 (sub-rectangular drystone enclosure) – T.07 access spur and NICH28 (oval drystone enclosure) – T.21 access spur) to be preserved in situ.

However, a concentration of loose, dry stones, originally tentatively interpreted as a possible collapsed hut site, which was discovered at the south-western end of the T.32 hardstand, was situated in a position where it could not be avoided by wind farm construction works and, as such, preservation in-situ was not feasible. Following consultation with ESBWDL and subsequent to the approval of NMS, excavation (under licence 18E0324) of the feature was undertaken. During the excavation it became apparent that the concentration of dry-stones revealed at surface level was in fact the upper portion of a substantially larger cairn. Following further consultation and approval from the NMS, the cairn was fully excavated and thereby preserved by record. Excavation revealed the cairn to be a burial cairn containing a small sub-rectangular cist of Bronze Age 'short cist' type, see entry for 18E0324 for a summary of the findings of the excavation.

2019:382 - Cloontycarthy, Cleanrath North, Cleanrath South, Derreennacarton, Derrineanig, Turnaspidogy, Milmorane, Coomlibane, Rathgaskig, Derragh, Augeris, Gorteennakilla, Carrignadoura, Gurteenowen, Lyrenageeha and Lackabaun, Cork

County: Cork Site name: Cloontycarthy, Cleanrath North, Cleanrath South, Derreennacarton, Derrineanig, Turnaspidogy, Milmorane, Coomlibane, Rathgaskig, Derragh, Augeris, Gorteennakilla, Carrignadoura, Gurteenowen, Lyrenageeha and Lackabaun
Sites and Monuments Record No.: n/a Licence number: 18E0646
Author: Annette Quinn
Site type: No archaeology found
IG: E 120226m, N 69162m
Pre-development testing of a permitted 9-turbine wind farm was carried out. A total of twelve trenches were excavated where topography and ground conditions allowed. All trenches were excavated to the underlying natural subsoil or bedrock and no archaeological finds, features or deposits were uncovered.

Monitoring was subsequently undertaken within the Cleanrath Windfarm and associated cable route over a period of several months between September 2018 and May 2019. This monitoring was

undertaken on foot of a planning condition from an Bord Pleanála. Full time monitoring of all groundworks were undertaken within the windfarm site and along the underground grid connection from Grousemount via Derragh Substation to the Cleanrath windfarm. In general the stratigraphy within the windfarm consisted of shallow peat and scrub directly overlying natural rock. The natural rock occurred in ridges within intervening pockets of peat. The grid connection cable route consisted of the clearance of the road margin in advance of ducting followed by the excavation of a narrow trench, c. 1.2m deep. The latter was excavated mainly through natural subsoil with rock occurring in places. No archaeological finds, features or deposits were encountered during monitoring.

2018:693 - Derragh, Rathgaskig and Lackbeg, Ballingeary, Cork
County: Cork Site name: Derragh, Rathgaskig and Lackbeg, Ballingeary
Sites and Monuments Record No.: n/a Licence number: 18E0637
Author: Miriam Carroll
Site type: No archaeology found
IG: E 116787m, N 70392m
Pre-development testing took place of a permitted 6 turbine wind farm. A total of eight trenches were excavated where topography and ground conditions allowed. All trenches were excavated to the underlying natural subsoil or bedrock and no archaeological finds, features or deposits were uncovered.

Archaeological Monitoring of Groundworks Associated with the Grid Connection

The excavation of the trench to accommodate the cables for the grid connection was archaeologically monitored by competent archaeologists between September 2018 and April 2019. The trench was excavated mainly along public roads and a private track towards the west end of the route. No archaeological finds, features or deposits were uncovered in the cable trench during the archaeological monitoring therefore no direct impacts to the archaeological resource, recorded or unrecorded, was identified.

12.3.2.1.5 *Topographical Files of the National Museum of Ireland*

The topographical files for townlands within the wind farm and along the grid connection route are detailed in section 12.3.1.1.6 above.

12.3.2.2 Architectural and Cultural Heritage

A number of documentary and cartographic sources were utilised in order to ascertain the potential for the presence of architectural /cultural heritage features along the grid connection route. The RPS for County Cork and Kerry and the NIAH were downloaded onto the base mapping to ascertain if any known architectural or cultural heritage features were located in the area of the development. Cultural heritage includes items such as buildings, farmhouses, gates, bridges, piers, and stone field boundaries.

12.3.2.2.1 *Protected Structures along the Grid connection Route*

No Protected Structures listed in the RPS for either County Cork or County Kerry are located within 100m of the grid connection route.

12.3.2.2.2 NIAH Structures and Historic Gardens along the Grid Connection Route

One structure listed in the NIAH for County Cork is located within 100m of the grid connection route. It comprises a house in the townland of Gorteennakilla (Reg. 20908101) c. 72m to the south-west of the cable route. It is described on the NIAH website (www.buildingsofireland.ie) as follows:

Description

Detached three-bay two-storey house, built c.1890, with recent extensions to side (west) and rear (north). Pitched slate roof with rendered chimneystacks, uPVC rainwater goods and decorative terracotta ridge tiles. Painted lined-and-ruled rendered walls with decorative panelling, string course and eaves course. Square-headed openings with render surrounds and decorative pediments moulding. One-over-one replacement timber sliding sash windows with concrete sills. Recent timber glazed door and overlight. Outbuildings to rear and rubble boundary walls to front.

Appraisal

Located on slightly raised ground in open countryside, this structure has a commanding view towards Ballingeary village to the south. This house, although of a characteristic rural two-storey nineteenth century form, is distinctive for its decorative render detailings.

Plate 12-5: NIAH Reg, 20908101 at Gorteennakilla townland.

No historic gardens are located along the grid connection route in either Counties Cork or Kerry.

