13. ARCHAEOLOGY AND CULTURAL HERITAGE

13.1 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 proposed Curraglass Renewable Energy Project, located approximately 5.6km northeast of Kealkill and 5.5km southwest of the village of Ballingeary, Co. Cork.

The development area predominantly comprises upland coniferous forestry. The site was previously developed as a wind farm and the original turbines have now been dismantled as detailed in Chapter 1 (Planning Ref W/00/6590 and ABP ref. PL127297). The proposed wind farm will utilise, where possible, existing infrastructure. All of the original turbine bases, hardstands and associated infrastructure, was subject to full archaeological monitoring under licence in 2005 during construction (further detail is provided below).

The purpose of this chapter is to assess the potential direct and indirect effects of the Proposed 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 and a comprehensive programme of field walking of the study area. The report amalgamates desk-based research and the results of field walking to identify areas of archaeological/architectural/ cultural significance or potential, likely to be impacted either directly or indirectly by the Proposed Development. An assessment of potential effects, including cumulative effects, is presented, and a number of mitigation measures are recommended where appropriate. The visual effect of the Proposed Development on any newly discovered monuments/sites of significance as well as known recorded monuments is also assessed.

13.1.1 Proposed Development

The Proposed Development is described in Section 1.4 of Chapter 1 of the EIAR and in summary will consist of the following:

1. *Up to 7 no. wind turbines with an overall blade tip height of up to 178.5 metres and all associated foundations and hard-standing areas;*
2. *2 No. borrow pits;*
3. *1 No. permanent meteorological mast with a maximum height of up to 112 metres;*
4. *Upgrade of existing and provision of new site access roads;*
5. *Upgrade to existing access junction;*
6. *A 38kV electricity substation, including 4 no. battery storage containers, 1 no. control building with welfare facilities, associated electrical plant and equipment, security fencing, wastewater holding tank,*
7. *Forestry Felling;*
8. *A temporary construction compound;*
9. *Site Drainage;*
10. *All associated internal underground cabling, including underground grid connection cabling to the existing overhead line; and*
11. *All associated site development and ancillary works.*

13.1.2 Statement of Authority

This chapter of the EIAR 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.

13.1.3 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).

13.1.3.1 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 (Culture, heritage and the Gaeltacht) and shall not commence the work for a period of two months after having given the notice. All proposed 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 Culture, Heritage and the Gaeltacht. Section 5 of the National Monuments Act (1930) allows owners of other national monuments to appoint the Minister for the Culture, 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'*.

13.1.3.1.1 *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.

13.1.3.2 Cork County Development Plan 2014-2022

The Cork County Development Plan 2014 outlines a number of objectives relating to archaeology as follows.

13.1.3.2.1 *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.

13.1.3.2.2 *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.

13.1.3.2.3 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.

13.1.3.2.4 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.

13.1.3.2.5 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.

13.1.3.2.6 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.

13.1.3.2.7 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.

13.1.3.2.8 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.

13.1.3.2.9 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.

13.1.3.2.10 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.

13.1.3.2.11 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.

13.1.3.3 Statutory Consultations

The Development Applications Unit provided a response, to a scoping consultation by MKO, on Archaeology (Ref G Pre00306/2019). The observations were as follows:

'Archaeology

Further to your recent submission of EIAR scoping documents in advance of the preparation of an EIAR and planning application in relation to the above-proposed wind farm development, the Department of Culture, Heritage and the Gaeltacht notes that your client has retained the services of Tobar Archaeological Consultancy to carry out the Archaeological, Architectural and Cultural Heritage Impact Assessment (AACHIA) of the Proposed Development site (PDS) as part of the EIAR (as outlined in Section 6.2.4.13). In this regard this office awaits the results and submission of the AACHIA before providing detailed recommendations in relation to the same. The Department would like to advise that, the Proposed Development site (PDS) appears to contain within it a number of known Recorded Monuments and/or Archaeological sites that shall be assessed as part of the overall AACHIA. However the PDS itself is located within a wider area of known archaeological settlement and activity (NMS initial review of the Record of Monuments and Places, www.archaeology.ie and cartographic sources). All of Recorded Monuments, both within and outside the PDS, are subject to statutory protection in the Record of Monuments and Places, established under section 12 of the National Monuments

(Amendment) Act 1930-2004. In light of this, this office recommends that the AACHIA also include an assessment of the Proposed Development on the wider archaeological landscape – with particular reference to the proposed increased hub-height of the turbines and their visual impact on the wider archaeological landscape. In this regard it should be noted that prehistoric monuments such as Standing Stone Alignments, Standing Stone Rows, Single Standing Stones, as well as some megalithic tombs, are often aligned with physical features in the landscape and/or solar or lunar events. As a result, the erection of wind turbines may have a negative visual impact on such monuments and may diminish or interrupt alignment views and alter key aspects of their original function and layout. It is in this regard that the Department strongly recommends that such impacts also be assessed as part of the AACHIA. In addition to the above, the Department considers the Proposed Development to be large in-scale (in terms of linear development and groundworks required), and as such it is possible that hitherto previously unrecorded subsurface archaeological features may be encountered during the course of the groundworks required for turbine construction, cable trenches and associated works. Therefore the Department recommends that a programme of Archaeological Testing be carried out as part of the overall AACHIA – in advance of a planning submission – as this will facilitate the formulation of an appropriate archaeological mitigation strategy should the need arise.

Requirements of the CHAIA The applicant is required to engage the services of a suitably qualified, licenced Archaeologist to assess (as part of the AACHIA) the archaeological impacts of the Proposed Development and carry out a programme of Archaeological Test Excavations across the Proposed Development site (PDS). No sub-surface work shall be undertaken in the absence of the archaeologist without his/her express consent. Please allow 5-6 weeks to facilitate the processing of an archaeological and geophysical licence. This assessment shall include:

1. The archaeologist shall inspect the PDS, detail the historical and archaeological background of the area to be developed, and review all cartographic sources and aerial photographs/digital imagery with a view to assessing possible archaeological impacts.

2. It is strongly recommended that no direct impacts occur on known Recorded Monuments and the Proposed Development should be modified to allow for an adequate buffer zones around any Recorded Monuments.

3. The archaeologist shall then excavate test trenches at locations chosen by the archaeologist, having consulted the site plans, in liaison with the Licensing Section of NMS. Excavation is to take place to the uppermost archaeological horizons only, where they survive. Where archaeological material is shown to be present, the archaeologist shall stop works pending further advice from the NMS. Please note that all features/archaeological surfaces within the test trenches are to be hand-cleaned and clearly visible for photographic purposes.

4. Having completed the work, the archaeologist shall submit a written report to the Department outlining the results of the AACHIA and Test Excavations. The report shall comment on the degree to which the extent, location and levels of all proposed foundation trenches, cable trenches, excavations for substations, and other sub-surface works required for the development will affect the archaeological remains. This should be illustrated with appropriate plans, sections, etc.

5. Where archaeological material is shown to be present, further mitigatory measures will be required; these may include redesign/relocation (in whole or in part) to allow for preservation in situ, and/or additional excavations and/or monitoring. The Department will advise the Local Authority and the applicant's consultant archaeologist with regard to these matters.

Reason: To ensure the continued preservation (either in situ or by record) of places, caves, sites, features or other objects of archaeological interest'.

A full archaeological impact assessment is included in the EIAR and the results of the walkover survey are included in the Archaeology, Architectural and Cultural Heritage chapter. The EIAR site boundary contains four recorded monuments including two hut sites and two redundant records. None will be impacted by the Proposed Development (see below). The proposed site layout has taken the known archaeological constraints (RMPs) into consideration taking the 'mitigation by avoidance' approach.

The assessment has also taken into account potential impacts on the visual setting of National Monuments (in State Care) within 10km of the Proposed Development site and Recorded Monuments within 5km. Where individual site visits were not possible due to monuments being located in private land, viewshed analysis from monuments in the direction of the turbines was undertaken (see detail below). Alignments associated with the setting/rising of the sun (winter and summer solstice) was also assessed.

The National Monuments Service also highlighted the potential for uncovering hitherto previously unrecorded subsurface archaeological features during the course of the groundworks associated with turbine construction, cable trenches and associated works. The Department recommended that a programme of Archaeological Testing be carried out as part of the overall AACHIA. It must be noted, however, that the proposed roads are largely positioned on existing roads and some turbine bases and hardstands are positioned over previously developed infrastructure. Furthermore, Tobar Archaeological Services, monitored, under licence, all groundworks associated with the previous wind farm (in 2005) under licence No. 05E1062 (see Appendix 13-1). No archaeological finds, features or deposits were uncovered which negates the requirement for testing. Furthermore, the remainder of the proposed infrastructure is located mainly in mature forestry which is inaccessible for testing at this stage.

A number of mitigation measures will be implemented both at the pre-construction and construction stage of the Proposed Development.

13.1.4 Location and Topography

The development site is located approximately 5.6km northeast of Kealkill and 5.5km southwest of the village of Ballingeary, in West Cork. It is situated in the heart of the Shehy Mountains in the townlands of Cappaboy Beg, Derreendonee and Curraglass.

The surrounding topography is dominated by the Shehy Mountains and is largely covered by boggy peat and rock outcrops. A large portion of the site is covered in large tracts of coniferous forestry which are also visible on the mountain slopes. The site itself consists of a long stretch of land measuring 3km north-south by 2.3km east-west (approx.) at an elevation of between 200m and 400m above Ordnance Datum. The majority of the site has been planted with coniferous forestry. The site is bound to the north, west and east by mountainous terrain. The previous development consisted of the construction of a wind farm comprising 10 wind turbines, electricity substation and access roadways. The development involved ground disturbance in the form of peat removal to facilitate the construction of turbine bases and access roads as well as the removal of small tracts of coniferous forestry along the route of the latter. The removal of peat in some areas revealed extensive rock underneath. Rock breaking was therefore necessary in some places to facilitate the construction of the access roadways. As the development site consisted of undulating terrain in places, it was also necessary to infill areas with excavated rock in order to raise the level of the ground.

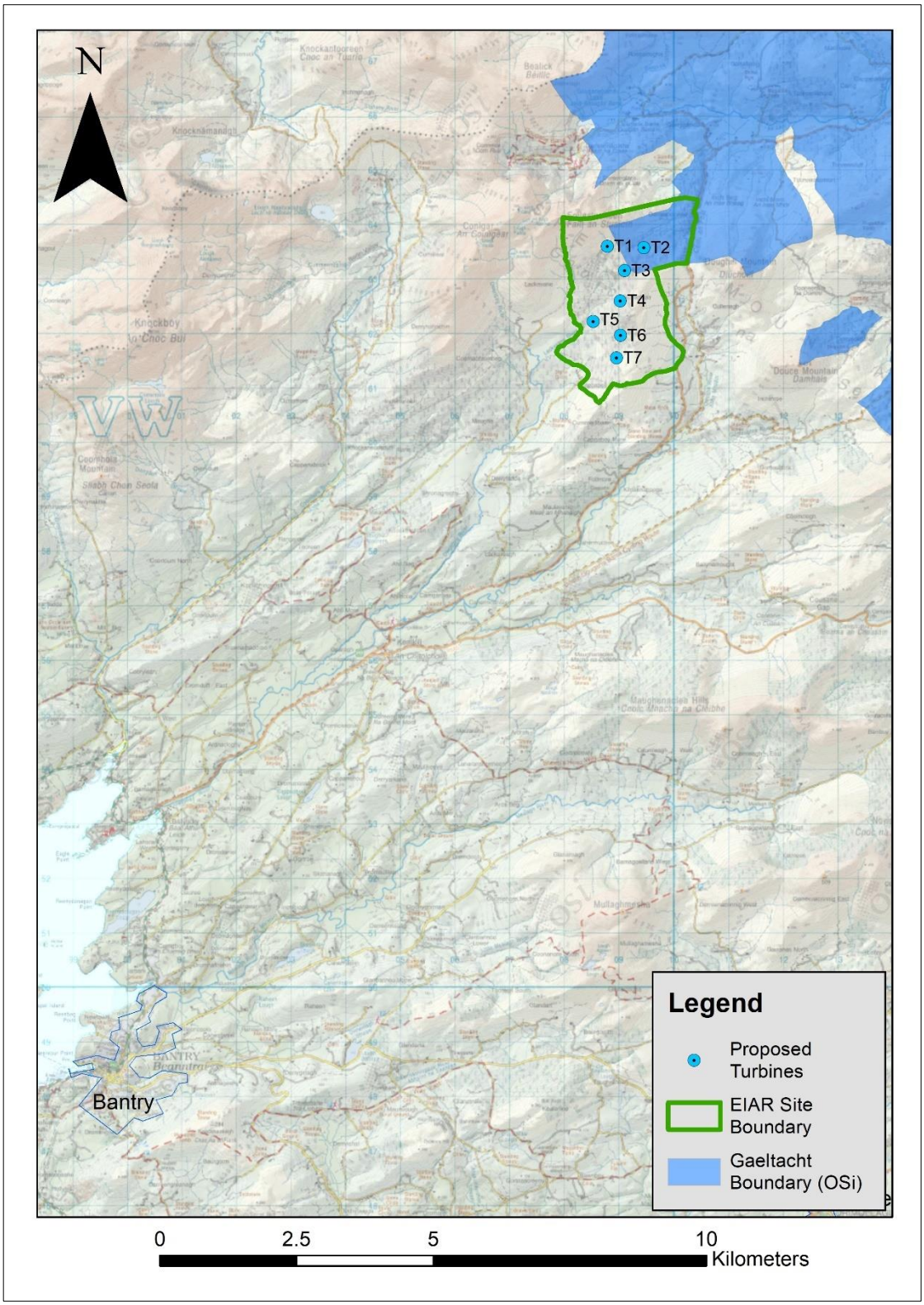

Figure 13-1: Site Location.

13.2 Assessment Methodology

The assessment of the archaeology, architecture and cultural heritage of the Proposed Development area included GIS mapping and desk-based research followed by field inspection. A desk-based study of the Proposed Development site was initially undertaken in order to assess the archaeological, architectural and cultural heritage potential of the area and to identify constraints or features of archaeological/cultural heritage significance within or near to the Proposed Development site.

13.2.1 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 Proposed 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.

ArcGIS online viewshed analysis was also used to assess effects on setting of archaeological monuments. The Viewshed tool uses the ESRI Elevation Analysis service to determine which areas are visible from specified observer points (the observer points being the monuments). Visibility settings are used to set the height of the observer (1.75m standard), the height, for example of the observed features (e.g. turbines), and the maximum viewing distance of the observer. This tool was utilised to ascertain the potential/theoretical visual effects on Cultural Heritage Assets. The results show the worst-case scenario since the model does not take trees or vegetation into consideration. The results are outlined in Section 13.3.

13.2.2 Desktop Assessment

The following sources were consulted as part of the desktop assessment for the Proposed Development:

- The Record of Monuments and Places (RMP)
- The Sites and Monuments Record (SMR)
- National Monuments in State Care County Cork
- The Topographical Files of the National Museum of Ireland
- First edition Ordnance Survey maps (OSI)
- Second 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 (Cork County Development Plan)
- Previous archaeological surveys and assessments carried out on or near to the Proposed Development site (various)
- Archaeological inventory of County Cork

Each of these are discussed in the following sections.

13.2.2.1 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. 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.

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 Proposed Development.

13.2.2.2 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.

13.2.2.3 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 contains locational detail for Museum finds.

13.2.2.4 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.

13.2.2.5 Record of Protected Structures

The Record of Protected Structures for County Cork was consulted for the schedule of buildings and items of cultural, historical or archaeological interest which may be affected by the Proposed Development. 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 13.2.1 above) used for the creation of figures in this chapter.

13.2.2.6 Excavations Database

The Excavations Database is an annual account of all excavations carried out under license. The database is available online 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 Proposed Development area.

13.2.2.7 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 has been published and the digital dataset was downloaded on to the base mapping for the Proposed 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 Culture, Heritage and the Gaeltacht 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.

13.2.2.8 Previous Assessments Reports relating to the site

The site was previously subject to an EIS for the pre-forest plantation in 1997 and an assessment would have been undertaken for the original 10-turbine wind farm. Archaeological monitoring of construction works associated with the latter was also undertaken in 2005 by Tobar Archaeological Services. These are discussed in Section 13.3.1.5 below.

13.2.3 Field Inspection

A programme of field inspection was undertaken over a number of days in February and March 2020. The Proposed Development site and its surrounds were inspected by Annette Quinn and Miriam Carroll of Tobar Archaeological Services. The inspection consisted of a walk-over examination of the Proposed Development site, 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 full photographic record of the site was made and is described below in Section 13.3.1.9.

13.2.3.1 Limitations Associated with Fieldwork

The site in general was largely covered in dense forestry. The presence of existing roads allowed good general access to the site.

13.2.4 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 1.7.2 of Chapter 1. The following terminology is used when describing the likely effects of the Proposed Development from a Cultural Heritage perspective.

13.2.4.1 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 proposed mitigation measures have been implemented.

13.2.4.1.1 *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.

13.2.5 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 EIAR site boundary 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 12 of this EIAR, and also viewshed analysis from specific cultural heritage assets (viewshed analysis is described in Section 13.2.1 above). The viewshed analysis used in the assessment of potential impacts on the visual setting of cultural heritage assets in the wider landscape of 5km and 10km considers the effects of the proposed turbines only. Other lower visibility infrastructure such as roads, grid connection, substation etc. are not included in the viewshed analysis. All other infrastructure (proposed roads, grid connection, substation, compounds etc) are assessed without the use of viewshed analysis.

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.

Table 13-1: Cultural Heritage Assets considered according to sensitivity (where relevant only)

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

13.3 Existing Environment

13.3.1 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.

13.3.1.1 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 proposed turbines was undertaken to ascertain any potential impacts on their visual setting (See Section 13.2.5 for methodology of assessment).

Three monuments are listed in Table 13-2 and shown on Figure 13-2.

Table 13-2: National Monuments and those subject to Preservation Orders within 10km of nearest proposed turbine

NM No.	RMP NO.	ITM E	ITM N	NAME	TD.	WTG ID	DISTANCE (M)
450 and 84/1940	CO106-005001 and CO106-005002	505009	555213	Breeny More Stone Circle & boulder burials	Breeny More	T7	7498
600	CO106-019 and CO106-057	505220	553806	Derryarkane Stone Circle & Standing Stone	Derryarkane	T7	8636
None	CO092-019	504311	558498	Maughanasilly Stone Row	Maughanasilly	T7	5564
69/1938	CO106-006001-; CO106-006002-; CO106-006003-	505353	555654	Stone circle - five-stone	KEALKILL	T7	6900

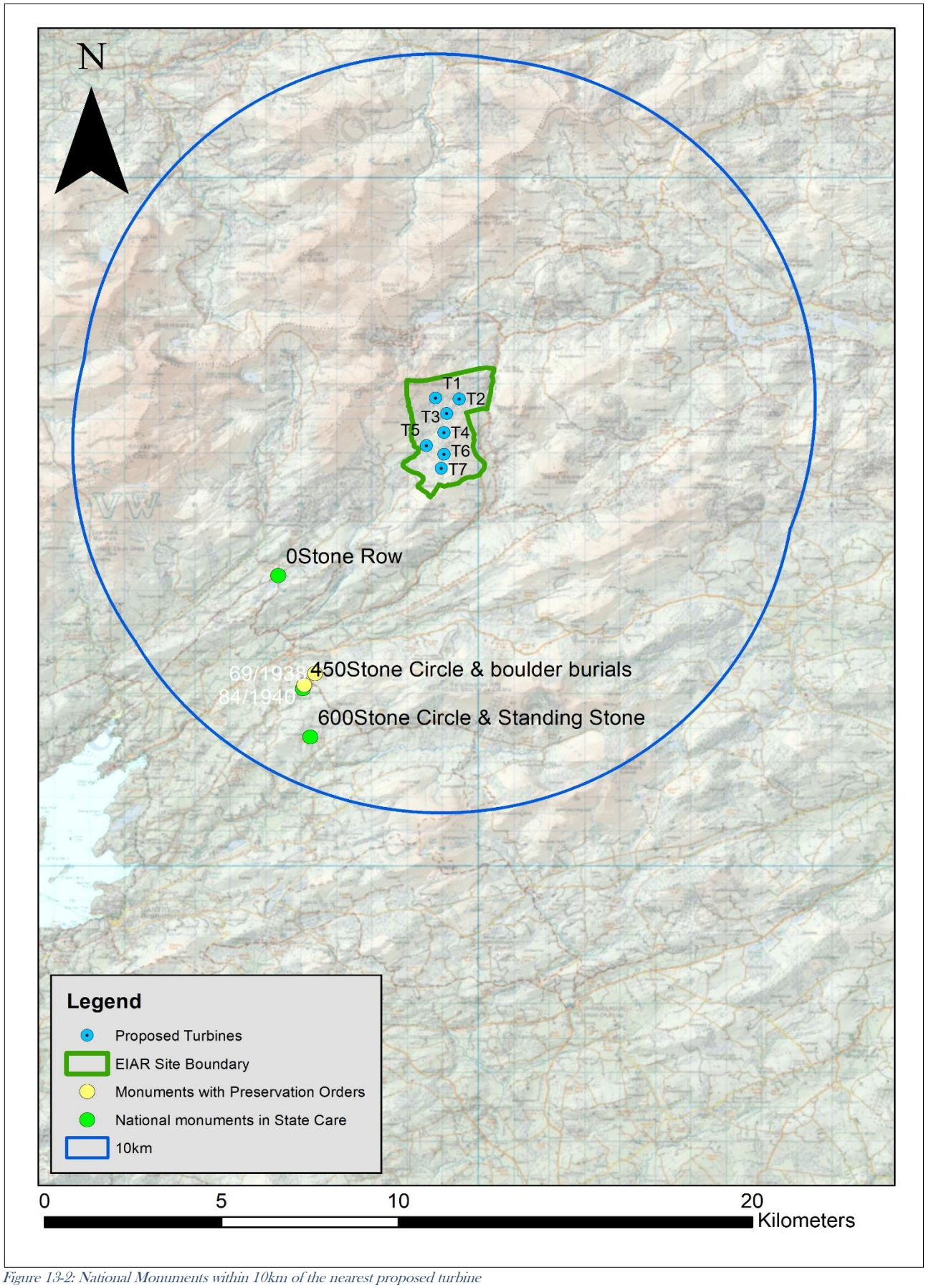

Figure 13-2: National Monuments within 10km of the nearest proposed turbine

13.3.1.1.1 *Visibility from National Monuments*

National Monument No 450 (PO 84/1940) CO106-005001 and CO106-005002 Breeny More Stone Circle & boulder burials

Description of the Monuments:

CO106-005-001: In pasture, on platform on NW-facing slope on S side of Owvane river valley. Circle represented by two entrance stones and axial stone, measuring 1.1m to 1.6m L, 0.4m to 0.6m T and 1m to 2m H. Two prostrate slabs on perimeter may be displaced orthostats. Internal measurement along main axis, aligned NE-SW, is c. 14m. Within circle are regular group of four boulder-burials (CO106-00502-). (O Nualláin 1984, 19, no. 24; Roberts 1988, Ch. 5, no. 27).

CO106-005-002: In pasture, on platform on NW-facing slope on S side of Owvane river valley. Within multiple-stone circle (CO106-00501-) is a regular group of four boulder-burials. Three support stones visible beneath N cover-stone, (1.5m x 1.35m; T 0.5m). Two support stones visible beneath S cover-stone (1.7m x 1.2m; T 0.9m). No support stones visible beneath the E boulder 1.3m x 0.8m; T 0.7m). (O Nualláin 1978, 88, no. 13).

This monument is subject to a preservation order made under the National Monuments Acts 1930 to 2014 (PO no. 84/1940).

Viewshed analysis results are a worst-case scenario since the model does not take natural screening such as vegetation, boundaries or buildings into consideration. Figure 13-3 shows that potentially two turbines may theoretically be seen in full (T1 and T3 in light blue areas). It shows that potentially a further 4 (T2, T4, T5 and T6 in red hachured areas) may be seen from mid-shaft up and that only the upper portion of T7 (green areas) may be seen. The Zone of Theoretical Visibility used in the LVIA Chapter 12 shows that this monument is located within an area that shows visibility of potentially 5-7 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 proposed turbine (just under 7km), the impacts on setting are likely to be slight. Furthermore, the distance of 7km is such that no impacts on potential sun alignments of the monument would be possible. The monument will not be overshadowed by proposed turbines at this distance.

National Monument Preservation Order No 69/1938 CO106-00601, CO106-006002 and CO106-006003- Kealkill Stone circle - five-stone

CO106-006-01: On level bog-covered shoulder, on NW-facing slope of W end of Maughanaclea Hills. Excavated in 1938 (O Ríordáin 1939, 46-49). Circle complete; stones are 0.7m to 1.65m L, 0.25m to 0.45m T and 0.65m to 1.2m H. Internal measurement along main axis, aligned NE-SW, is 2.8m. Excavation showed that stones were not deeply sunk in ground, but were packed at base with small stones. Two shallow trenches intersecting at right angles, filled with dark humified soil, were found within circle, and interpreted as trenches for crossed wooden sleepers which may have held an upright. No finds recovered from circle. Complex also comprises radial stone cairn (CO106-00603-) to E and pair of standing stones (CO106-00602-) to NE. (O Nualláin 1984, 41, no. 81; Roberts 1988, Ch.5, no. 26)

CO106-006-02: On level bog-covered shoulder, on NW-facing slope of W end Maughanaclea Hills. Part of complex including five-stone circle (CO106-00601-) and a radial-stone cairn (CO106-00603-). Excavated in 1938 (Ó Ríordáin 1939, 46-49). Stones, aligned NE-SW, stand 1.6m apart. SW stone is 1.5m L and 0.4m T; it had been broken at ground level and would have stood 5.3m H. Excavator removed stump and erected fallen piece in socket. NE stone is 1.85m L, 0.5m T and 2.65m H. (Ó Nualláin 1988, 246, no. 119).

CO106-006-03: On level bog-covered shoulder on NW-facing slope of W end of Maughanaclea Hills. Complex, which also includes five-stone circle (CO106-00601-) and pair of standing stones (CO106-00602-), excavated in 1938 (O Ríordáin 1939,46-49). Cairn stands c. 2m SE of standing stones and 5m E

of circle. Excavation revealed ring of eighteen radially-set stones and sockets (diam. c. 6m), under remains of cairn spread 1m beyond stones. Three large, round closely-set sockets, in trench, aligned NE-SW, were found on NW perimeter of cairn. Lying on surface beneath cairn towards W were two large stones with arc of smaller stones between them. Three fragments of scallop shells found 0.3m below cairn surface. (O Nualláin 1984b, 75, no. 13)

This monument is subject to a preservation order made under the National Monuments Acts 1930 to 2014 (PO no. 69/1938).

Viewshed analysis results are a worst-case scenario since the model does not take natural screening such as vegetation, boundaries or buildings into consideration. Figure 13-3 shows that potentially two turbines may theoretically be seen in full (T1 and T3 in green areas). It shows that potentially a further 4 (T2, T4, T5 and T6 in red hachured areas) may be seen from mid-shaft up and that only the upper portion of T7 (light blue areas) may be seen. The Zone of Theoretical Visibility used in the LVIA Chapter 12 shows that this monument is located within an area that shows visibility of potentially 5-7 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 proposed turbine (just under 7km), the impacts on setting are likely to be slight. Furthermore, the distance of 7km is such that no impacts on potential sun alignments of the monument would be possible. The monument will not be overshadowed by proposed turbines at this distance.

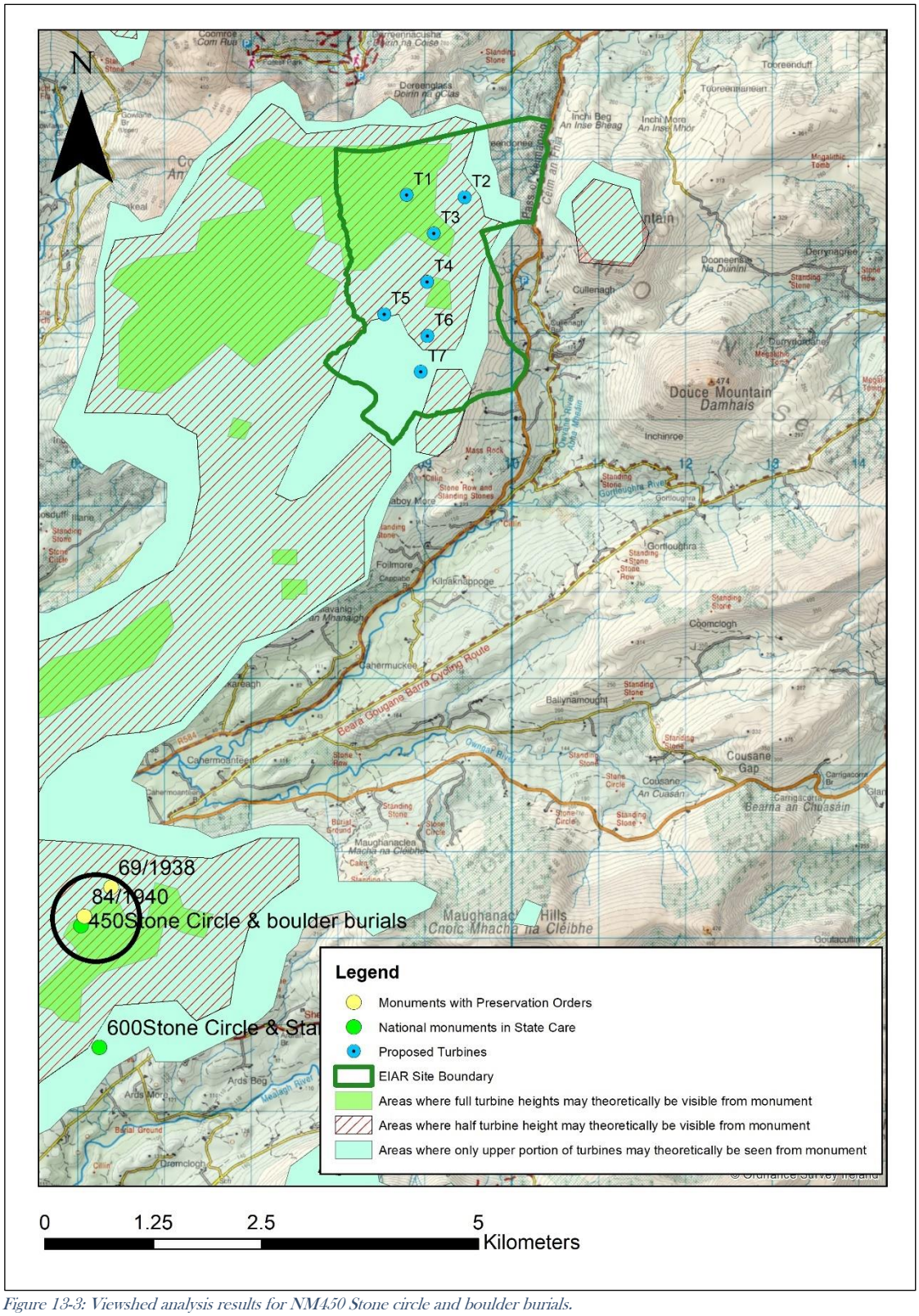

Figure 13-3: Viewshed analysis results for NM450 Stone circle and boulder burials.

National Monument No 600 CO106-019 and CO106-057 Derryarkane Stone Circle & Standing Stone

CO106-019: On level shoulder on SE-facing slope of Mealagh river valley. Circle complete; N entrance stone prostrate. Orthostats are 1m to 1.2m L, 0.5m T and 1m to 1.2m H. Beside and to S is spread of stones c. 8m in diameter; possible field clearance. Standing stone (CO106-057---) c. 26m to S. (WBBS). Myler (1998, 37) records that the 'stone circle is situated within a small area enclosed by ditches on three sides'.

CO106-057: On level shoulder on SW-facing slope of Mealagh river valley. Upright stone (H 0.8m; 0.7m x 0.4m) aligned NW-SW. Five-stone circle (CO106-019---) c. 26m to N. (WBBS). Myler (1998, 37) records 'a low spreading cairn of randomly placed stones on the SE side of this stone which has a diameter of 8 yards and a height of 1ft'.

The viewshed analysis undertaken from this monument shows that no turbines will be visible from this monument (No turbines are located in any of the shaded areas on Figure 13-4). The area in which this monument is located on the ZTV also shows no visibility.