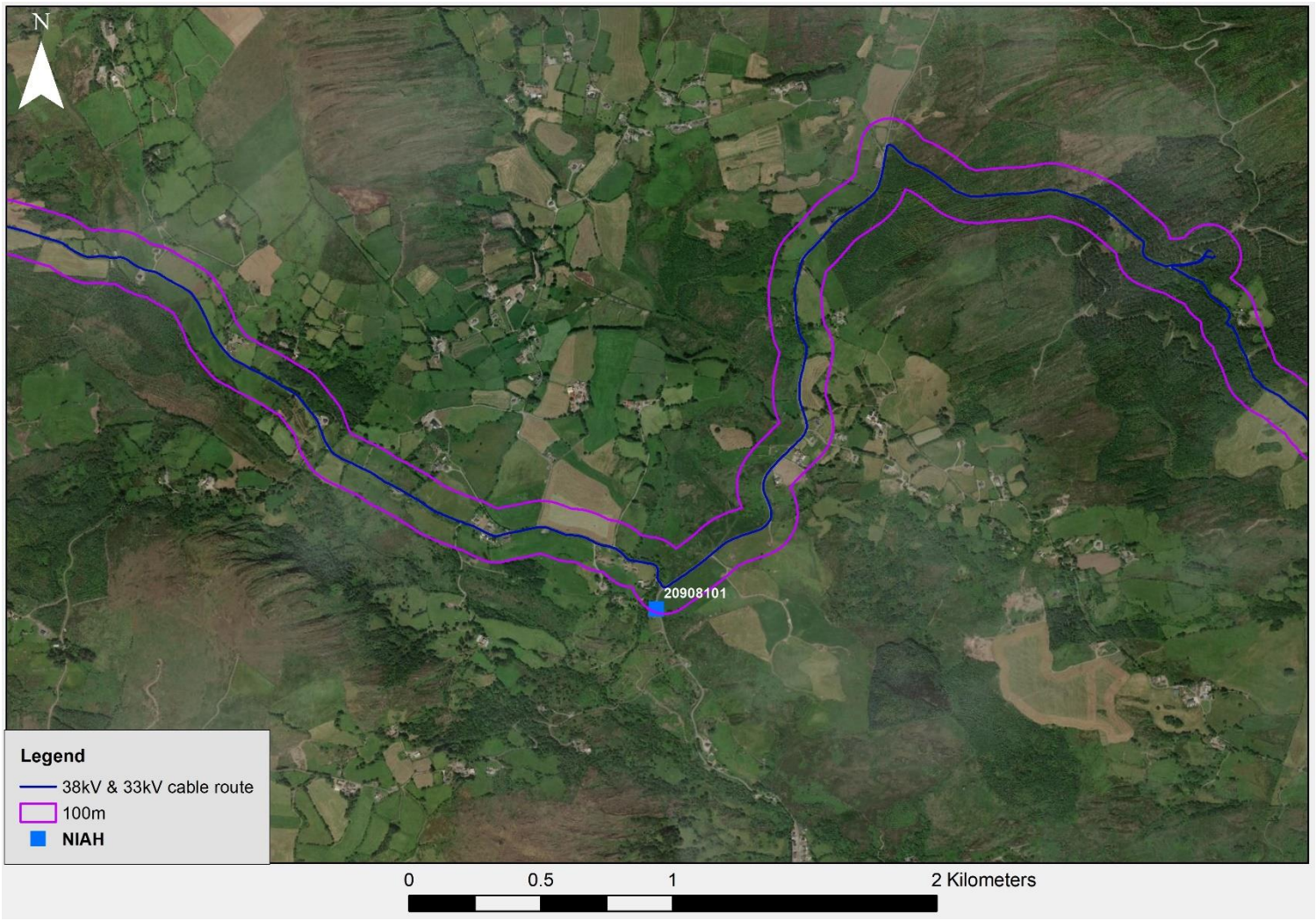

Figure 12-14: NIAH structures within 100m of the grid connection route.

12.3.2.2.3 Review of Historic Mapping for Cultural Heritage Features along the Grid Connection Route

A number of documentary and cartographic sources were utilised in order to ascertain the potential for the presence of architectural/cultural heritage features along the grid connection route. Previous field inspection of the route also assisted in establishing the potential for the presence of architectural/cultural heritage features. Architectural and cultural heritage includes items such as buildings, farmhouses, gates, bridges, piers, and stone field boundaries.

Items of potential architectural/cultural heritage noted on the 1st Edition OS mapping

As part of the desktop assessment of the then Cleanrath wind farm grid connection route, 1st edition OS mapping and aerial photography was consulted for items of cultural heritage. It should be noted that the 2nd edition 25-inch mapping for the area is not available. Twenty-one potential cultural heritage items were identified along the route and are listed in Table 12-9 below. The majority of these items are located adjacent to the public road. The features identified are likely to be post-medieval (19th century) in date and field inspection carried out as part of the previous archaeology and cultural heritage assessment determined that many of these items were no longer extant or had no apparent above-ground remains at the time of the field inspection. It should also be noted that items such as these do not have any formal statutory protection but are regarded as being of local heritage merit where surviving. The items are shown on Figure 12-15.

Table 12-9: Cultural heritage features along grid connection route identified from 1st edition OS mapping.