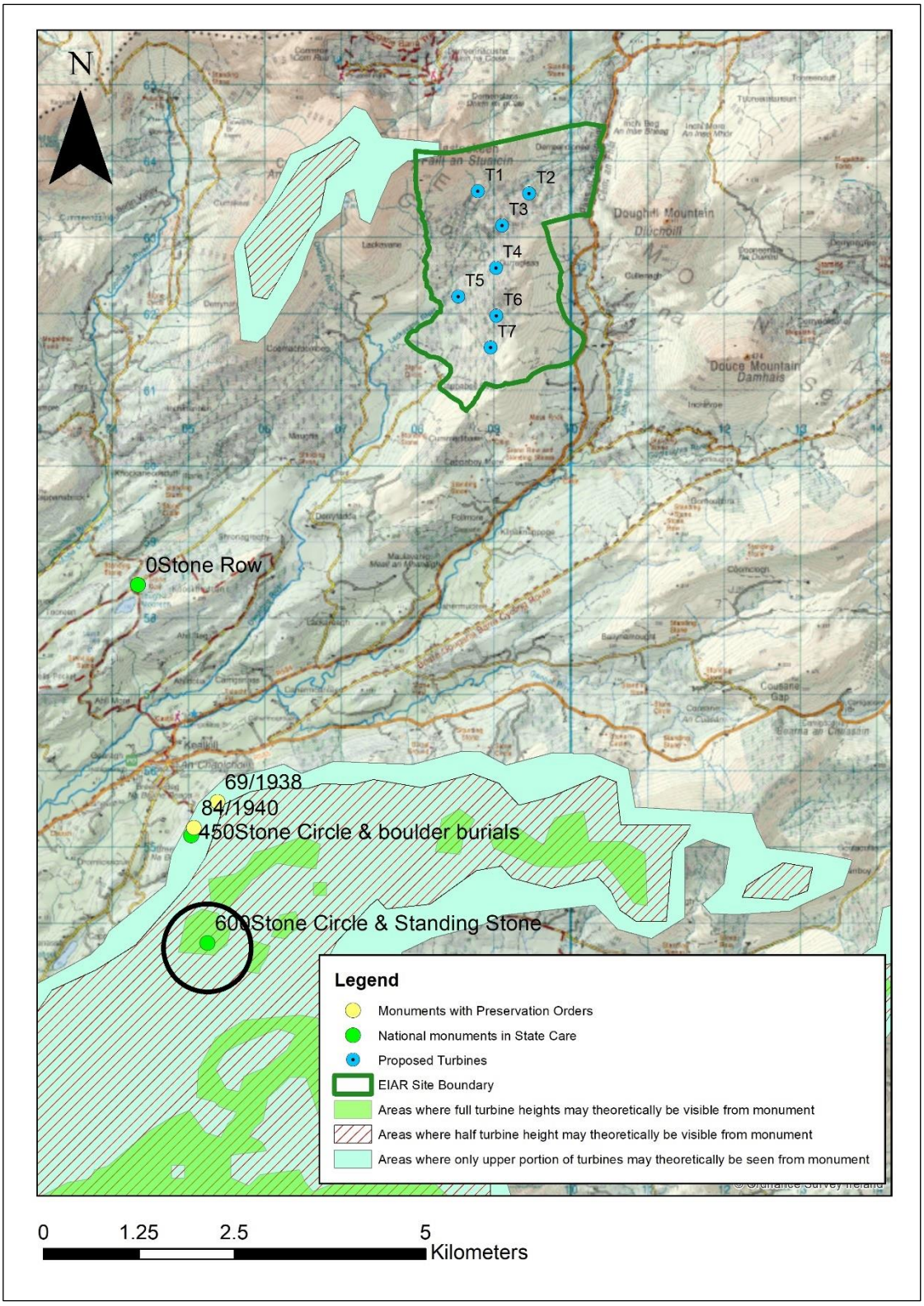

Figure 13-4: Viewshed analysis results from National Monument No 600.

National Monument (No Number) CO092-019 Maughanasilly Stone Row

Prominently situated on bog-covered hillock on NW slopes of Knockbreteen. Excavated in 1977 (Lynch 1981, 69-74). Row of five stones, aligned NE-SW, 5.8m in overall length. NE stone is 0.4m L, 0.25m T and 0.5m H. Next stone, 0.5m to SW, is 0.8m L, 0.3m T and 1.3m H. Third stone, 1.05m further to SW, leans to SW; it is 0.3m L, 0.45m T and 1.05m H. A fragment, 1.3m by 0.5m by 0.3m, has been split from this stone and lies beside it at NE. Fourth stone, 0.9m from the third, is 0.5m L, 0.3m T and 0.95m H. Beside this is prostrate slab, 3.5m in maximum dimension. SW stone, 0.25m from last, is 1.1m L, 0.35m T and 1.05m H. The only find recovered from the excavation was a thumb-shaped flint scraper. Charcoal from the basal peat overlying the site gave a C14 determination of 3265 ± 55 bp (GrN-9281). (Ó Nualláin 1988, 234, no. 33; Roberts 1988, Ch. 5, no. 29).

Viewshed analysis results are a worst-case scenario since the model does not take natural screening such as vegetation, boundaries or buildings into consideration. Figure 13-5 shows that potentially one turbine may theoretically be seen in full from the monument (T1) in green areas). It shows that potentially a further 2 (T2 and T3) in red hachured areas) may be seen from mid-shaft up and that only the upper portion of T4 (light blue areas) may be seen. The viewshed results show that three turbines (T5-T7) may theoretically not been seen from the monument. The Zone of Theoretical Visibility used in the LVIA Chapter 12 shows that this monument is located within an area that shows visibility of potentially 5-7 turbines. This accords with the viewshed in that some level of potential visibility was demonstrated for most turbines.

Given the distance of the monument from the nearest proposed turbine (5.5km), the impacts on setting are likely to be slight. Furthermore, the distance of 5km is such that no impacts on potential sun alignments of the monument would be possible in that the monument will not be overshadowed by proposed turbines at this distance.

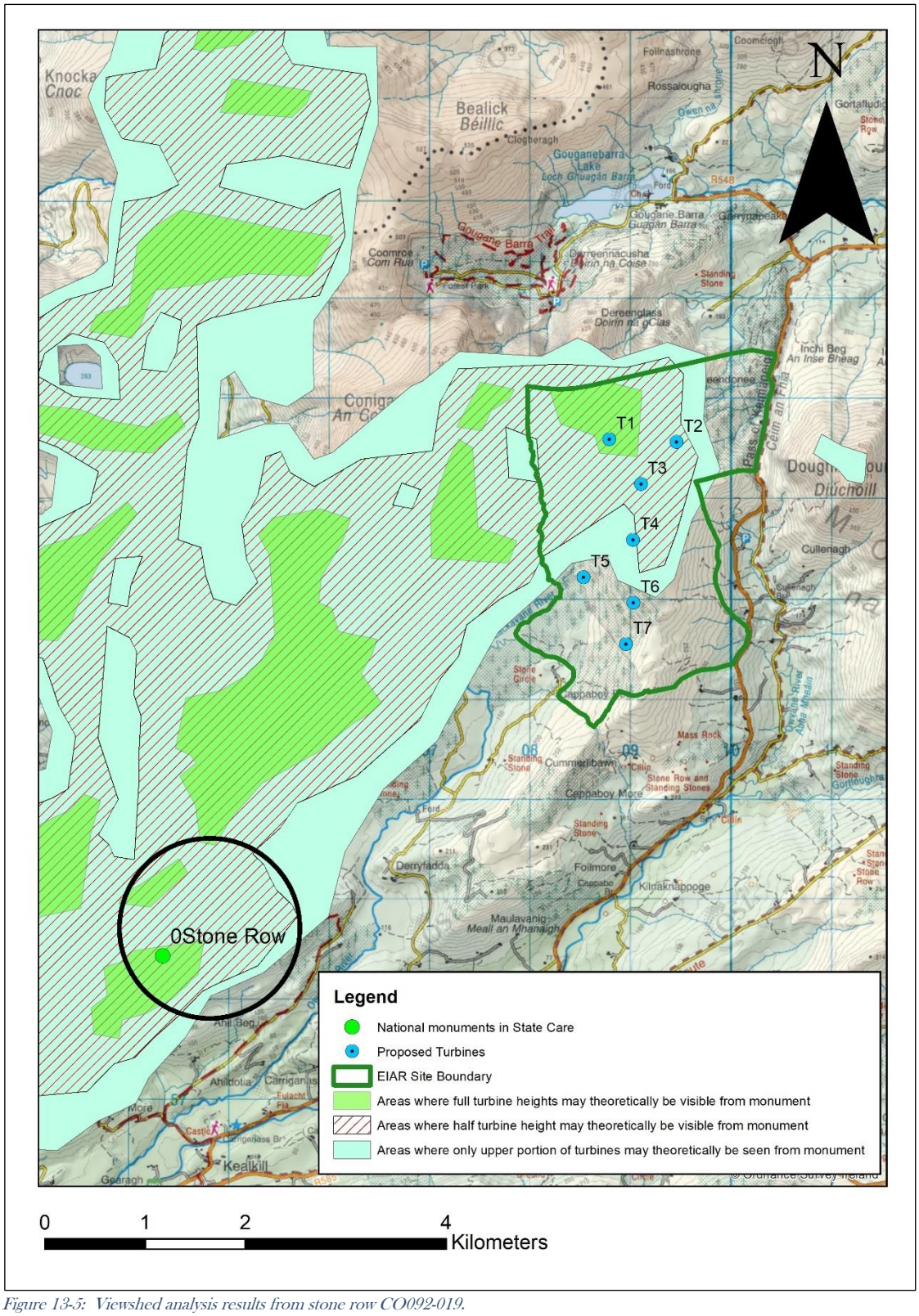

Figure 13-5: Viewshed analysis results from stone row CO092-019.

13.3.1.2 Recorded Monuments within the EIAR site boundary

Five recorded monuments subject to statutory protection as defined in the Record of Monuments and Places or Sites and Monument Record are located within the EIAR site boundary for the Proposed Development. The monuments are listed in

Table 13-3 below and described thereafter. Three of the monuments are redundant records and two are huts sites. The redundant records are classified as such for the following reasons as detailed on the Historic Environment Viewer (www.webgis.archaeology.ie/historicenvironment).

'Records classed as 'Redundant record' are those that fulfil one or more of the following criteria: (1) a record identifying a location where, according to documentary sources (e.g., published reference, cartographic sources) or personal communication, a monument might have existed, but which, on inspection, was found not to be an archaeological monument (e.g. a natural feature); (2) a record classified using a term which is now obsolete (e.g. ecclesiastical remains); (3) a record created in error, a duplicate record or one which has no supporting evidence recorded on file or in the database; (4) an archaeological object (i.e. an artefact), e.g. a quernstone; (5) a record entered as a 'Shipwreck'. Shipwrecks are recorded in a separate database.' The redundant records within the Proposed Development site are not scheduled for inclusion in the next revision of the RMP.

The sites were assessed as part of the EIAR and subject to an on-site inspection. The location of the sites is incorrectly marked on the Historic Environment Viewer (www.webgis.archaeology.ie/historicenvironment) and so a correct coordinate was recorded for each monument and these are shown in green on Figure 13-6 and Figure 13-7.

Table 13-3: Recorded monuments within the Proposed Development site boundary.

MAP ID	RMP NO.	ITM E	ITM N	CLASS	TOWNLAND	WTG ID	DISTANCE (M)
32	CO080-030001	508085	563210	Hut site	CURRAGLASS (Bantry By.)	T1	808
33	CO080-030002	508104	563167	Hut site	CURRAGLASS (Bantry By.)	T1	817
179	CO092-059	508153	563081	Redundant record	CURRAGLASS (Bantry By.)	T1	834
177	CO092-057	508190	563064	Redundant record	CURRAGLASS (Bantry By.)	T1	819
178	CO092-058	508190	563064	Redundant record	CURRAGLASS (Bantry By.)	T1	819

13.3.1.2.1 Descriptions of the Monuments within the Proposed Development site boundary

The descriptions in italics are extracts from the Sites and Monuments Record files on the National Monuments Service public Historic Environment viewer. The actual locations of the monuments differ from those shown on the Historic Environment Viewer as discussed above. The corrected map locations will be shown in green on Figure 13-6 and Figure 13-7.

Map ID 32, RMP CO080-030001

'*The remains of a ruinous rectangular hut site (5m E-W; 3.3m N-S) defined by roughly hewn drystone walls (T 0.7m; H 0.4m). The interior of the hut site is raised above the general ground level. There is another hut site (CO080-030002-) c. 27m to the SE. (J. Kiely pers. comm.)*'. The correct location (ITM E508086, N563245) of this monument is 36m north of that shown on archaeology.ie.

Plate 13-1: Rectangular hut site CO080-030001.

Map ID 33, RMP CO080-030002

'*The remains of a ruinous rectangular hut site (4m N-S; 2.5m E-W) defined by roughly hewn drystone walls (H 0.6m). There is a door ope (Wth 0.75m; H 0.75m) towards the E end of the S wall. Another hut site (CO080-030001-) is c. 27m to the NW. (J. Kiely pers. comm.)*'

This monument is also incorrectly located on archaeology.ie (historic environment viewer). It is located 71m NNE (at ITM E508116, N563237) from where it is shown on archaeology.ie.

Plate 13-2: CO080-030002 looking south-east.

Map ID 179 RMP CO092-059

'*Listed as a 'hut site' in the RMP (1998). In rough moor grass grazing on a S-facing hillslope overlooking the valley of the Lackavane River. According to local information, the partially collapsed, roughly constructed, drystone walled (T 0.6m; H 0.7m) circular enclosure (diam. 5m) was a fionnán enclosure (to protect a cock of fionnán or moor grass from farm animals) and is associated with the ruins of the 19th century farm house to the S. These structures were still in use into the first half of the 20th century. The evidence is not sufficient to warrant accepting this as the location of an archaeological monument. Compiled by: Connie Murphy, Date of upload: 29 January 2013*'.

This monument is located 97m north of where it is shown on archaeology.ie (See Figure 13-6 and Figure 13-7).

Plate 13-3: View of Hut site CO092-059 looking south.

Map ID 177 RMP CO092-057

'*Listed as a 'hut site' in the RMP (1998). In rough moor grass grazing on a S-facing hillslope overlooking the valley of the Lackavane River. According to local information, the roughly constructed, drystone walled (T 0.7m; H 1m), structure (4.5m E-W; 3.5m N-S) was built as a fionnán enclosure (to protect a cock of fionnán or moor grass from farm animals) and is associated with the ruins of the 19th century farm house to the S. The evidence is not sufficient to warrant accepting this as the location of an archaeological monument. Compiled by: Connie Murphy. Date of upload: 29 January 2013*'.

This correct location for the monument is 148m north of where it is shown on archaeology.ie (Figure 13-6 and Figure 13-7).

Plate 13-4: CO092-057 Hut site looking East.

Map ID 178 RMP CO092-058

'*Listed as a 'hut site' in the RMP (1998). In rough moor grass grazing on a S-facing hillslope overlooking the valley of the Lackavane River. According to local information, the roughly constructed, drystone walled (T 0.6m; H 1m), circular enclosure (diam. 5m) was a fionnán enclosure (to protect a cock of fionnán or moor grass from farm animals) and is associated with the ruins of the 19th century farm house to the S. These structures were still in use into the first half of the 20th century. The evidence is not sufficient to warrant accepting this as the location of an archaeological monument. Compiled by: Connie Murphy. Date of upload: 29 January 2013*'.

This monument is located 127m north of where it is shown on archaeology.ie (Figure 13-6 and Figure 13-7).

Plate 13-5: CO092-058 looking East.

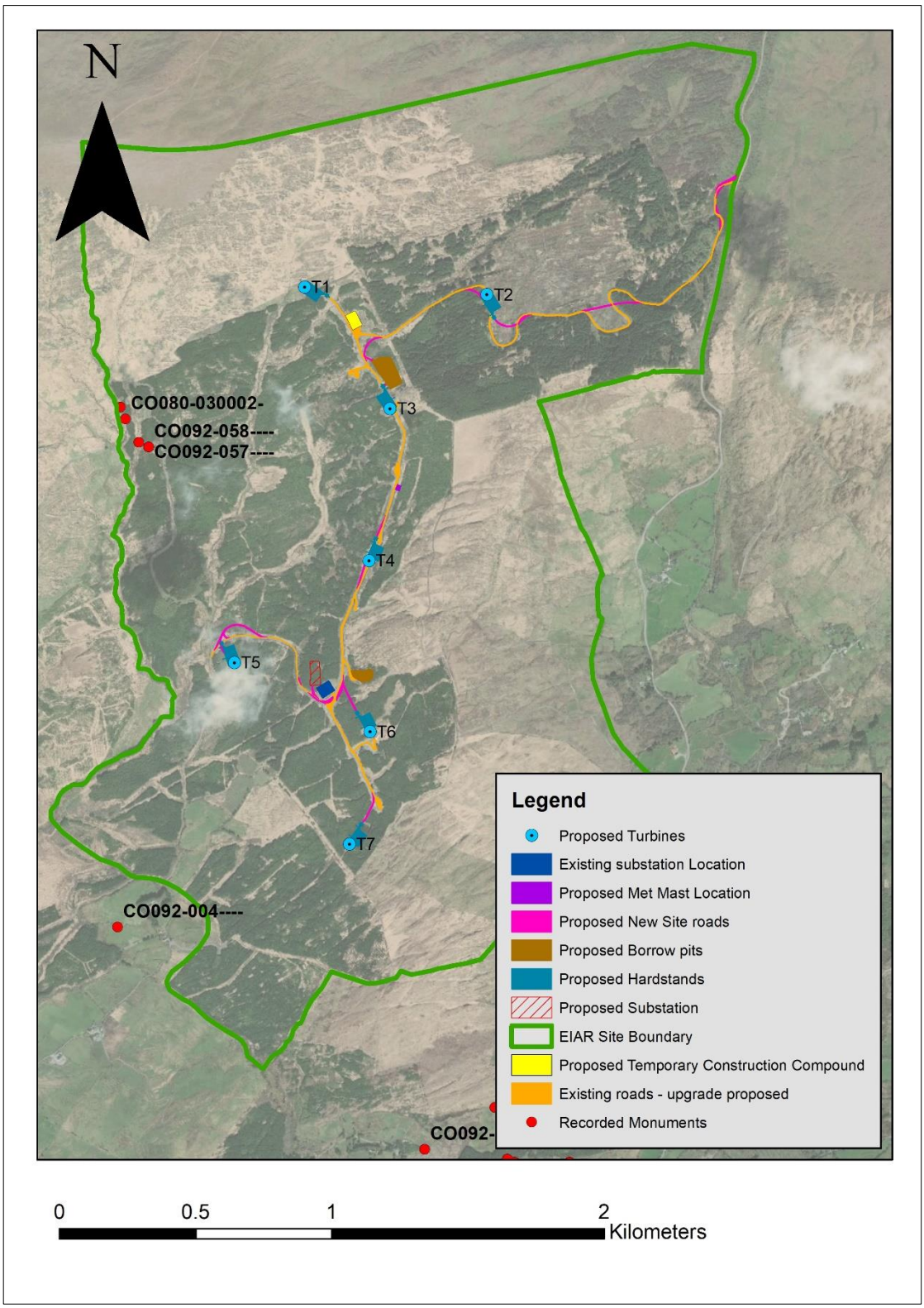

Figure 13-6 RMPs located at west side of site within the EIAR Site boundary.