ID	TYPE	IG E	IG N	TOWNLAND
CH1	Lime Kiln	115020	69026	AUGERIS
CH2	Bridge	114641	68667	GORTEENNAKILLA
CH3	Lime Kiln	114416	68778	GORTEENNAKILLA
CH4	Lime Kiln	113692	68976	CARRIGNADOURA
CH5	Structure	113459	69114	CARRIGNADOURA
CH6	Structure	113685	68986	CARRIGNADOURA
CH7	Lime Kiln	112988	69576	GURTEENOWEN
CH8	Bridge/Stepping Stones	112575	69895	GURTEENFLUGH/ LYRENAGEEHA
CH9	Anomaly	112651	69875	GURTEENFLUGH
CH10	Structure	112470	69909	LYRENAGEEHA
CH11	Structure	112126	70030	LYRENAGEEHA
CH12	Culvert	111669	70076	LACKABAUN/ LYRENAGEEHA

ID	TYPE	IG E	IG N	TOWNLAND
CH13	Structure	113140	69461	GURTEENOWEN
CH14	Structure	113108	69459	GURTEENOWEN
CH15	Structure	113329	69314	GURTEENOWEN
CH16	Structure	113692	69000	CARRIGNADOURA
CH17	Structure	113617	69029	CARRIGNADOURA
CH18	Structure	113711	68975	CARRIGNADOURA
CH19	Lime Kiln	112563	69880	LYRENAGEEHA
CH20	Lime Kiln	116714	69798	RATHGASKIG
CH21	Well	116789	69707	RATHGASKIG

Bridges and Stepping Stones

Two bridges (CH 2 and 8) indicated on the 1st OS mapping, but which are not listed in the RPS or NIAH for the County, are located along the cable route where it extends along the public road.

Bridge (CH2) Gorteennakilla Td.

A bridge is indicated here on the 1st edition OS map and was inspected as part of the field survey for the previous assessment of the Cleanrath wind farm grid connection route. It comprises a stone road bridge with low stone parapet walls (Plate 12-6).

Plate 12-6: Stone road bridge (CH2) at Gorteennakilla townland

Bridge/stepping stones (CH8) Gurteenflugh Td.

This feature is indicated as stepping stones on the 1st edition map. The site was visited as part of the field survey for the previous assessment and both a bridge and stepping stones are extant. The bridge has concrete parapet walls, however, seemingly deliberately laid large cobble stones are visible in the river bed and are likely to represent the stepping stones which predate the bridge. The development of bridges from stepping stones is known throughout the country. Before the development of permanent bridges the only means of crossing a river was by ford, boat or stepping stones. Stepping stones provided a crossing point at deeper fords, allowing pedestrians to cross the river whilst staying dry (Heritage Bridges of County Cork, 2013, 4). The date of such stepping stones is difficult to determine but may have been in existence since the prehistoric period right up to the post-medieval period.

Plate 12-7: Bridge (CH8) at Gurteenflugh/Lyrenageeha townlands.

Plate 12-8: Stepping stones (CH8) in river bed at Gurteenflugh/Lyrenageeha.

Lime Kilns

A number of roadside lime kilns are indicated on the 1st edition OS map along the grid connection route. No surface trace of any of the kilns was noted during previous field survey, although overgrowth may obscure such features in places.

The use of lime dates as far back as the Roman period in Britain and from the medieval period in Ireland up to post-medieval times. The uses of lime varied greatly during these periods. Following the Roman period in Britain there was little demand for mortar until the founding of the religious houses and castles. Lime kilns are specifically mentioned in medieval manuscripts as being associated with particular buildings and one of the earliest excavated examples of a medieval lime kiln was at Guilford, Surrey and dated to the 1100's (Williams 1989, 4). Lime kilns that were used in the production of lime for building construction are recorded from medieval contexts such as Trim Castle, Co. Meath, Nicholas Street, Dublin and Drogheda, Co. Louth.

Specific references to the use of lime in Britain as a soil improver date to the early 16th century with implications that the practice had already started in the 15th century (ibid, 6). It was only from the 17th century onwards that lime burning became increasingly common in Ireland for land improvement (McAfee 2004, 136). There was an enormous demand therefore for lime during the agrarian revolution. For example in Britain the Enclosure Acts of the 18th century resulted in large areas of farmland being enclosed and consequently resulted in an increase in demand for agricultural lime (Williams 1989, 6). Prior to the 17th century limestone gravel, rotten limestone and calcerous sands were used directly on the land (Birthistle 1994, 75). Limekilns are usually built into a natural steep slope or bank to facilitate the loading of the limestones into the top of the pot/funnel. An artificial bank or ramp was usually constructed up to the level of the funnel/pot if the kiln was not built into a natural slope or bank.

During the course of archaeological monitoring along the grid connection route two additional items of cultural heritage merit were noted at the roadside and comprised an overgrown lime kiln (CH20) and a roadside well (CH21) at Rathgaskig townland. No impacts occurred to either feature.

12.3.2.2.4 Townlands and administrative boundaries

Administrative counties are subdivisions of pre-established counties which were formed for administrative purposes in the nineteenth and twentieth centuries (see section 12.3.1.2.5 above for further detail). Townlands are the smallest land units which were determined and established in the Irish administrative system in the first half of the nineteenth century. Many of the townlands were in existence prior to that. Townland names are a valuable source of information, not only on the topography, land ownership and land use within the landscape, but also on its history, archaeological monuments and folklore. Logainm.ie was utilised to ascertain the origin of the townland names along the grid connection route.

Table 12-10: Townland names along the grid connection route.