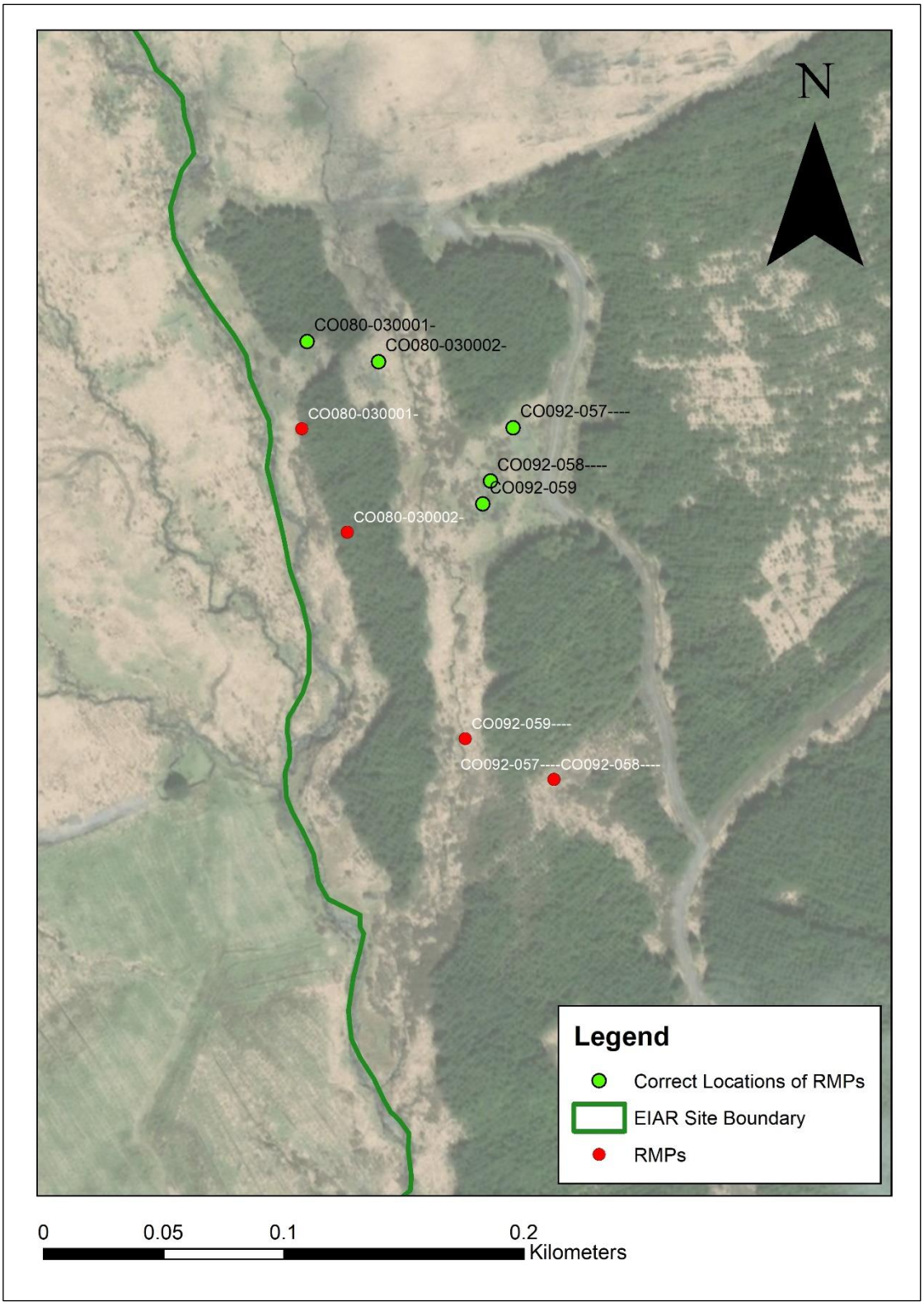

Figure 13-7 Location of RMPs as shown on Historic Environment Viewer and corrected versions of same.

13.3.1.3 Newly Recorded site within the EIAR site boundary

13.3.1.3.1 *2020 EIAR*

A hut site was recorded within the EIAR site boundary in an area of clear-felled forestry. This site may not have been detected previously due to it having been surrounded by mature trees. The hut site is situated just 35m from the existing road (utilised as part of the previous wind farm). It is proposed to construct a small section of interlinking road in order to avoid using the existing sharp bends as noted in Figure 13-8. The road will then measure 87m to the north of the hut site.

The hut site is sub-rectangular in plan measuring 1.2m in height (max). the collapsed walls measure 1m in width. The hut measures 3m in length by 2.5m in width (internally) and 5m in length and 4.4m in width externally. A small possible annex, possibly a collapsed hut, is located to the south of the latter and now consists of a mound of stone measuring 4.6m in length by 2.4m in width (external). The hut is located on a north-facing slope in clear-felled forestry. Trees had been planted close to the monument. Also of note are a number of poorly preserved stone field boundaries throughout the clear-felled section of forest. These are shown on the 6-inch OS map (1840s) in Figure 13-9 and it is likely that the hut site is associated and contemporary with the boundaries given its location within the fields.

Plate 13-6: Poorly preserved hut site looking NE.

Plate 13-7: Hut looking East.

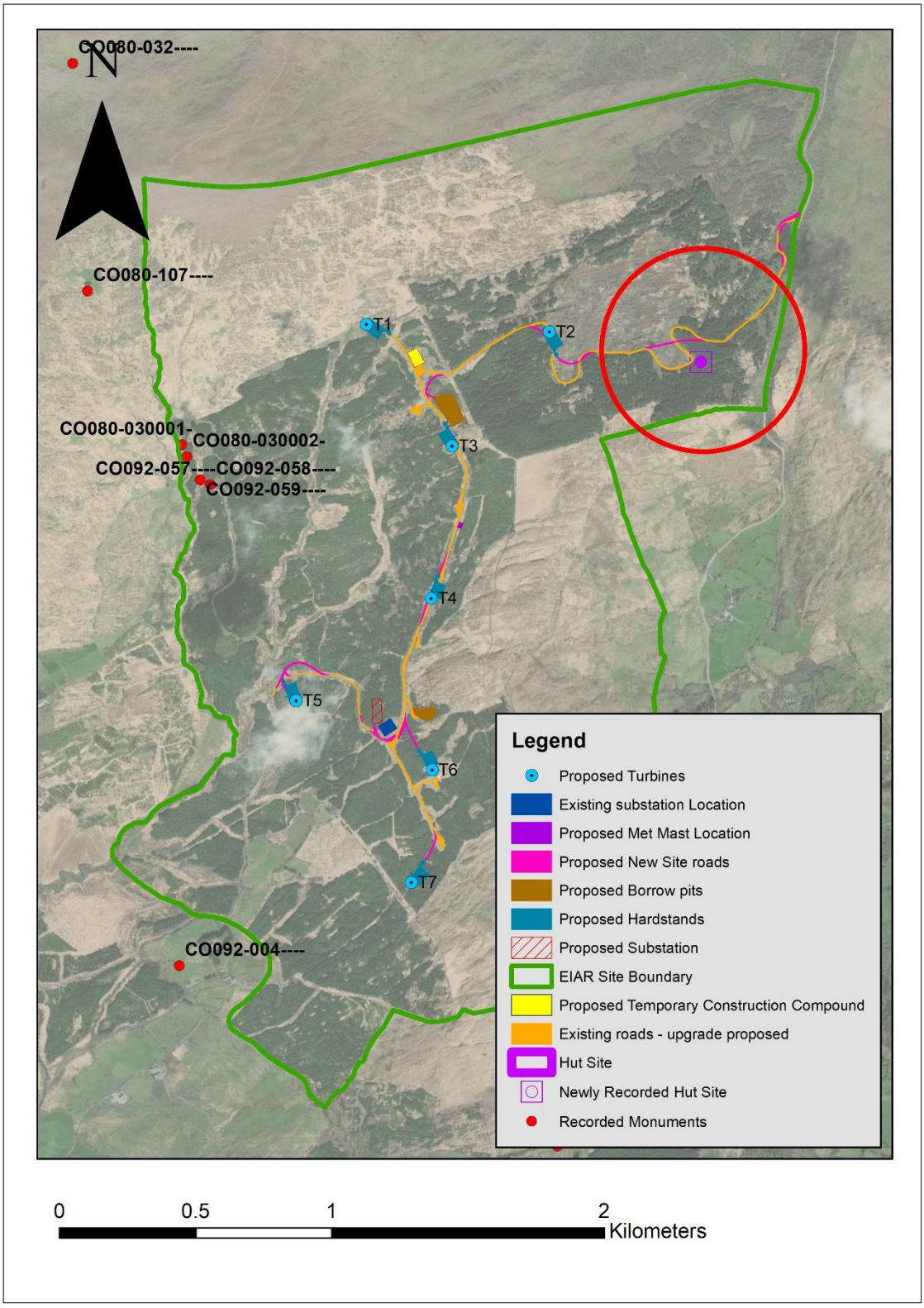

Figure 13-8 Location of newly recorded hut site within the EIAR site boundary.

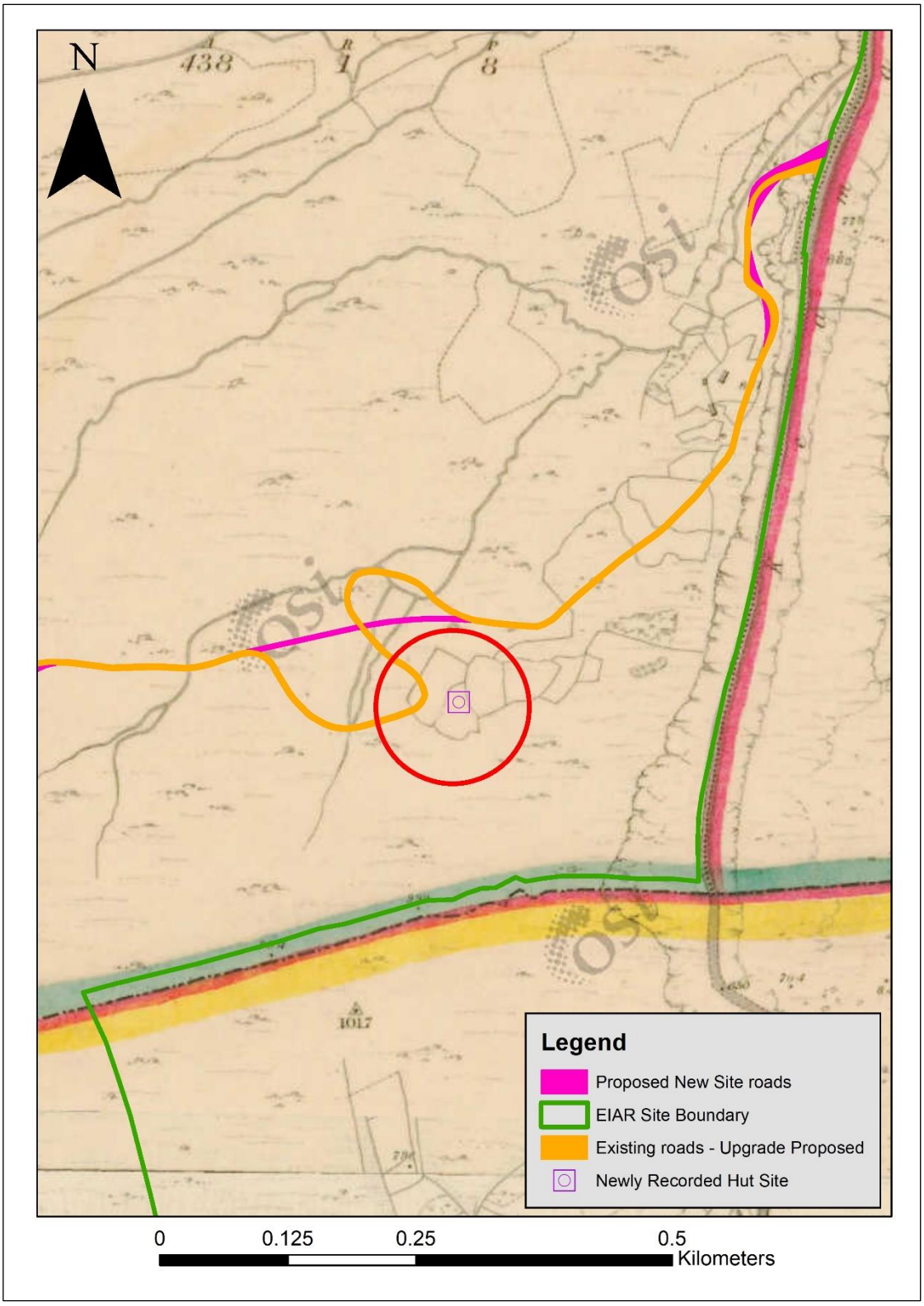

Figure 13-9: Detail of hut site on the 6 inch OS map of the 1840s.

13.3.1.3.2 *Archaeological Monitoring of previous wind farm*

The site was previously developed as a wind farm (Planning Ref W/00/6590 and ABP ref. PL127297). Tobar Archaeological Services, monitored, under licence, all groundworks associated with the previous wind farm (in 2005) under licence No. 05E1062. No sub-surface archaeological finds, features or deposits were uncovered. Two tentative standing stones were noted within newly planted forestry at the time (now mature forestry) and details were presented in the archaeological monitoring report. These sites were re-

visited during this EIAR since they are located in mature forestry south of the proposed turbine T1. They are now deemed not to be of archaeological significance. The stone closest to T1 is situated in a small clearance of trees amongst numerous boulders lying flat on the ground (Plate 13-8). The surrounding landscape has numerous such boulders.

Plate 13-8: Boulder within forestry

13.3.1.4 Recorded Monuments within 5km of the proposed Turbines

Two-hundred and seven (207) monuments are located within 5km of the nearest proposed turbines and these are detailed below in Table 13-4. The distance (5km) criteria methodology is described in Section 13.2.5. The monuments are labelled from 1-207 (Map ID) for ease of reference on Figure 13-10. Monuments within 5 kilometres of the proposed turbines are included here for purposes of assessing potential visual impacts in the wider landscape setting. Only one monument (apart from those within the EIAR site boundary) is located within 1km of the nearest proposed turbine. Twenty-two monuments are located between 1 and 2km from the nearest proposed turbine, with 48 RMPs being located between 2 and 3km from the nearest proposed turbine. Seventy-five monuments are located between 3 and 4km with the remainder (56) being located between 4 and 5km of the nearest proposed turbine. A breakdown of the monuments by type is depicted on Figure 13-11. Direct and Indirect effects are addressed in Section 13.3.5 below.

A large cluster of multi-period archaeological monuments are located in Doire Mhic Coirnín and Dooneens townlands 2.3km to the east of the Proposed Development site. The complex of archaeological sites is largely separated from the Proposed Development site by a large intervening hill known as Doughill Mountain thus screening the majority of sites from view. Seventy six (76) monuments were detected and identified by Tobar Archaeological Services during a programme of field inspection and topographical survey in 2010. The sites were subsequently added to the record of monuments and places. The Zone of Theoretical Visibility shows that no turbines would be visible from the majority of the monuments within the complex of monuments at Dooneens. Twenty-five of the complex of 76 monuments are located in an area where potentially 1-2 turbines may be seen.

All such sites within 5km of the nearest proposed turbine are included in the table below. As the sites date from the pre-historic period through to the medieval period, they are discussed in the relevant sections below.