Townland Name	Irish	Meaning (www.logainm.ie)
Derrineanig	Dhoire an Aonaigh	Wood of the fair
Coomlibane	Chom an Leadhbáin	Liaban's hollow
Rathgaskig	Ráth Ghaiscígh	Fort of the champion
Augeris	Eachros	Wood of the horses
Gorteennakilla	Goirtín na Coille	Little field of the wood
Carrignadoura	Carraig na Damhaire	Rock of the water
Gurteenowen	Goirtín Eoghain	Eoghan's little field
Gurteenflugh	An Goirtín Fliuch	Little wet field
Lyrenageeha	Ladhar na Gaoithe	Windy fork
Lackabaun	An Leaca Bhán	White hillside
Grousemount (Kerry)	Cnocán an Phóna	Hillock of the pound

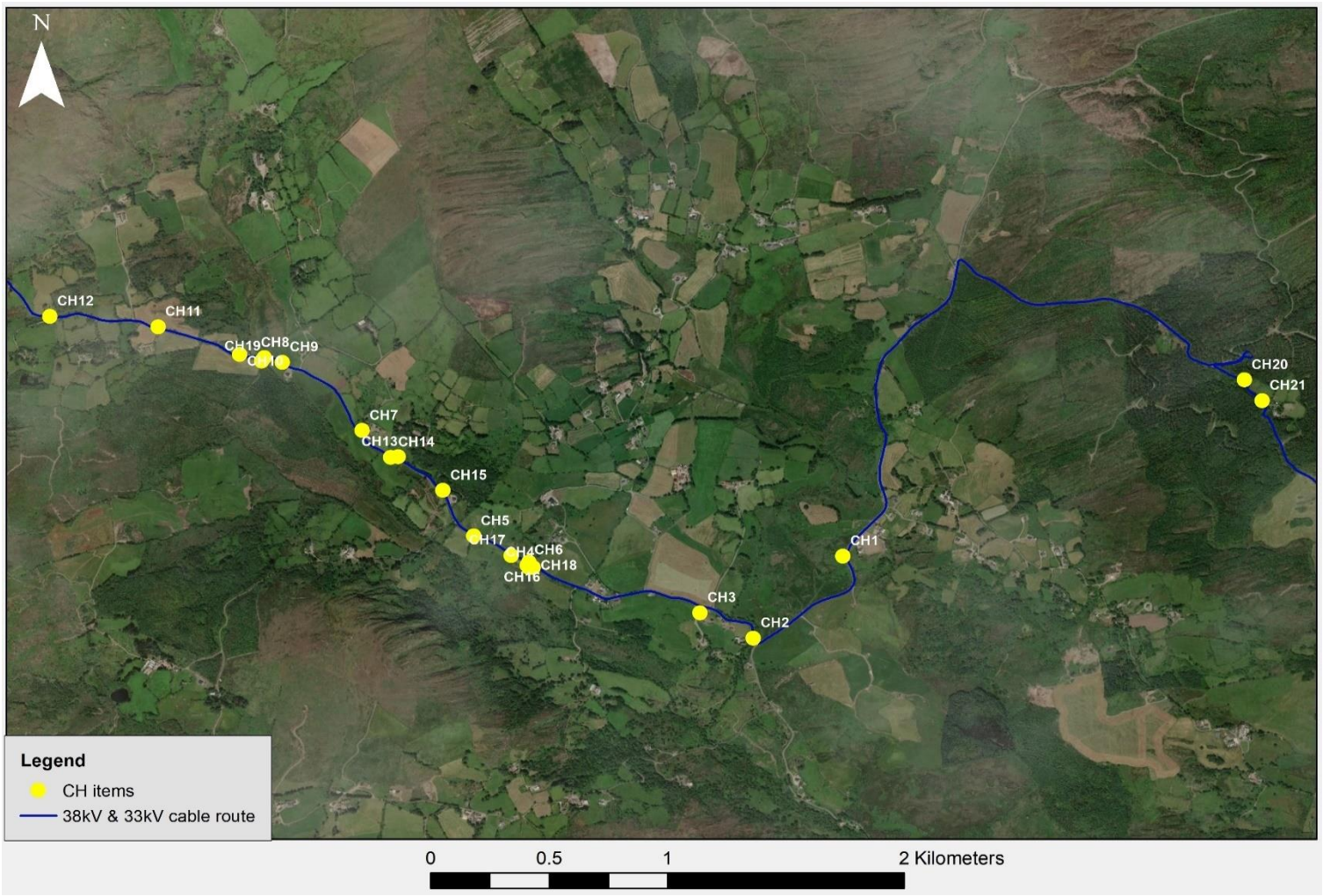

Figure 12-15: Cultural heritage features along grid connection route.

12.3.2.2.5 The Gaeltacht

The grid connection cable route is also located within the Lee Valley catchment, a culturally distinct area of the Múscraí Gaeltacht, which includes Baile Bhúirne (Ballyvourney), Baile Mhic Íre (Ballymakeera) and Cúil Áodha (Coolea, Beál Átha 'n Ghaorthaidh and Guagán Barra.

12.4 Likely Significant Effects and Associated Mitigation Measures

12.4.1 'Do-Nothing' Scenario

An alternative land-use option to developing the Cleanrath wind farm development would have been to leave the site as it was prior to construction, with no changes made to the land-use practices of low-intensity agriculture, turf cutting and commercial forestry. This option would have no positive impact with regards to the production of renewable energy or the offsetting of greenhouse gas emissions. On the basis of the positive environmental effects arising from the Cleanrath wind farm development , the do–nothing scenario was not the chosen option. Instead, an application for planning permission was made and granted ultimately by An Bord Pleanála.

The Cleanrath wind farm development has been constructed, has been operational and is now operating in Sleep Mode with the site essentially in a shut-down mode with no export of electricity pending the outcome of the Substitute Consent process. In the event that Substitute Consent is obtained, the intention is to recommence and continue the full operation of the Cleanrath wind farm development until the end of 25 years from the formal commissioning of the turbines in July 2020 and implement the decommissioning plan for the Cleanrath wind farm development at the end of the operational period.

In the event that Substitute Consent is not granted and full operation of the development is not recommenced, it will remain in Sleep Mode which is, in effect, the "do nothing" option insofar as it represents the current situation as at the date of the application for Substitute Consent. There is the possibility that the decommissioning plan may need to be implemented early, should Substitute Consent not be granted. These scenarios are assessed in this chapter.