Table 13-4: RMPs within 5km of the nearest proposed turbines

Map ID	RMP NO.	ITM E	ITM N	DESCRIPTION	TOWNLAND	WTG ID	DISTANCE (M)
1	CO079-004001-	503681	563442	Enclosure	Derryclogher	T5	4963
2	CO079-004002-	503662	563421	Field boundary	Derryclogher	T5	4977
3	CO079-004003-	503619	563371	Enclosure	Derryclogher	T5	5007
4	CO079-005001-	503708	563450	Enclosure	Derryclogher	T5	4939
5	CO079-005002-	503708	563450	Hut site	Derryclogher	T5	4939
6	CO080-001----	511003	568105	Redundant record	Doire An Longaigh	T2	4807
7	CO080-002----	511051	567915	Redundant record	Doire An Longaigh	T2	4643
8	CO080-003----	511018	566932	Cist	Gort An Phludaigh	T2	3719
9	CO080-004----	511400	566591	Redundant record	Gort An Phludaigh	T2	3600
10	CO080-005----	511597	566501	Megalithic tomb - wedge tomb	Gort An Phludaigh	T2	3635
11	CO080-010----	504480	564767	Fulacht fia	Derreencollig	T1	4425
12	CO080-011001-	505028	565365	Redundant record	Derreencollig	T1	4109
13	CO080-011002-	505138	565328	Standing stone	Derreencollig	T1	3994
14	CO080-011003-	505138	565328	Hut site	Derreencollig	T1	3994
15	CO080-012001-	509110	566110	Hermitage	Doire Na Coise	T1	2484
16	CO080-012002-	509117	566051	Ritual site - holy well	Doire Na Coise	T1	2427
17	CO080-012003-	509160	566026	Graveyard	Doire Na Coise	T1	2409
18	CO080-013----	509449	566437	Clapper bridge	Ros An Locha	T1	2870
19	CO080-014----	509615	565307	Redundant record	Derreenglass	T2	1766
20	CO080-015----	510100	565086	Redundant record	Derreenglass	T2	1660
21	CO080-016----	510658	565656	Redundant record	Gaorthadh Na Péice	T2	2417
22	CO080-017----	511921	564747	Redundant record	An Inse Mhór	T2	2721

Map ID	RMP NO.	ITM E	ITM N	DESCRIPTION	TOWNLAND	WTG ID	DISTANCE (M)
23	CO080-018001-	512338	563310	Ringfort - rath	Dooneens	T2	2868
24	CO080-018002-	512338	563305	Standing stone	Dooneens	T2	2868
25	CO080-019----	513844	563992	Megalithic tomb - wedge tomb	Doire Mhic Coirnín	T2	4387
26	CO080-021----	511210	567186	Standing stone	Gort An Phludaigh	T2	4031
27	CO080-022----	511179	567150	Enclosure	Gort An Phludaigh	T2	3985
28	CO080-023----	511170	567078	Field boundary	Gort An Phludaigh	T2	3916
29	CO080-024----	511339	566720	Standing stone - pair	Gort An Phludaigh	T2	3679
30	CO080-026----	512338	563310	Souterrain	Dooneens	T2	2868
31	CO080-029----	507886	565518	Hut site	Coomroe	T1	2063
32	CO080-030001-	508085	563210	Hut site	Curraglass (Bantry By.)	T1	808
33	CO080-030002-	508104	563167	Hut site	Curraglass (Bantry By.)	T1	817
34	CO080-031001-	508311	566370	Hut site	Ros An Locha	T1	2757
35	CO080-031002-	508315	566358	Hut site	Ros An Locha	T1	2744
36	CO080-032----	507685	564607	Enclosure	Coomroe	T1	1441
37	CO080-033----	512169	563933	Cairn - unclassified	An Inse Mhór	T2	2717
38	CO080-034----	512183	563943	Field boundary	An Inse Mhór	T2	2732
39	CO080-035----	512221	563897	Field boundary	An Inse Mhór	T2	2764
40	CO080-036----	512249	563935	Field boundary	An Inse Mhór	T2	2797
41	CO080-037----	512307	563899	Cairn - unclassified	An Inse Mhór	T2	2849
42	CO080-038----	512288	563992	Field boundary	An Inse Mhór	T2	2844
43	CO080-039----	512344	563929	Cairn - unclassified	An Inse Mhór	T2	2890
44	CO080-040----	512363	563969	Cairn - unclassified	An Inse Mhór	T2	2914

Map ID	RMP NO.	ITM E	ITM N	DESCRIPTION	TOWNLAND	WTG ID	DISTANCE (M)
45	CO080-041----	512397	563951	Field boundary	An Inse Mhór	T2	2945
46	CO080-042----	512321	564068	Field boundary	An Inse Mhór	T2	2889
47	CO080-043----	512340	564114	Enclosure	An Inse Mhór	T2	2916
48	CO080-044----	512378	564132	Cairn - unclassified	An Inse Mhór	T2	2957
49	CO080-045----	512429	564125	Cairn - unclassified	An Inse Mhór)	T2	3006
50	CO080-046----	512484	564033	Field boundary	An Inse Mhór	T2	3044
51	CO080-047----	512458	564014	Cairn - radial-stone cairn	An Inse Mhór	T2	3015
52	CO080-048----	512443	563997	Field boundary	An Inse Mhór	T2	2997
53	CO080-049----	512460	563992	Cairn - unclassified	An Inse Mhór	T2	3014
54	CO080-050----	512469	564026	Field boundary	An Inse Mhór	T2	3028
55	CO080-051----	512497	564044	Field boundary	An Inse Mhór	T2	3058
56	CO080-052----	512495	564064	Cairn - unclassified	An Inse Mhór	T2	3060
57	CO080-053----	511963	563671	Field boundary	An Inse Mhór)	T2	2486
58	CO080-054----	512219	563639	Field system	Dooneens	T2	2741
59	CO080-055----	512441	563576	Field boundary	Dooneens	T2	2961
60	CO080-056----	512596	563638	Field boundary	Dooneens	T2	3118
61	CO080-057----	512601	563638	Hut site	Dooneens	T2	3123
62	CO080-058----	512644	563684	Field boundary	Dooneens	T2	3167
63	CO080-059----	512616	563741	Field boundary	Dooneens	T2	3142
64	CO080-060----	512644	563880	Field boundary	Tooreennanean	T2	3182
65	CO080-061----	512748	563928	Field boundary	Tooreennanean	T2	3291
66	CO080-062----	512820	563926	Field boundary	Tooreennanean	T2	3362
67	CO080-063----	512592	563569	Field boundary	Dooneens	T2	3112
68	CO080-064001-	512206	563425	Hut site	Dooneens	T2	2729
69	CO080-064002-	512206	563425	Field boundary	Dooneens	T2	2729

Map ID	RMP NO.	ITM E	ITM N	DESCRIPTION	TOWNLAND	WTG ID	DISTANCE (M)
70	CO080-065----	512465	563354	House - indeterminate date	Dooneens	T2	2991
71	CO080-066----	512491	563417	Hut site	Dooneens	T2	3014
72	CO080-067----	512530	563426	Cairnfield	Dooneens	T2	3053
73	CO080-068----	512619	563500	Anomalous stone group	Dooneens	T2	3140
74	CO080-069----	512671	563504	Field boundary	Dooneens	T2	3192
75	CO080-070----	512724	563502	Standing stone	Dooneens	T2	3245
76	CO080-071----	512636	563476	Hut site	Dooneens	T2	3157
77	CO080-072----	512646	563425	Field boundary	Dooneens	T2	3169
78	CO080-073----	512498	563086	House - indeterminate date	Dooneens	T2	3053
79	CO080-074----	512798	563200	Field boundary	Dooneens	T2	3336
80	CO080-075----	512762	563126	Field boundary	Dooneens	T2	3309
81	CO080-076----	512844	563129	Hut site	Dooneens	T2	3390
82	CO080-077----	512950	563129	Field boundary	Dooneens	T2	3495
83	CO080-078----	513012	563168	Field boundary	Dooneens	T2	3552
84	CO080-079----	513058	563236	Field boundary	Dooneens	T2	3592
85	CO080-080----	512895	563611	Anomalous stone group	Dooneens	T2	3416
86	CO080-081----	512901	563635	Field boundary	Dooneens	T2	3422
87	CO080-082----	512944	563731	Field boundary	Dooneens	T2	3469
88	CO080-083----	513014	563806	Field boundary	Dooneens	T2	3544
89	CO080-084----	513023	563681	Field boundary	Dooneens	T2	3546
90	CO080-085----	513064	563668	Field boundary	Dooneens	T2	3586
91	CO080-086----	513077	563697	Field boundary	Dooneens	T2	3600
92	CO080-087----	513228	563707	Field boundary	Dooneens	T2	3752
93	CO080-088----	513150	563674	Field boundary	Dooneens	T2	3673
94	CO080-089----	513228	563725	Field boundary	Dooneens	T2	3753

Map ID	RMP NO.	ITM E	ITM N	DESCRIPTION	TOWNLAND	WTG ID	DISTANCE (M)
95	CO080-090001-	513304	563768	Enclosure	Dooneens	T2	3831
96	CO080-090002-	513304	563768	Hut site	Dooneens	T2	3831
97	CO080-091----	513295	563732	Field boundary	Dooneens	T2	3820
98	CO080-092----	513375	563646	Field boundary	Dooneens	T2	3897
99	CO080-093----	513417	563726	Field boundary	Tooreenduff (Muskerry West By.)	T2	3941
100	CO080-094----	513188	564157	Field boundary	Doire Mhic Coirnín	T2	3758
101	CO080-095----	513189	564033	Field boundary	Doire Mhic Coirnín	T2	3741
102	CO080-096----	513204	563957	Field boundary	Doire Mhic Coirnín	T2	3747
103	CO080-097----	513211	563916	Field boundary	Doire Mhic Coirnín	T2	3750
104	CO080-098----	513138	563890	Field boundary	Doire Mhic Coirnín	T2	3674
105	CO080-099----	512259	563861	Field boundary	Doire Mhic Coirnín	T2	2797
106	CO080-100----	513354	564043	Hut site	Doire Mhic Coirnín	T2	3906
107	CO080-101----	513442	564001	Field boundary	Doire Mhic Coirnín	T2	3988
108	CO080-102----	513360	563871	Field boundary	Doire Mhic Coirnín	T2	3894
109	CO080-103----	513471	563871	Field boundary	Doire Mhic Coirnín	T2	4005
110	CO080-104----	513697	564093	Hut site	Doire Mhic Coirnín	T2	4253
111	CO080-105----	513801	564022	Hut site	Doire Mhic Coirnín	T2	4347
112	CO080-106----	513819	563998	Hut site	Doire Mhic Coirnín	T2	4363
113	CO080-107----	507740	563773	Field boundary	Lackavane (Bantry By.)	T1	1029

Map ID	RMP NO.	ITM E	ITM N	DESCRIPTION	TOWNLAND	WTG ID	DISTANCE (M)
114	CO091-030----	503771	562734	Mine - copper	Derryclogher	T5	4756
115	CO091-071----	504081	561304	Bullaun stone	Derrynafinchin	T5	4528
116	CO091-072----	504521	561300	Ritual site - holy well	Derrynafinchin	T5	4100
117	CO092-001001-	504724	562240	Stone circle - multiple-stone	Derrynafinchin	T5	3780
118	CO092-001002-	504724	562240	Boulder-burial	Derrynafinchin	T5	3780
119	CO092-001003-	504724	562240	Mass-rock	Derrynafinchin	T5	3780
120	CO092-001004-	504724	562240	Bullaun stone	Derrynafinchin	T5	3780
121	CO092-002----	506646	560087	Standing stone	Maugha	T7	2740
122	CO092-003----	504536	559839	Standing stone	Knockanecosduff	T5	4655
123	CO092-004----	508076	561302	Stone circle - five-stone	Cappaboy Beg	T7	903
124	CO092-005001-	508901	560393	Enclosure	Cappaboy Beg	T7	1213
125	CO092-005002-	508946	560424	Burial ground	Cappaboy Beg	T7	1182
126	CO092-006----	509397	560347	Standing stone - pair	Cappaboy Beg	T7	1344
127	CO092-007----	509462	560640	Mass-rock	Cappaboy Beg	T7	1104
128	CO092-008001-	509508	560450	Ringfort - cashel	Cappaboy Beg	T7	1294
129	CO092-008002-	509533	560439	Standing stone	Cappaboy Beg	T7	1315
130	CO092-008003-	509517	560383	Four poster	Cappaboy Beg	T7	1358
131	CO092-008004-	509539	560363	Standing stone	Cappaboy Beg	T7	1385
132	CO092-009001-	509736	560440	Radial-stone enclosure	Cappaboy Beg	T7	1419
133	CO092-009002-	509736	560440	Standing stone	Cappaboy Beg	T7	1419
134	CO092-010----	511010	560361	Standing stone	Inchiroe	T7	2427
135	CO092-011----	513196	562649	Standing stone	Dooneens	T2	3823
136	CO092-012----	514009	562885	Ringfort - cashel	Derrynagree	T2	4577
137	CO092-013001-	513979	562755	Enclosure	Derrynagree	T2	4568

Map ID	RMP NO.	ITM E	ITM N	DESCRIPTION	TOWNLAND	WTG ID	DISTANCE (M)
138	CO092-013002-	513999	562765	Stone row	Derrynagree	T2	4586
139	CO092-014----	513251	561766	Megalithic tomb - wedge tomb	Doire Uí Ríordáin Theas	T2	4170
140	CO092-015----	513853	562174	Ringfort - rath	Doire Uí Ríordáin Theas	T2	4583
141	CO092-016001-	504561	559566	Stone circle - five-stone	Illane	T5	4782
142	CO092-016002-	504575	559572	Cairn - unclassified	Illane	T5	4767
143	CO092-020----	505996	559194	Ringfort - cashel	Shronagreehy	T7	3796
144	CO092-021----	507717	560448	Standing stone	Cappaboy More	T7	1675
145	CO092-022----	508560	559926	Standing stone	Cappaboy More	T7	1719
146	CO092-023001-	508590	559813	Anomalous stone group	Cappaboy More	T7	1824
147	CO092-023002-	508614	559883	Standing stone	Cappaboy More	T7	1751
148	CO092-024----	508697	559923	Standing stone	Cappaboy More	T7	1698
149	CO092-025----	508877	559265	Ringfort - rath	Cappaboy More	T7	2341
150	CO092-026----	508754	559035	Ringfort - rath	Kilnaknappoge	T7	2576
151	CO092-027----	509204	560486	Redundant record	Cappaboy Beg	T7	1153
152	CO092-028----	509323	559050	Ringfort - rath	Kilnaknappoge	T7	2586
153	CO092-029----	509469	559231	Ringfort - rath	Kilnaknappoge	T7	2436
154	CO092-030----	509703	559282	Enclosure	Kilnaknappoge	T7	2450
155	CO092-031001-	509795	559326	Ringfort - cashel	Kilnaknappoge	T7	2439
156	CO092-031002-	509795	559326	Souterrain	Kilnaknappoge	T7	2439
157	CO092-032----	509889	559869	Burial ground	Kilnaknappoge	T7	1985
158	CO092-033----	510168	559213	Ringfort - cashel	Gortloughra	T7	2695
159	CO092-034----	510898	559576	Ringfort - rath	Gortloughra	T7	2829
160	CO092-035----	511201	559302	Standing stone - pair	Gortloughra	T7	3237
161	CO092-036----	511285	559439	Standing stone	Gortloughra	T7	3202

Map ID	RMP NO.	ITM E	ITM N	DESCRIPTION	TOWNLAND	WTG ID	DISTANCE (M)
162	CO092-037----	512272	558847	Standing stone	Gortloughra	T7	4336
163	CO092-040----	507507	557787	Souterrain	Maulavanig	T7	4074
164	CO092-041----	508201	558332	Ringfort - rath	Maulavanig	T7	3353
165	CO092-042----	508728	558919	Enclosure	Cahermuckee	T7	2694
166	CO092-043----	509019	558284	Ringfort - rath	Cahermuckee	T7	3323
167	CO092-044----	508213	557206	Standing stone - pair	Cahermuckee	T7	4457
168	CO092-045----	509005	557035	Ringfort - cashel	Maughanaclea	T7	4571
169	CO092-047001-	509763	557278	Ringfort - cashel	Maughanaclea	T7	4408
170	CO092-047002-	509763	557279	Souterrain	Maughanaclea	T7	4407
171	CO092-048----	511361	557849	Standing stone	Ballynamought	T7	4476
172	CO092-049----	510952	557141	Standing stone	Cousane	T7	4902
173	CO092-052001-	511599	557515	Enclosure	Cousane	T7	4886
174	CO092-052002-	511649	557526	Enclosure	Cousane	T7	4904
175	CO092-053001-	511662	557356	Earthwork	Cousane	T7	5054
176	CO092-055----	506540	559488	Souterrain	Derryfadda	T7	3191
177	CO092-057----	508190	563064	Redundant record	Curraglass (Bantry By.)	T1	819
178	CO092-058----	508190	563064	Redundant record	Curraglass (Bantry By.)	T1	819
179	CO092-059----	508153	563081	Redundant record	Curraglass (Bantry By.)	T1	834
180	CO092-060001-	505027	558863	Field boundary	Maughanasilly	T7	4768
181	CO092-060002-	505057	558958	Fulacht fia	Maughanasilly	T7	4689
182	CO092-060003-	505307	558943	Fulacht fia	Maughanasilly	T7	4494
183	CO092-060004-	505404	558899	Fulacht fia	Maughanasilly	T7	4443
184	CO092-060005-	505414	558931	Fulacht fia	Maughanasilly	T7	4415
185	CO092-060006-	505450	558929	Hut site	Maughanasilly	T7	4388
186	CO092-060007-	505438	558922	Field boundary	Maughanasilly	T7	4402

Map ID	RMP NO.	ITM E	ITM N	DESCRIPTION	TOWNLAND	WTG ID	DISTANCE (M)
187	CO092-061001-	511901	558907	Enclosure	Gortloughra	T7	4016
188	CO092-061002-	511897	558907	Hut site	Gortloughra	T7	4013
189	CO092-062001-	512329	559325	Hut site	Gortloughra	T7	4096
190	CO092-062002-	512347	559399	Hut site	Gortloughra	T7	4070
191	CO092-063001-	512769	559365	Hut site	Gortloughra	T7	4448
192	CO092-063002-	512807	559347	Hut site	Gortloughra	T7	4490
193	CO092-063003-	512686	559383	Hut site	Gortloughra	T7	4367
194	CO092-064----	512317	559314	Field boundary	Gortloughra	T7	4092
195	CO092-065----	505291	558761	Hut site	Maughanasilly	T7	4616
196	CO092-066001-	511728	562138	Standing stone - pair	Dooneens	T2	2653
197	CO092-066002-	511734	562121	Hut site	Dooneens	T2	2667
198	CO092-067----	511835	562269	Standing stone - pair	Dooneens	T2	2679
199	CO092-068----	512279	562352	Hut site	Dooneens	T2	3043
200	CO092-071----	508144	558757	Burnt mound	Maulavanig	T7	2954
201	CO092-072----	508195	558202	Fulacht fia	Maulavanig	T7	3481
202	CO092-078----	510960	559138	Cairn - unclassified	Gortloughra	T7	3197
203	CO092-083----	513397	562098	Souterrain	Doire Uí Ríordáin Thuaidh	T2	4176
204	CO092-084----	512587	562994	Field boundary	Dooneens	T2	3156
205	CO092-085----	506908	562655	Enclosure	Lackavane (Bantry By.)	T5	1642
206	CO093-001----	514136	561350	Megalithic tomb - wedge tomb	An Chlochbhuaile	T2	5148
207	CO093-076----	514082	561239	Megalithic tomb - wedge tomb	An Chlochbhuaile	T6	5139

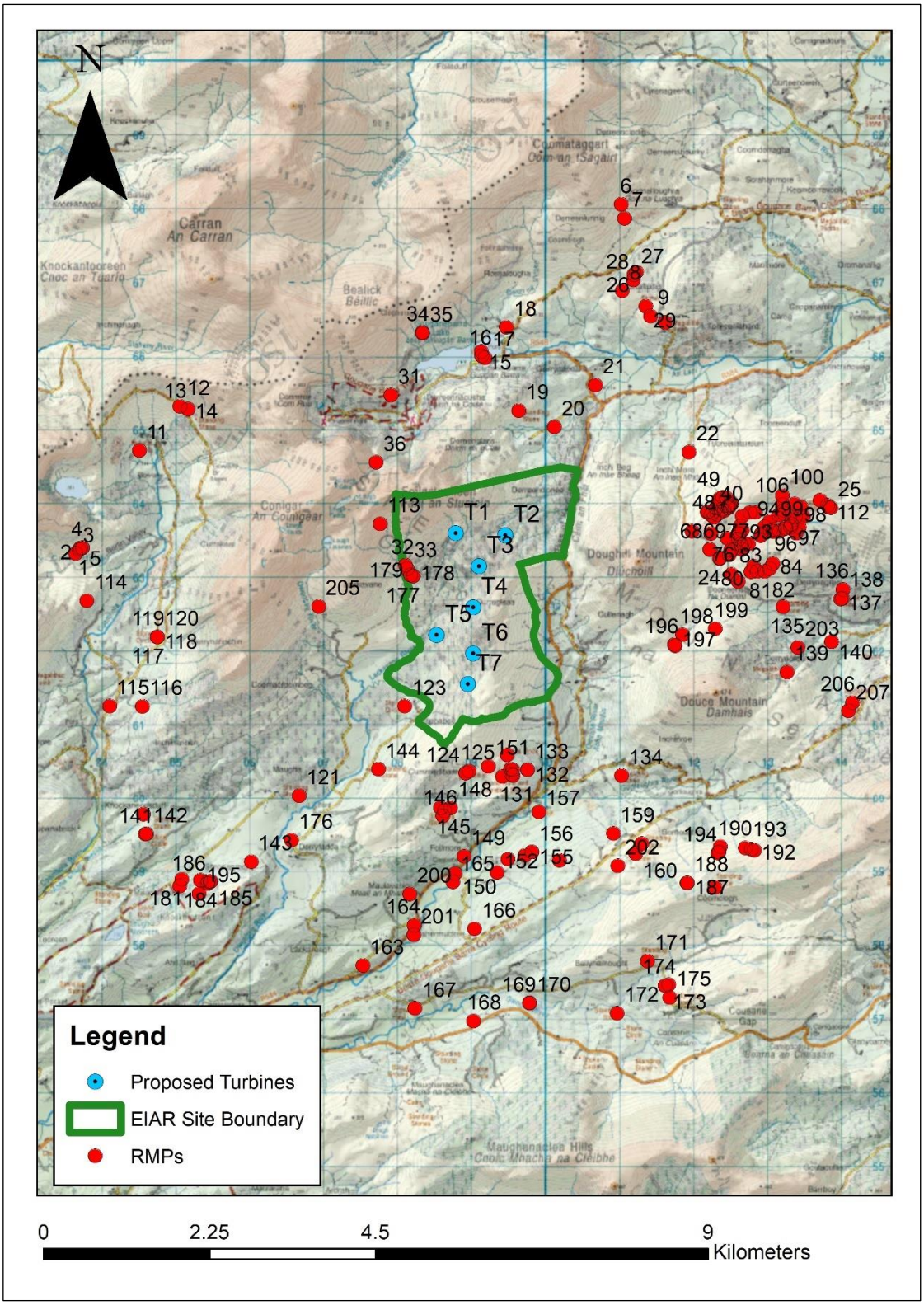

Figure 13-10: RMPs within 5km of the nearest proposed turbine.

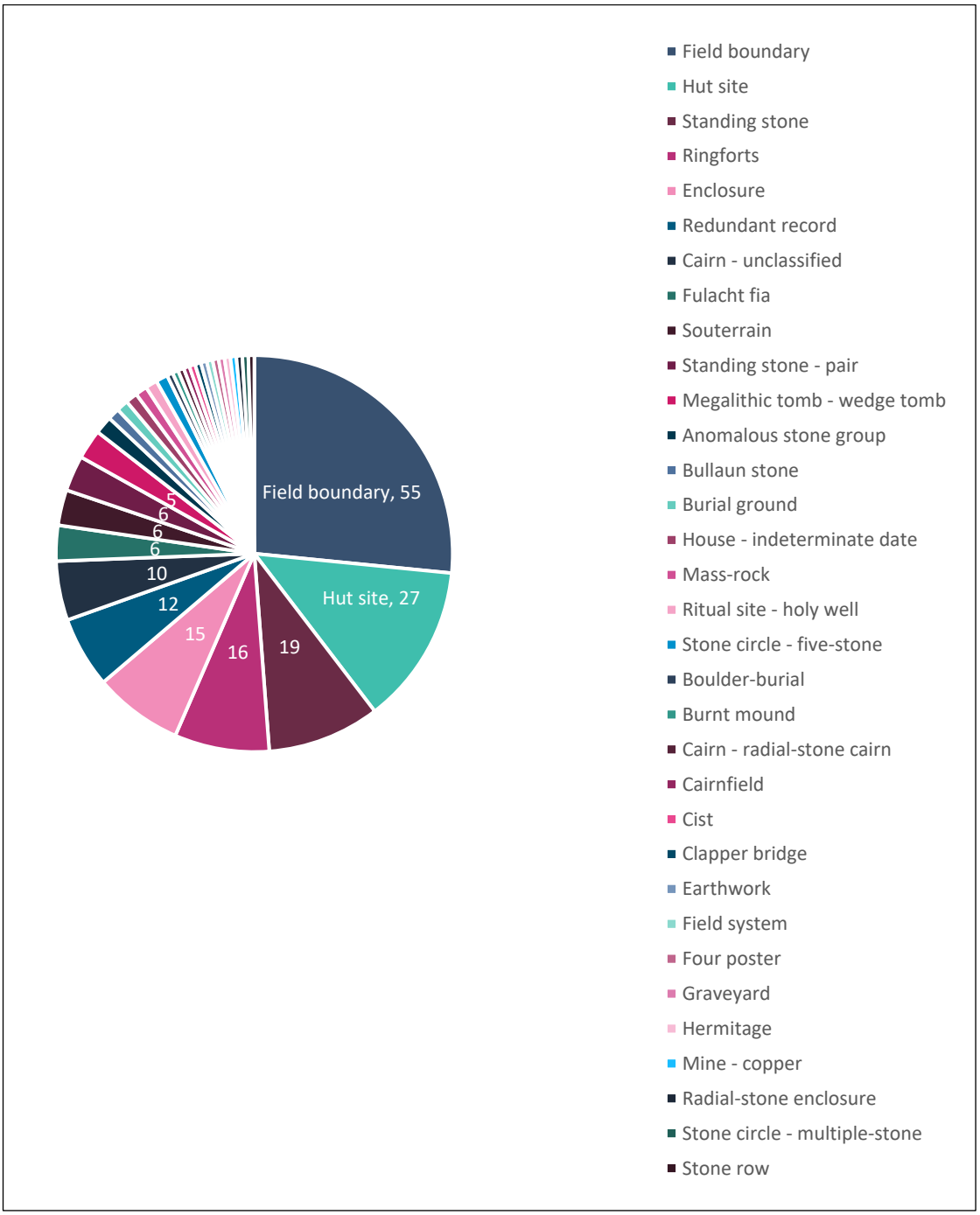

Figure 13-11: Monuments numbers within 5km of the nearest proposed turbine

13.3.1.4.1 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, radial stone enclosure, field systems, field boundaries, a radial stone cairn and megalithic tombs.

Fulachta Fia

Fulachta fia account for a very small number (6) within the 5km study area Again, this monument type may span from the Bronze Age (c. 2400-500 BC) to the early medieval period (5th - 12th century AD. They consist of a 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.

Field Boundaries (stone walls) and Field Systems

These low visibility monuments account for the majority of monument types within the study area with 55 examples in the vicinity. Again, they could span from the prehistoric period through to the Medieval period. The majority of the field boundaries were discovered in Dooneens townland to the east of the Curraglass Renewable Energy Development during an archaeological and topographical survey undertaken by Tobar Archaeological Services in 2010 for a proposed wind farm project (not developed). Of the field walls discovered in Dooneens, stone walls constituted 55% (52 walls) of the total number of newly recorded monuments within the study area which was 76 in total. Many of the walls were similar in appearance and mainly survived to one-two courses in width and height and are largely collapsed. No particular construction methods were apparent as many merely consist of a row of seemingly randomly placed stones. Ten (10) walls located in the north-western portion of the Dooneens study area were found in cut-away bog, some projecting from beneath bog sections. These have been interpreted as pre-bog walls therefore and are likely to be prehistoric in date. The majority of features identified in Dooneens consist of poorly preserved stone walls which are distributed throughout the site. When looked at in isolation, these walls appear fragmentary, discontinuous, dispersed and survive to little more than one-two courses in height. When viewed in their entirety, however, a system of field enclosure extending throughout the study area becomes apparent. The practice of enclosing fields for agricultural purposes in Ireland dates back to the Neolithic period, with the Céide fields in county Mayo providing a well known example. Regularly laid out stone-wall enclosed fields are usually interpreted as evidence for a pastoral farming economy while cultivation ridges and clearance cairns indicate that tillage was practiced (Byrne *et al.* 2009, 128, after Caulfield 1983, 195-215).

The chronology of the stone walls at Dooneens is somewhat ambiguous. The vast majority of walls noted during the site survey do not appear on the first or second editions of the Ordnance Survey maps. In general these features are located on high or sloping ground at a remove from present-day roads and tracks. Conversely, the fields indicated on the OS maps are those located on the lower slopes of grassy pasture which are centred around small settlements and farm holdings. Furthermore, distinct construction methods which could potentially assist in dating the walls are not apparent, due mainly to their ruinous state. Field systems such as that at Dooneens have been identified in other upland areas in Ireland, primarily through research studies such as that undertaken at Monavullagh, Co. Waterford (Moore 1995) and the Beara Peninsula, Co. Cork (O'Brien 2009). In a study of three early settlement landscapes on the Beara Peninsula field walls of varying date were recorded throughout (*ibid.*). The date of such walls and field systems was determined where possible by a number of means including archaeological excavation. Primarily, the antiquity of the walls is suggested by the overlying growth of blanket peat which in Beara may be up to 1m (*ibid.*, 50). At least five examples of previously unrecorded pre-bog walls were noted at Dooneens. These walls have been exposed in sections of cut-away bog and in some cases are visible extending into uncut turf banks. While the precise date of the walls is unknown their antiquity is certainly indicated by the growth of blanket peat over these structures. Blanket bogs developed in the Irish landscape after millennia of human settlement and are essentially post-neolithic in date (Aalen *et al.* 1997, 117). While their formation follows a complex local and regional pattern their initiation and spread in the first and second millennia BC is believed to have been stimulated by deteriorating climate and woodland clearance (*ibid.*).

In the north-western portion of the townland where pre-bog walls were recorded, the peat had completely covered some walls leaving no trace above ground. Elsewhere on the site it is not clear if the walls noted during survey were originally peat-covered and have been subsequently exposed through erosion processes and degrading of the blanket peat, or if they were built after the cessation of peat formation. In most cases wall height reaches only 0.3m-0.6m which may suggest that the lower courses of the walls may remain buried beneath shallow peat deposits. Conversely, these readily visible walls may simply be of more recent date. Ultimately, it is only through further investigative procedures such as excavation that the precise date of the majority of the walls at Dooneens may be determined. A series of targeted excavations of pre-bog walls in the Barrees Valley, Co. Cork provided approximate dates for wall construction through the radiocarbon dating of charcoal and organic sediment collected from the overlying peat (O'Brien 2009, 275). In most cases the walls are believed to have been built sometime in the early centuries AD (*ibid.*, 278-284).

The date of walls and field systems may also be suggested through association with other monument types. In upland areas field walls and systems such as those identified at Dooneens are frequently either directly or spatially associated with standing stones, huts, *fulachta fia*, megalithic tombs, etc. This association is then used as an indicator of date for walls and field systems which are generally difficult to place in a chronological timeframe, particularly when located in a landscape which has changed little over the centuries but continues to be utilised for agricultural purposes to the present day. Few direct associations occur between walls and other monument types at Dooneens, although in five cases walls are directly associated with huts, also of unknown date. In the north-western portion of Dooneens the pre-bog walls identified may be spatially associated with a number of different site types. Eight pre-bog cairns are located in the vicinity of the pre-bog walls and while not directly associated would appear to be spatially connected. Also, given both their presence beneath the bog a general chronological association may also be inferred.

Radial Stone Cairn

Perhaps more significantly, however, is the location of a possible radial stone cairn (CO080-047) which is situated less than 100m to the east of the walls noted in cut-away bog in Dooneens. The Zone of Theoretical Visibility shows that the radial stone cairn is located in an area where potentially 1-2 turbines may be visible (not assuming natural screening or trees). This may result in a slight impact on setting. 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 at Kealkill, Co. Cork was excavated by Ó Ríordáin in the late 1930s. While the excavation did not establish a function or date for the monument they are believed to be Bronze Age burial monuments. Usually these sites consist of a cairn of stones edged by the radially set stones around its perimeter. At Dooneens, however, the cairn or mound of stones does not survive with only the radially set stones now visible. This monument also differs in size from other radial cairns which generally measure *c.* 7m in diameter. The Dooneens example measures only *c.* 3.5m in diameter, making it significantly smaller than its west Cork and Kerry counterparts. In the absence of any other comparable monument types or dating evidence however the radial cairn at Dooneens should be regarded as potentially Bronze Age in date and as a possible funerary monument.