12.4.2 Construction Phase Impacts – Indirect

Indirect effects, in terms of archaeology, architectural and cultural heritage are considered to be those effects which happen away from 'the site'. This includes impacts on visual setting of any cultural heritage asset in the wider landscape. Since these visual effects are only possible once turbines are constructed, they are considered operational effects and are therefore discussed in Section 12.4.4 below. No indirect effects were identified which would occur at the construction stage.

12.4.3 Construction Phase Impacts - Direct

Direct impact refers to a 'physical impact' on a monument or site. The construction phase of the development consists largely of earthmoving activities such as peat and topsoil removal and the excavation of cable trenches. The potential impacts on the known and potential archaeological, architectural and cultural heritage of the area are outlined below. The impacts are described according to each element of the development e.g. turbines, hardstands and access roads, and the grid connection.

12.4.3.1 National Monuments in State Care including those with Preservation Orders (Direct Effects)

12.4.3.1.1 *Wind Farm – Turbines, hardstands, access roads*

No National Monuments in State Ownership/Guardianship are located within or adjacent to the rEIAR Study Area and therefore no direct impacts to these aspects of the archaeological resource occurred as a result of ground works associated with the as-built development. Indirect Operational effects are addressed in Section 12.4.5 below.

12.4.3.1.2 *Grid Connection*

No National Monuments in State Ownership/Guardianship are located on or adjacent to the underground grid connection, therefore no direct impacts to these aspects of the archaeological resource occurred as a result of ground works associated with the as-built development. Indirect Operational effects are addressed in Section 12.4.5 below.

12.4.3.2 Recorded Monuments (Direct Effects)

12.4.3.2.1 *Wind Farm – Turbines, hardstands, assess roads*

Four recorded monuments (CO069-094 – Enclosure, CO069-095001 and 002 – hut sites, CO069-096 – field boundary) subject to statutory protection as defined in the Record of Monuments and Places or Sites and Monument Record are located to the north-west of T6. The monuments are situated between 85-100m from the turbine base. Ground works associated with the construction of this turbine, the associated hard stand and access road were subject to archaeological monitoring. No direct impacts to the recorded monuments occurred as a result of the ground works, and no potential features associated with same were uncovered during monitoring of the work.

12.4.3.2.2 *Grid Connection*

Seven recorded monuments are located within 100m of the grid connection route, although none are located immediately on the cable route. Archaeological monitoring of ground works associated with the underground grid connection (i.e. the excavation of the cable trench) was carried out over several months in 2018 and 2019 by Tobar Archaeological Services. No direct impacts to any of the recorded monuments located along the grid connection route occurred as a result of the ground works.

12.4.3.3 Previously unrecorded sub-surface archaeological features

12.4.3.3.1 *Wind Farm – Turbines, hardstands, access roads*

No previously unrecorded archaeological features were uncovered on the Cleanrath wind farm development site during pre-development archaeological testing (Tobar Archaeological Services 2011 and 2018, Appendix 12-1 and 12-2) or during archaeological monitoring of topsoil/peat removal associated with the construction stage of the development (Tobar Archaeological Services 2018-2019, Appendix 12-3). No direct impacts therefore occurred to this resource as a result of the ground works associated with the as-built wind farm development.

12.4.3.3.2 *Grid Connection*

No previously unrecorded archaeological features were uncovered along the grid connection route during archaeological monitoring of ground works associated with same (Appendix 12-3 and 12-4). No direct impacts to this resource were therefore identified.

12.4.3.4 Protected Structures and NIAH (Direct effects)

12.4.3.4.1 *Wind Farm – Turbines, hardstands, access roads*

No Protected Structures or structures/items listed in the NIAH are located within the Cleanrath wind farm development site boundary. No direct impacts to this resource therefore occurred as a result of the as built wind farm.

12.4.3.4.2 *Grid Connection*

No Protected Structures are located within 100m of the grid connection route therefore no direct impacts to same occurred as a result of ground works associated with the grid connection.

One NIAH structure (Reg. 20908101) is situated c. 72m to the south-west of the cable route and was not directly impacted as a result of ground works associated with the grid connection.

12.4.3.5 Features of Local Cultural Heritage Merit

12.4.3.5.1 *Wind Farm - Turbines, hardstands, access roads*

No features of cultural heritage merit as indicated on the available historic OS mapping for the area were noted within the Cleanrath wind farm development site boundary. No such features were noted during archaeological monitoring of ground works associated with the as-built wind farm. No direct impacts to such features therefore occurred.

12.4.3.5.2 *Grid Connection*

Twenty-one items of local cultural heritage merit were noted along the gird connection route as a result of a review of the available historic mapping for the area (1st edition). The features mainly comprised roadside lime kilns, structures (e.g. houses and associated buildings) and two bridges (see section 12.3.2.2.3 above). Archaeological monitoring of the excavation of the cable trench along the grid connection route was undertaken by Tobar Archaeological Services between September 2018 and April 2019 (Appendix 12-3). At bridge crossing No. 44 (CH2) the cable ducting was attached to the bridge elevation, while at crossing No. 35 (CH8) the cable ducts were laid within the bridge deck. No direct impacts to any items of cultural heritage merit occurred along the grid connection route.

12.4.4 Operational Phase Impacts (Direct)

The effects set out below relate to the operational phase of the Cleanrath wind farm development should Substitute Consent be granted. This includes the previous period of short-term operation and the current period of Sleep Mode and also assesses the future operation.