Hut Sites

Hut sites account for 27 of the 207 monuments within 5km of the nearest proposed turbine. The majority of the huts sites are located in an area where not turbine are visible (ZTV). Eighteen of the huts are located in Dooneens and Doire Mhic Coirnín and were identified during the aforementioned survey. Some monuments may date to the prehistoric period but their dates can span from prehistory through to the Medieval period (Table 13-4, Figure 13-10 and Figure 13-11). 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 has 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. An extensive series of pre-bog walls was also noted on the southern slopes of Mount Brandon. It is noted in that instance that although pre-dating the bog, the peat may still have been growing well into the medieval period. In this regard, such walls could be early medieval in date rather than prehistoric (Archaeology Ireland Heritage Guide No. 29). Furthermore, the potentially lengthy chronology of hut sites means that while some may be prehistoric others may date to the early or later medieval period or indeed to more modern times (ibid.).

Cairns (unclassified)

Ten unclassified cairns are located within the 5km study area with the majority being located in Dooneens and Doire Mhic Coirnín townlands to the east. A number of these sites are located in cut-away bog while another example is partially visible extending under an uncut turf bank. It is clear therefore that the cairns pre-date the bog and have been exposed where turf cutting and other ground works have taken place. As a monument type identified within the study area they would appear to be confined to the north-western corner of the latter. They are also likely to share some relationship (either spatial or chronological) with the adjacent pre-bog walls and possibly the radial stone cairn. The cairns are all similar in form and dimensions and given their presence beneath the bog would appear to represent ancient clearance features. Clearance cairns have been recorded elsewhere in Ireland including county Kerry. Fifteen clearance cairns were recorded on Beginish Island, Co. Kerry one of which was excavated by O'Kelly (1956). He interpreted the presence of the cairns as being suggestive of the practice of tillage, a theory which was reinforced by the discovery of two quern stones (O'Sullivan and Sheehan 1996, 385). At Beginish an early medieval date was ascribed to the clearance cairns and associated houses and field walls (*ibid.*). Other cairns which are likely to represent ancient clearance features have been recorded on the Beara Peninsula (O'Brien 2009, 44). Five cairns recorded on the sloping hillside at Gurrane are located in an area of pre-bog field patterns which also contain *fulachta fia* (*ibid.*). A group of 17 cairns near Castletownbere are partly covered by blanket bog and may also be associated with pre-bog field patterns (*ibid.*). In general the majority of the cairns recorded on the peninsula are located in areas that have a wide variety of Bronze Age monuments and may therefore share a similar date range. The same may be suggested of the cairns at Dooneens given their association with pre-bog walls and the radial stone cairn. Caution should be exercised however when attempting to date these features in the absence of archaeological excavation. Impacts are addressed in Section 13.4.5.4.

Wedge Tombs

Five wedge tombs are located within 5km of the nearest proposed turbines. All are located in excess of 3.5km from the proposed turbines and are distributed to the north-east, east and south-east of the EIAR site boundary 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 (2500-1800 BC) date for these monuments. Impacts are addressed in Section 13.4.5.4.

Standing Stones

Nineteen standing stones are distributed within the 5km study area with a particular concentration to the south of the EIAR site boundary, all in excess of 1.3km from the nearest proposed turbines. The Zone of Theoretical Visibility suggests that 5-7 turbines may be visible from seven of the 19 standing stones with no turbines visible from another seven standing stones. The remaining five are located in areas where only 1-2 turbines may be visible. This model does not assume trees or natural screening that may in reality minimise or remove any potential impacts on setting altogether. 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). Impacts are addressed in Section 13.4.5.4.

Stone Rows

One stone row is located within the 5km study area and is located 4.6km from the nearest proposed turbine. It is located in forest, at the head of the Sruhaunphadeen Stream valley to NE of Douce Mountain. Probable row of three stones, aligned NE-SW, 4.65m in overall length. NE stone is considerably out of line with others and leans markedly to W; it measures 1.4m L, 0.2m T and, if erect, 0.7m H. Next stone, 0.9m to S, is 0.95m L, 0.5m T and 1.2m H. SW stone, 1.1m to SW of last, is 0.6m L, 0.4m T and 1.7m H. Loose boulder rests against its base. Circular enclosure (9140) 18m to W. (Ó Nualláin 1988, 234, no. 32). Stone rows consist of a row of three or more stones erected in a line. Two main types 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).

Although stone rows are associated with lunar and solar events and are aligned NE/SW, this example is located 4.6km to the east which is considered an adequate distance from the proposed turbines. Furthermore, the intervening topography (i.e. Doughill Mountain) is such that visibility of the proposed turbines is likely to be minimal. The ZTV shows that no turbines are visible from this location. Impacts are addressed in Section 13.4.5.4.

Stone Circles

Multiple stone circles are a distinctive form of stone circle found only in counties Cork and Kerry. It comprises 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. It comprises 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).

Three stone circles are located within the 5km study area and consist of one multiple and two five-stone circles CO092-016001, CO092-004, and CO092-001001.

CO092-001001, a multiple stone circle is located on a W-facing slope near N end of narrow valley of Coomhola river. Circle incomplete, contains considerable amount of fill. May have consisted of eleven, or less likely, thirteen stones. Nine stones survive; five prostrate; indicate circle c. 8m in diameter. Orthostats are 0.8m to 1.3m L, 0.2m to 0.5m T and 0.9m H. Boulder burial (CO092-00102-) centrally placed within circle. (Ó Nualláin 1984, 16, no. 16). The ZTV shows that the multiple stone circle is located in an area where no turbines will be visible. This is due to intervening topography. Impacts are addressed in Section 13.4.5.4.

CO092-004 is located 903m from the nearest proposed turbine (T7) in tillage on shoulder of SE-facing slope near head of Owvane river valley. Five stones are 0.5m to 1.1m L, 0.35m to 0.6m T and 0.6m to 0.9m H. Internal measurement along main axis, aligned NE-SW, is 2.3m. (Ó Nualláin 1984, 39, no. 77). The ZTV shows that potentially 5-7 turbines may be seen from this location (not assuming any natural screening that exists). Google Street imagery (2010) shows that the original turbines could be seen from the nearest public road to the stone circle. The stone circle is aligned NE/SW and therefore on the 21st June (Summer Solstice) it's alignment is likely to be associated with the rising sun on this date. Data on the rising / setting and various equinoxes is available on https://www.suncalc.org. An assessment of the impact of the proposed turbines on this potential alignment has shown that T6 is likely located along the trajectory of the rising sun during summer solstice. Turbine 6 is not, however, the nearest turbine, being located at 1.2km to the north-east. Impacts are addressed in Section 13.4.5.4.

The second five-stone circle (CO092-016001) is described as being located on top of bog-covered ridge overlooking Coomhala river valley. Circle complete; stones are 0.7m to 1.2m L, 0.15m to 0.6m T and 0.8m to 1.2m H. Internal measurement along main axis, aligned NE-SW, is 2.5m. Cairn (CO092-01602-) c. 5.5m to E. (Ó Nualláin 1984, 39, no. 78). It is located 3.9km SW of the aforementioned stone circle (CO092-004). The ZTV suggests that potentially, not assuming natural screening, 5-7 turbines could be seen from this location. At a distance of 4.6km from the nearest turbine (T7), any associated alignments with the setting/rising sun would not be impacted. Impacts are addressed in Section 13.4.5.4.

Standing Stone Pairs

Five standing stone pairs are located within the 5km study area (See

Table 13-4 above) (CO092-006, CO092-066001, CO092-067, CO092-035, CO080-024 and CO092-044). All are located to the north, east and southeast of the Proposed Development. Any potential existing inter-visibility between these monument types will not be impacted by any proposed turbines.

CO092-006 is situated on a bog-covered slope which forms W side of valley on Owvane river. Stones, aligned NE-SW, stand 1.4m apart; overall length is 3.75m. NE stone is 0.85m L, 0.1m T, 0.55m H. Top appears to be broken. SW stone leans to S. It is 1.6m L, 0.25m T and 1.8m H. Four-poster monument (CO092-00804-) stands c. 10m down slope to E; some 200m further on is radial stone enclosure (CO092-00901-). (Ó Nualláin 1988, 245, no. 11). It is located in an area where the ZTV suggests that 3-4 turbines may be visible to the north. The alignment of the monument (NE/SW) would suggest that none of the 7 proposed turbines would impact on the rising/setting of the sun at either summer or winter solstice at this monument. Impacts are addressed in Section 13.4.5.4.

CO092-066001 is located in rough hill grazing, on a terrace at the head of a valley sloping down to the NE, between Doughill Mountain to the NW and Douce Mountain to the SE. Two upright stones, aligned NE-SW, stand 0.8m apart and measure 2.2m in overall length. The NE stone (0.7m x 0.15m; H 0.75m) is rectangular in plan and section. The SW stone (0.7m x 0.35m; H 1.05m) is also rectangular in plan and section and leans slightly to the SW. There is a hut site (CO092-066002-) c. 16m to the SE and a second standing stone-pair (CO092-067----) is c. 170m to the NE. Impacts are addressed in Section 13.4.5.4.

CO092-067 is located in rough hill grazing, on a terrace at the head of a valley sloping down to the NE, between Doughill Mountain to the NW and Douce Mountain to the SE. Two stones, aligned NNE-SSW, stand 0.85m apart and measure 2.5m in overall length. The NNE stone (1.5m x 0.9m; H 1.35m) is roughly rectangular in plan and section. The SSW stone (1.3m x 0.75m; H 1.4m) is irregular in plan and section and leans slightly to the SE. There is a hut site (CO092-066002-) c. 180m to the SW and a second standing stone-pair (CO092-066001-) is c. 170m to the SW.

Similar to CO092-066001 above, the surrounding topography is such that no visibility in the direction of the proposed turbines is possible from this location. The ZTV shows that the area in which this monument is located has no visibility in the direction of the turbines. Impacts are addressed in Section 13.4.5.4.

CO092-035 is located in a commanding position on shoulder of bog-covered hill on SE side of valley of Gortloughra river. Stones, aligned NE-SW, stand 1.8m apart; overall length 2.25m. NE stone is 0.55m L, 0.5m T and 1.3m H. SW stone is 0.9m L, 0.6m T and 2.1m H. (Ó Nualláin 1988, 245, no. 112). This is located in an area where 5-7 turbines maybe visible to the NW (ZTV). The direction of the proposed turbines is such that the NE/SW alignment of the monument will not be impacted Impacts are addressed in Section 13.4.5.4.

CO080-024 is located in rough pasture, on shoulder of S-facing slope on N side of Lee River valley. Stones, aligned NNE-SSW, stand 1.45m apart; overall length is 3.2m. NE stone leans to NE; it is 0.65m L, 0.25m T and, if erect, 1.55m H. SW stone is 0.95m L, 0.6m T and 1.57m H. These may be stones recorded by O'Mahony (1909, 213) as 'three dallauns in line standing at short distances from each other, two of them were about four feet high, and the third but about one foot'. At a distance of 3.6km from the nearest proposed turbine (T2), potential impacts on the alignment of the monument will not occur. According to the ZTV, the monument is, however, located in an area where potentially 5-7 turbines could be seen (not assuming any natural screening). Impacts are addressed in Section 13.4.5.4.

CO092-044 is located on the periphery of the 5km study area to the south and in pasture on N side of valley of Owngar river. One stone lies prostrate. It measures 2.7m x 1.4m and is at least 0.2m T. Second stone stands 0.8m to the E. It is 1.35m L, 0.55m T, 1.9m H and is aligned NE-SW. (Ó Nualláin 1988, 245, no. 113). The distance to the nearest turbine (approx. 4.5km) is such that no impacts on setting will occur regarding any potential alignments associated with the monument. It is located in an area which the ZTV suggest will have no visibility on the direction of the proposed turbines. Impacts are addressed in Section 13.4.5.4.

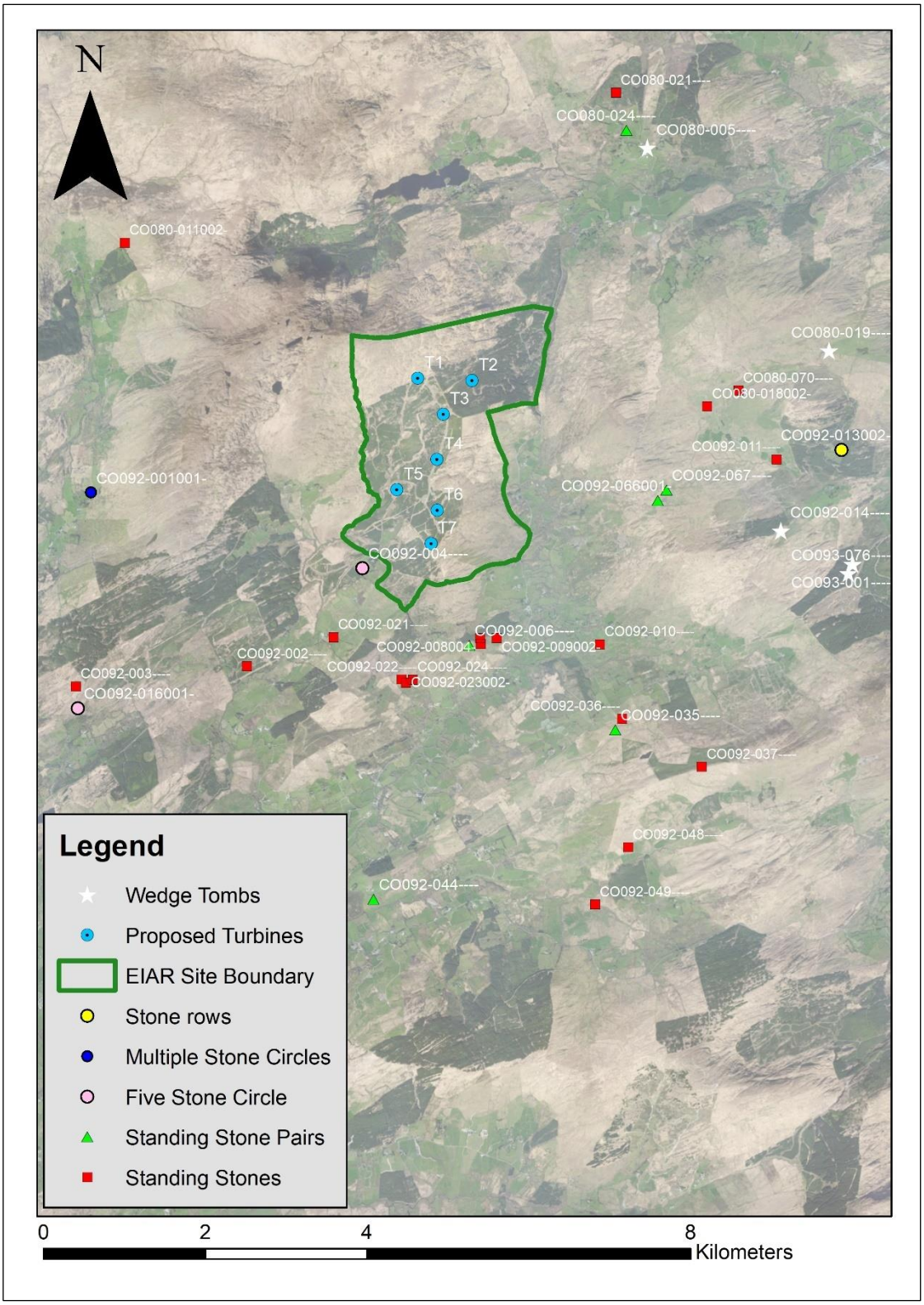

Figure 13-12: Monuments with potential solar alignments within 5km of the proposed turbines.

13.3.1.4.2 The Early Medieval Period

The majority of the remaining monuments (37) within 5km of the proposed turbines consist of those which may be definitively attributed to the Early Medieval period (ringforts, enclosures and souterrains). Thirteen are located in areas in which no turbines would be visible (ZTV). The remainder have varying degrees of potential visibility in the direction of the proposed turbines resulting in an overall slight-not significant impact on setting.

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.

13.3.1.4.3 Sites with religious or ritual association

Only eight monuments within 5km of the Proposed Development site have religious associations and include Mass-rocks (2), Burial grounds (2), a Graveyard, a Holy wells (2) and a Hermitage (See Table 13-4). Holy wells may have their origins in prehistory but are associated with devotions from the medieval period (5th-16th centuries AD) onwards. Massrocks of which there are 2 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). The two burial grounds (See Table 13-4 and Figure 13-10) are located to the south of the Proposed Development. The western example is located in an area where only 1-2 turbines would potentially be visible (ZTV). The eastern example is located in an area where no views towards the proposed turbines is possible (ZTV).