Peatland habitat restoration is also considered in terms of the operational phase of the development. The restoration will comprise the management of an area of forestry that was felled during construction along with an additional hectare of immature forestry that will be felled to establish suitable peatland habitat. The works will involve felling, chipping and removal of brash and restoring the peatland habitat to its original condition prior to planting which will include the blocking of drains with no further drainage to be installed around the area. As no recorded monuments are located within forested areas within the rEIAR Study Area no direct impacts to same will occur. The works for the peatland habitat restoration will involve the removal of tree stumps, however, further excavation or removal of peat will not occur therefore potential direct impacts to any sub-surface archaeology should it exist within these areas is not anticipated.

In terms of archaeology, architecture and cultural heritage, no direct effects will occur at the operational stage of the development.

12.4.5 Operational Phase Impacts (Indirect)

Indirect impacts are where a feature or site of archaeological, architectural heritage merit or their setting is located in close proximity to a development. Indirect impacts here are mainly concerned with impacts on setting. Impacts on settings of sites may arise when a development is located immediately adjacent to a recorded monument or cluster of monuments or any cultural heritage asset. While the Cleanrath wind farm development does not physically impact on a site, it may alter the setting of a monument or group of monuments. There is no standardised Irish industry-wide approach in for assessing the degree of impact to the setting of a monument. The assessment is based on previous experience, Geographical Information Systems (in particular Viewshed Analysis) and the '*Guidance on Setting and the Historical Environment*' (Historic Environment Division Northern Ireland) was utilised. The methodology through which indirect impact is assessed is presented in Section 12.2.5 above. According to the aforementioned document '*A range of tools may be employed in defining and assessing changes to setting, for example historic landscape analysis using Geographical Information Systems (GIS), which may include viewshed analysis*'.

The impact on the visual amenity of a site or area and the significance of same is dependent on a number of factors regarding the sensitivity of the location or 'receptor' and the scale or magnitude of the Cleanrath wind farm development.

Operational impacts are discussed below according to each element of the Cleanrath wind farm development. Those elements of the Cleanrath wind farm development which are not capable of impacting on the visual setting of monuments (such as access roads, borrow pit, underground cables etc.) are scoped out of this section of the assessment. Those elements which are deemed to be more likely to impact on visual setting such as turbines are discussed below.

12.4.5.1 National Monuments in State Care including those with Preservation Order (Indirect Effects)

National Monument No 571 Stone Circle, Lissacresig

Both the viewshed analysis carried out and the ZTV shows that there is some level of visibility of all turbines from this monument. Given the distance of the monument from the nearest turbine (just under 8km), the impacts on setting are regarded as Not Significant. Furthermore the distance of 7.9km is such that impacts on potential sun alignments of the monument would not be possible.

National Monument No 571 Ringfort, Lissacresig

The Zone of Theoretical Visibility used in the LVIA Chapter 13 shows that this monument is located within an area that shows visibility of potentially 7-9 turbines. This accords with the viewshed analysis undertaken in which some level of potential visibility was demonstrated for all turbines.

Given the distance of the monument from the nearest turbine however (just over 8km), the impacts on setting are regarded as Not Significant.

National Monument No 255 Stone circle, Carrigaphooca

Viewshed analysis carried out to determine theoretical visibility of the 9 turbines from this monument shows that none of the structures are visible from the stone circle (Figure 12-5). This accords with the

ZTV which also demonstrates that no turbines are visible from this area. In this regard no impacts to setting are identified.

National Monument No 374 Stone row, Farranahineeny

Viewshed analysis carried out to determine theoretical visibility of the 9 turbines from this monument shows that none of the structures are visible from the stone row (Figure 12-6). This accords with the ZTV which also demonstrates that no turbines are visible from this area. In this regard no impacts to setting are identified.

Pre-Mitigation Impact

The turbines have the potential to impact on the setting of National Monuments in the wider landscape. In order to ascertain the degree of potential impact, both Viewshed Analysis and ZTV were utilised. Where an impact has been identified, they are Not Significant mainly due to the intervening distance and the varying degrees of visibility (Not Significant impacts being described as 'an effect which causes noticeable changes in the character of the environment but without significant consequences').

Proposed Mitigation Measures

As it is not possible to mitigate the indirect effects of the turbines in the wider landscape setting there are no mitigation measures for this potential impact.

Residual Impact

The residual impacts, where an impact has been identified are Not Significant.

Significance of Impacts

Not Significant.

12.4.5.2 Recorded Monuments within the rEIAR Study Area (indirect effects)

Four recorded monuments are located within the wind farm study area boundary, a short distance to the north-west of T6 and are discussed in Section 12.3.1.1.2 above. The Zone of Theoretical Visibility (ZTV) (LVIA Chapter 13) shows that 1-3 turbines are visible from the hut sites which are located c. 89-96m from T6 and also from the adjacent enclosure. A change to their wider setting is therefore acknowledged and is regarded as slight.

Pre-Mitigation Impact

The impact is slight. The site types within the wind farm are not associated with any ritual function or alignments.

Proposed Mitigation Measures

As it is not possible to mitigate the indirect effects of the turbines in the wider landscape setting there are no mitigation measures for this potential impact.

Residual Impact

The residual impacts, where an impact has been identified are slight.

Significance of Impacts

The Cleanrath wind farm development will not have any significant/adverse indirect effects on recorded monuments within the wind farm study area boundary. Identified impacts are Slight, this being an effect which causes changes in the character of the environment which are not high or very high and do not directly impact or affect an archaeological site.

12.4.5.3 Newly Recorded site within the rEIAR Study Area (Indirect Effects)

No additional monuments were discovered within the development site during the pre-development testing of the wind farm or during archaeological monitoring of the construction stage of the development. No indirect impacts to this resource are therefore identified.

Pre-Mitigation Impact

None.

Proposed Mitigation Measures

None.

Residual Impact

None.

Significance of Impacts

None.

12.4.5.4 Recorded Monuments within 5km of the Cleanrath Wind Farm Turbines (Indirect Effects)

All monument types within 5km of the nearest Cleanrath wind farm turbines are discussed in Section 12.3.1.1.4 above. Through the use of the ZTV varying levels of visibility of the turbines from monuments within 5km is noted. In general 7-9 turbines are theoretically visible from the majority of monuments located within 3-4km to the north, north-east and east of the nearest turbine. Four-six turbines are theoretically visible from monuments to the south-east in the environs of Inchigeelagh village. In all cases, however, impacts to the immediate setting of these monuments is not identified given the distance of the turbines from same. In this regard impacts to the wider setting of the monuments is acknowledged and is regarded as Slight-Not Significant.

Pre-Mitigation Impact

The impact is Slight-Not Significant.

Proposed Mitigation Measures

As it is not possible to mitigate the indirect effects of the Cleanrath wind farm development in the wider landscape setting there are no mitigation measures for this potential impact.

Residual Impact

The residual impacts, where an impact has been identified are Slight-Not Significant.

Significance of Impacts

The Cleanrath wind farm development will not have any significant/adverse indirect effects on recorded monuments within 5km of the nearest turbine. Identified impacts are Slight-Not Significant.

12.4.5.5 Built Heritage including RPS / NIAH within 5km of the Cleanrath Wind Farm Turbines (Indirect Effects)

Three RPS structures (419, 543 and 542) are located within 5km of the nearest turbine and range in distance from 2.7-4.3km from same. The ZTV shows that no turbines will be visible from Protected Structures 542 and 542, with 7-9 turbines visible from the church at Reananeree. A change to the wider setting of this structure is therefore acknowledged but is regarded as Not Significant given the distance of 2.7km to the nearest turbine.

Twelve structures listed in the NIAH and one historic garden are located within 5km of the nearest turbine. The majority of the structures (7) are located c. 3.4km to the south-east in Inchigeelagh village. The ZTV shows that 4-6 turbines will be visible from the NIAH structures located in Inchigeelagh village, 3.4km to the south while 7-9 turbines will be visible from the NIAH structures located in Reananerree and Derryfineen c. 2.7km to the north of the nearest turbine. While a change to the wider setting of these structures is acknowledged it is regarded as Not Significant.

Pre-Mitigation Impact

The impact is Not Significant.

Proposed Mitigation Measures

As it is not possible to mitigate the indirect effects of the Cleanrath wind farm development in the wider landscape setting there are no mitigation measures for this potential impact.

Residual Impact

The residual impacts, where an impact has been identified are Not Significant.

Significance of Impacts

The Cleanrath wind farm development will not have any significant/adverse indirect effects on RPS or NIAH structures within 5km of the nearest turbine. Identified impacts are Not Significant.

12.4.5.6 The Gaeltacht

The Cleanrath wind farm development is located within the Múscraí Gaeltacht. According to the County Development Plan 2015-2020 ‘These areas (Gaeltachtaí) require special treatment to protect their linguistic and cultural heritage without hindering development and with an appropriate response to opportunities and challenges’ (CDP, 199).

This project has not impacted and will not impact on the Irish language of the area.

12.4.6 Decommissioning Phase Potential Impacts (Direct)

There will be no significant potential impacts on the archaeological, architectural and cultural heritage environment during the decommissioning of Cleanrath wind farm development. Any potential direct impacts have been mitigated against through the implementation of appropriate mitigation measures during the pre-construction and construction phase of the project, i.e. pre-development testing of the wind farm and archaeological monitoring of ground works associated with the construction phase of the wind farm development and associated grid connection. The decommissioning process will utilise all existing internal site roads and public roads and will not involve any further ground disturbance and will be carried out in accordance with Scottish Natural Heritage report (SNH) Research and Guidance on Restoration and Decommissioning of Onshore Wind Farms (SNH, 2013). Turbines will be removed from site using the same transport methodology adopted for delivery to site initially. Turbine foundations will remain in place underground and will be covered with earth and reseeded as appropriate. The electrical cabling connecting the Cleanrath wind farm development to the substation in the townland of Rathgaskig will be removed from the underground cable ducting at the end of the useful life of the Cleanrath wind farm development or should early decommissioning be required. The cable ducting will be left in-situ , avoiding unnecessary excavation and soil disturbance. Direct impacts to any recorded monuments or potential sub-surface archaeology will not therefore occur as a result of the decommissioning phase of the development. Similarly, no potential impacts to built heritage such as NIAH or RPS structures as a result of the decommissioning phase of the development are anticipated.

12.4.7 Decommissioning Phase Potential Impacts (Indirect)

As the decommissioning phase will involve the removal of turbines from the development site, no potential indirect (visual) impacts to the archaeological or cultural heritage resource will occur as a result of this phase of the project.

12.5 Cumulative Impacts

Cumulative impact is defined as 'The addition of many small impacts to create one larger, more significant, impact' (EPA 2017). Cumulative impacts encompass the combined effects of multiple developments or activities on a range of receptors. In this case, the receptors are the archaeological monuments and architectural/cultural heritage sites in the immediate vicinity of the as built development. Cumulative Impacts at the Construction and Operational Stages are considered.

12.5.1 Cumulative Impacts (Construction stage Direct Impacts)

Mitigation in the form of pre-development archaeological testing and construction stage monitoring of ground works associated with the wind farm development and associated grid connection was carried out. No impacts to recorded monuments, newly discovered sites, Protected Structures, NIAH structures or items of local cultural heritage merit occurred during the construction stage of the development. In this regard cumulative direct impacts to the archaeological and cultural heritage resource as a result of the development are not identified.

12.5.2 Cumulative Impacts (Operational stage Indirect Impacts)

The addition of other projects to the Cleanrath wind farm development was considered in order to assess Cumulative Impacts. This included all other wind farms within 20km of the development.

Indirect impacts on setting occur at the operational stage of the development (when turbines are operational). In this regard in order to assess overall cumulative effects on archaeology and cultural heritage, the existing turbines are considered in the context of other developments, in particular other permitted and proposed wind farms.

12.5.2.1 Cumulative (indirect) Impacts to National Monuments

The potential to be able to see more turbines in the wider landscape setting from National Monuments is such that cumulative impacts may occur since it is not possible to mitigate the effects on setting arising from turbines at the operational stage of a development. Each National Monument within 10km of the as-built Cleanrath turbines is considered separately below.

12.5.2.1.1 *National Monument No 571 Stone Circle, Lissacresig*

The viewshed analysis shows that some turbines of other existing wind farms (Bawnmore 1/Kilberrihert, Garranereagh, Derragh, Midas, Coomagearlaghy-Kilgarvan and Grousemount/Barnastooka) and those under construction (Carrigdangan and Shehy More) within 20km may be visible from this monument in addition to the turbines at Cleanrath wind farm. All of these wind farms are located between 10km and 20km from the monument in question. The impacts on setting of this monument as a result of the as-built Cleanrath turbines is regarded as Not Significant. When considered with the aforementioned wind farms cumulative impact on the wider setting of this National Monument is regarded as Slight-Not Significant given the intervening distance between the turbines and the monument.

Pre-Mitigation Impact

The impact is Slight-Not Significant.

Proposed Mitigation Measures

As it is not possible to mitigate the cumulative indirect effects of the turbines in the wider landscape setting there are no mitigation measures for this potential impact.

Residual Impact

The residual impacts, where an impact has been identified are Slight-Not Significant.

Significance of Impacts

Slight- Not Significant.

12.5.2.1.2 *National Monument No 571 Ringfort, Lissacresig*

The viewshed analysis shows that some turbines of other existing wind farms (Bawnmore 1/Kilberrihert, Garranereagh, Derragh, and Grousemount/Barnastooka) and those under construction (Carrigdangan and Shehy More) within 20km may be visible from this monument in addition to the turbines at Cleanrath wind farm. All of these wind farms are located between 10km and 20km from the monument in question. The impacts on setting of this monument as a result of the Cleanrath wind farm development is regarded as Not Significant. When considered with the aforementioned wind farms, cumulative impact on the wider setting of this National Monument is regarded as Slight-Not Significant given the intervening distance between the turbines and the monument.

Pre-Mitigation Impact

The impact is Slight-Not Significant.

Proposed Mitigation Measures

As it is not possible to mitigate the indirect effects of the Cleanrath wind farm development in the wider landscape setting there are no mitigation measures for this potential impact.

Residual Impact

The residual impacts, where an impact has been identified are Slight-Not Significant.

Significance of Impacts

Slight-Not Significant.

12.5.2.1.3 *National Monument No 255 Stone circle, Carrigaphooca*

The viewshed analysis shows that only some turbines of the existing Midas wind farm within 20km are theoretically visible from this monument. None of the as-built Cleanrath turbines are theoretically visible from this National Monument, however, therefore no cumulative impacts to setting are identified.

12.5.2.1.4 *National Monument No 374 Stone row, Farranahineeny*

Viewshed analysis shows that turbines from a number of existing and under construction wind farms within 20km are theoretically visible from this National Monument. None of the as-built Cleanrath turbines are theoretically visible from this National Monument, however, therefore no cumulative impacts to setting are identified.

12.5.2.2 Cumulative (Indirect) Impacts to Recorded Monuments, RPS and NIAH structures within 5km

Through the use of the ZTV varying levels of visibility of the turbines from recorded monuments within 5km is noted. In all cases, however, impacts to the immediate setting of these monuments is not identified given the distance of the turbines from same. In this regard impacts to the wider setting of the monuments is acknowledged and is regarded as Slight-Not Significant. Similarly, a potential Not Significant effect on setting of RPS and NIAH structures within 5km of the Cleanrath turbines has been acknowledged.

One additional existing wind farm (Derragh) is located within the 5km study area used to assess impacts on setting of recorded monuments/RPS/NIAH. When considered with the existing Derragh wind farm and other existing, permitted and proposed wind farms within 20km the potential ability to see other turbines may result in a cumulative effect on the wider setting of some monuments, Protected Structures and NIAH structures. Given the distance of the majority of these wind farms from the Cleanrath turbines these cumulative effects are Slight.

12.6 Conclusion

This chapter comprises an assessment of the potential impact of the as-built Cleanrath wind farm and associated grid connection on the Cultural Heritage resource. Cultural heritage includes archaeology, architectural heritage and any other tangible assets. The assessment was based on GIS based mapping, ZTV and Viewshed analysis to assist with the assessment of impacts on setting followed by a desktop analysis of all baseline data. Previous field survey and other forms of assessment including pre-development testing and construction phase monitoring of ground works associated with the development also fed into this assessment.

Four recorded monuments are located within the Cleanrath wind farm development site boundary. Additionally, 7 additional monuments are located within 100m of the grid connection route. No Protected Structures or NIAH structures are located on the wind farm or in the immediate vicinity of same. Only one NIAH structure is located within 100m of the grid connection route. No direct impacts to any recorded monuments, Protected Structures, NIAH structures or items of local cultural heritage merit occurred as a result of the development. Effects on the wider setting of National Monuments, recorded monuments, Protected Structures and NIAH structures within 5km of the nearest turbine was assessed using Viewshed analysis and ZTV and is Not Significant-Slight.

An assessment of cumulative impacts was also undertaken taking into consideration projects within 20km of the as-built development. This included all permitted, proposed and existing turbines. When considered cumulatively effects on the wider setting of cultural heritage assets is Slight.