Gouganebarra

A number of monuments are located in Gougane Barra CO080-012001 (Hermitage), CO080-012002 (Ritual site - holy well) and CO080-012003 (Graveyard) at Doire Na Coise townland c. 2.6km north of the Proposed Development (See Table 13-4 and Figure 13-10). The Hermitage occupies an oval island (c. 60m E-W; c. 70m N-S), joined to S shore of Gouganebarra Lake by causeway (L c. 20m) which incorporates holy well (CO080-012002-). At NW corner of island is square enclosure (21m N-S; 20.6m E-W),with central open court (L 13.4m); immediately E of enclosure are fragmentary ruins covering area c. 24m E-W and c. 16.5m N-S; in SE corner of island is neo-Romanesque chapel, erected c. 1890. The former two features are remains of hermitage established here in late 17th century by Carmelite priest Denis O'Mahony (Smith 1750, vol. 1, 192-3; Croker 1824, 275-84; Windele 1844, 288-94; MacCarthy 1935, 85-9).

Square enclosure stands on stone-faced platform (H c. 1.5m; extends c. 3m out from enclosure on all sides). Enclosing wall (Wth c. 4.2m; H c. 2.6m) has level sod-covered top with traces of parapet wall (Wth c. 0.85m; H c. 0.9m) along outside edge. Central court entered through roofless passage (Wth c. 2.3m) in centre of S wall. At centre of court low stepped pyramid, supporting tall wooden cross (see photograph JCHAS 1892, p. 195). Each sidewall of court contains two arched recesses (Wth c. 2m; D c. 2.8m; H c.1.5m); each recess has shallow shelf on back wall. Enclosure repaired c.1890, at same time plaques

marking stations of the cross erected on inside walls. Immediately E of enclosure are remains of long narrow structure (c. 14m N-S; c. 5m E-W) missing most of its N and W walls; door ope in centre of S wall (identified as remains of chapel on plan in JCHAS 1892, 194, after Windele ibid., 290-1). E wall (H c. 1m) reused as part of second structure to E (c. 10.6m N-S, c. 4.7m E-W; possible gable outline on S wall. Further structures to E reduced to low sod-covered mounds. On mainland, opposite entrance to causeway, arched chamber which contains remains of Fr Denis O'Mahony; on slightly higher ground behind tomb, small graveyard containing 19th- and 20th-century burials (CO0080-01202-). Site associated with St Finbar (see MacCarthy ibid.) but no remains earlier than 17th century identified at site. Impacts are addressed in Section 13.4.5.4.

13.3.1.5 Archaeological Investigations/Excavations undertaken within the Proposed Development site

As outlined above and in Chapter 1, the Proposed Development site is located on a previously operational wind farm site . All groundworks associated with the construction phase of the development were monitored under licence 05E1062 by Tobar Archaeological Services in 2005. No archaeological finds, features or deposits were uncovered. This is summarised on the excavations database as 2005:193.

13.3.1.6 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 13-5: Townlands within the Proposed Development

Townland Name	Meaning
Doirín Dún Aodha (Derreendonee) (In the Gaeltacht) (https://www.logainm.ie/9737.aspx)	Little Derry or Oakwood
An Currach Glas (Curraglass) https://www.logainm.ie/8424.aspx	Green Moor
An Cheapach Bhuí Bheag (Cappaboy Beg) https://www.logainm.ie/8420.aspx	Yellow/Yillage Plot

13.3.1.7 Topographical Museum Files

Some of the locational information for stray finds can be gleaned from Heritage Maps (heritage maps.ie) where the National Museum have provided such data. The nearest find from the database is located at Gougane Barra some 2.65km to the north of the Proposed Development site. It consists of a Greek Coin of Asia Minor (brass) (1930:A96).

13.3.1.8 Cartographic Evidence

13.3.1.8.1 *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. The maps depict an open landscape in the area of the proposed turbines and infrastructure. Only the northern section of the Proposed Development site shows some small settlements and boundaries. Some poorly preserved stone boundaries were noted within some sections of clear-felled forestry and no trace of any buildings were noted. The aforementioned hut site (See Section 13.3.1.3.1) which is located in an area associated with the 19th century field walls is not marked on the 6 inch mapping however.

The location of the townland boundary between Curraglass and Derreendonee is traversed by an existing forest road. No trace of the boundary was noted. No infrastructure is proposed to be located along or on top of this townland boundary location. No other boundaries will be traversed by any proposed element of the Curraglass Renewable Energy project. No impacts to the townland boundaries will therefore occur.

13.3.1.9 Description of the Proposed Development Area

13.3.1.9.1 *Turbine 1*

Plate 13-9: Location of proposed hardstand for T1 partially on existing road looking SE.

Plate 13-10: Location of proposed turbine T1 looking NW - note original turbine base in background.

13.3.1.9.2 *Proposed Temporary Construction Compound (south of T1)*

Plate 13-11: Location of proposed temporary construction compound looking N, note area already developed with peat removed.

Plate 13-12: Northern section of construction compound consisting of previous turbine base and unexcavated moor grass in foreground looking N.

Plate 13-13: Small section of proposed new road, south of construction compound location looking north.

13.3.1.9.3 Turbine 2

Plate 13-14: Small section of proposed road to T2 looking east through clear-felled forestry.

Plate 13-15: Location of proposed turbine base looking south.

Plate 13-16: Location of proposed hardstand looking SE.

Plate 13-17: Southern section of hardstand looking East.

Plate 13-18: Section of proposed new road to the S of T2 looking west across clear-felled forestry.

Plate 13-19: Proposed new road where it extends from existing road, south of T2.

13.3.1.9.4 Turbine 3

Plate 13-20: General context of proposed location of T3 looking south.

Plate 13-21: Proposed location of turbine 3 looking south.

13.3.1.9.5 Borrow Pit (North of T3)

Plate 13-22: Northern section of borrow pit in mature forestry looking east.

Plate 13-23: Borrow pit looking NE where it extends into mature forestry.

Plate 13-24: Borrow pit looking north, note large rock outcrop located here.

Plate 13-25: Central section of borrow pit looking NE.

Plate 13-26: Southern section of borrow pit looking north.

Plate 13-27: General view of borrow pit looking north.

13.3.1.9.6 *Turbine 4*

Plate 13-28: Section of proposed road leading to T4 turbine looking south.

Plate 13-29: Section of hardstand located on existing road looking south.

Plate 13-30: Section of hardstand located on unexcavated ground looking south.

Plate 13-31: T4 turbine base looking south.

13.3.1.9.7 Proposed substation site

Plate 13-32: Existing substation site looking north.

Plate 13-33: Proposed substation site located in mature forestry looking north.

13.3.1.9.8 *Turbine 5*

Plate 13-34: Section of new road to the NE of T5 looking west.

Plate 13-35: Continuation of proposed road to T5 looking E.

Plate 13-36: Proposed road to T5 looking south through moor grass.

Plate 13-37: Hardstand for T5 located in mature forestry looking south.

Plate 13-38: Turbine base T5 looking north.

13.3.1.9.9 **Turbine 6**

Plate 13-39: Proposed new road to T6 looking south.

Plate 13-40: Continuation of proposed road to T6 looking south through mature forestry.

Plate 13-41: Hardstand for T6 looking north.

Plate 13-42: Hardstand looking south.

Plate 13-43: Hardstand looking north from southern side.

Plate 13-44: T6 turbine base looking north.

13.3.1.9.10 *Turbine 7*

Plate 13-45: Proposed road to turbine 7 looking south.

Plate 13-46: Proposed road to T7 before it extends into hardstand looking south.

Plate 13-47: Hardstand looking south.

Plate 13-48: Proposed turbine base looking south.

13.3.2 Architectural and Cultural Heritage

13.3.2.1 Protected Structures within the Proposed Development site boundary

No built heritage structures which are subject to statutory protection or otherwise are located within the EIAR site boundary.

13.3.2.2 Protected Structures and NIAH within 5km of the nearest proposed turbines

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 13.2.5 above for distance criteria). The RPS is largely based on the NIAH and therefore some repetition/overlap occurs between both datasets. All RPS and NIAH structures within 5km of the nearest proposed turbine are detailed in Table 13-6 and are also represented on Figure 13-13. The distances to the relevant turbines are also detailed.

Only one structure listed in the statutory list of protected structures is located within 5km of the nearest proposed turbine. This consists of the Oratory of St Finbarr's at Gouganebarra to the north. This is also discussed in Section 13.3.1.4.3 above as it is also an RMP site.

Table 13-6: RPS structures within 5km of the nearest proposed turbines

NIAH ID	RPS ID	NAME / STRUCTURE	LOCATION	ITM E	ITM N	WTG ID	DISTANCE (M)
20908001	01279	Oratory of St Finbarrs	Gouganebarra	509176	566132	T1	2484

This site is fully screened by the intervening Dereenglass Hill to the south of the religious complex. The ZTV shows that no turbines will be visible from this complex of monuments. No impacts on setting will occur.

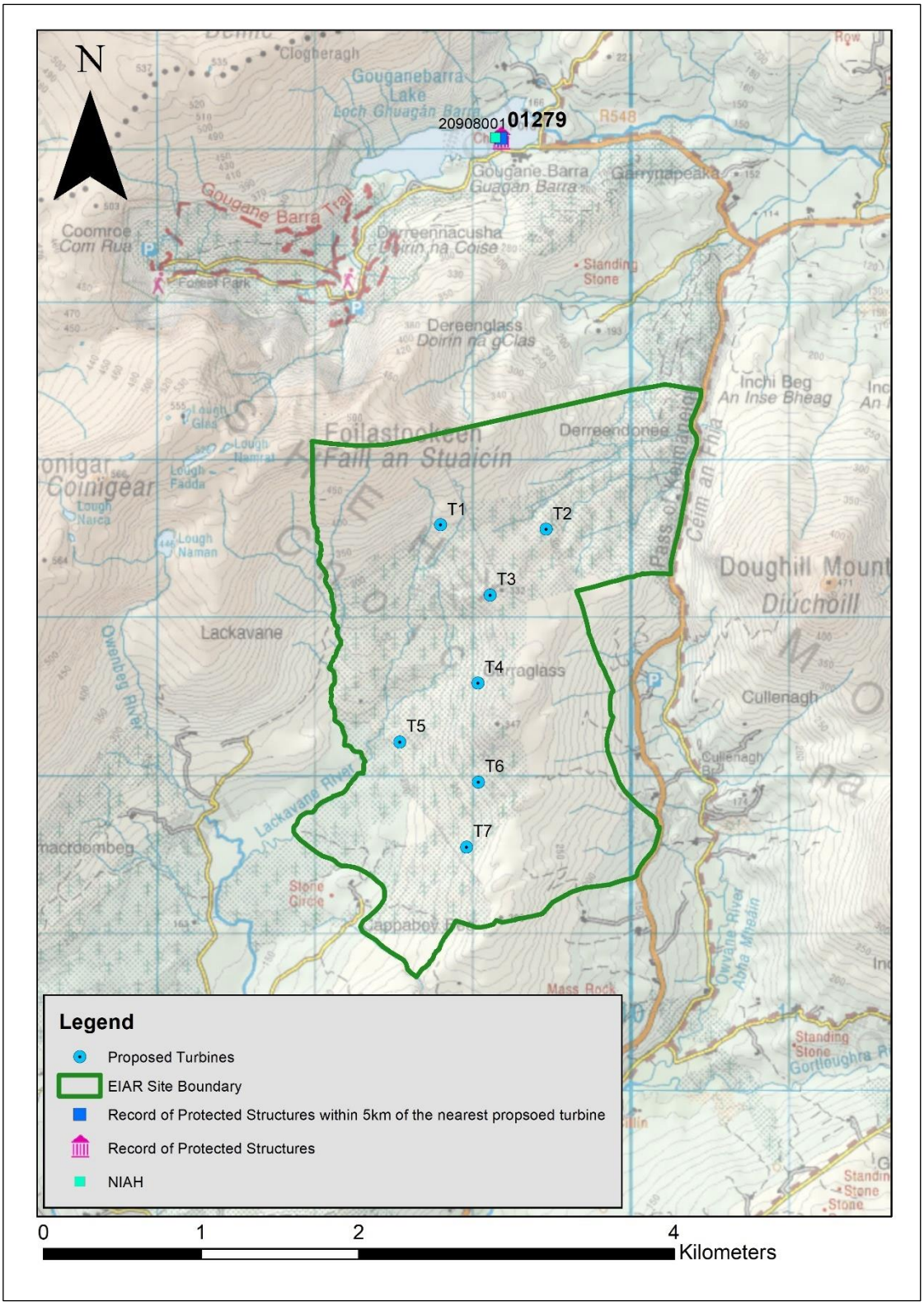

Figure 13-13: Record of Protected structures within 5km of the nearest proposed turbine.

13.3.3 Cultural Heritage

No new sites of cultural heritage significance either of regional or national importance were recorded during the walkover survey. A hut site which may be regarded as of local significance was recorded in the northern portion of the development site associated with 19th century field walls. This is discussed in section 13.3.1.3.1.

A well preserved 19th century settlement was recorded 360m north-west of T5. The settlement is located to the north-west of an existing forest road. The settlement site has been well preserved and planting has avoided the immediate area of the house. This settlement is marked on the 1st Edition OS map and has the appearance of a mid to late 19th century dwelling house.

Plate 13-49: Remains of main dwelling house looking north-west

Plate 13-50: View of settlement and associated walls and trough looking west.

13.3.3.1 The Gaeltacht

A portion of the Proposed Development site is located within the Gaeltacht (Figure 13-1). The section of the Gaeltacht is located in the townland of Doirín Dún Aodha. 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.

The development site itself is located in an area now utilised for a commercial forestry plantation therefore the overall context of the site has changed in recent decades. 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).

Whilst this project will not impact on the Irish language, it is recommended that signage in any areas within the Múscraí Gaeltacht if relevant should be erected in Irish. This is in accordance with the County Development Plan Policy HE 5-3 Gaeltacht Areas (CDP 2015-2020, 199).

13.3.4 The proposed Turbine Delivery Route

Only areas which may require groundworks or road widening were considered in terms of direct effects on Cultural Heritage. The proposed turbine delivery routes are detailed in Chapter 4, Section 4.4.2.

13.3.4.1 Option 1

The preferred route, Option 1 underwent a detailed autotrack assessment which is detailed in Chapter 14, Section 14.1.2. In Option 1, for the purposes of assessment, the turbine components and other

abnormal loads will be transported, from Ringaskiddy Port, west on the N22, before turning southwest along the R585 Regional Road via Crookstown to the junction with the R584 Regional Road at the village of Kealkill. From Kealkill, the turbine delivery route will continue along the R584 to Ballylickey, where a reversing manoeuvre occurs at Ballylickey bridge. Once the manoeuvre is complete, the turbines will travel north east back along the R584, through Kealkill towards Ballingeary. The turbines will travel past the site entrance, making a turn further along the R584, before travelling back south along the same road and accessing the site from the north via the existing Coillte entrance. This is the preferred route for turbine and delivery.

The proposed turning area along the R584, as shown in Chapter 14, will require removal of fencing and temporary placement of hardcore, so the area can be used during the delivery of large turbine components. Once the turbines have been delivered, this area will be returned to its original state.

The existing Coillte entrance will be upgraded to facilitate the delivery of the construction materials and oversized loads. The site entrance was subject to Autotrack assessment to identify the turning area required to access the site, as described in Section 14.1 of the Traffic and Transport Assessment. Works will involve removal of trees north of the entrance and placement of hardcore.

A route assessment was undertaken covering the proposed delivery route for the abnormal loads, with the route and assessment locations shown in Chapter 14, Section 14.1.

On completion of an archaeological desk-based assessment, a number of the assessment locations noted in Chapter 14 required further review, where it is anticipated that some minor works may be required to facilitate the transport of turbine components to the Proposed Development site. All cultural heritage assets within these locations were assessed as detailed below.

13.3.4.1.1 *Location 3*

A Mill Complex which is both an RMP (Bellmont Mills CO083-033) and Protected Structure (RPS 00551) is located at Bellmount Lower townland just south of the T-junction at Crookstown as seen in Figure 13-14 and Figure 13-15. The mill complex is located off road however. No impacts on the mill will occur.

It is described in the Archaeological Inventory of County Cork as follows: '*Flour mill to SW of Crookstown. According to local tradition, Herricks originally built mill (no longer survives) 1km to SW, near weir shown on 1842 OS 6-inch map; due to insufficient head of water, mills moved to present location, shown on 1842 OS 6-inch map as 'Bellmount Mills'. Howards leased mill from Herricks in 1848; mill then powered by overshot water wheel (diam 26ft; L 7ft) (Kerins et al. 1985, 11). Rectangular mill (long axis E-W), 6-storey with attic, gable-ended; W gable plus addition to N weatherslated. Date stone of 1810 recently uncovered on lintel over door. Wheel pit along W gable with mill pond to W; in early 20th century a Gilbert, Gilkes and Gordon turbine (52HP) installed, powering machinery within mill via pulley and belt system. National Gas and Diesel engine installed in 1926 to supplement power; electricity provided full power after 1958; turbine and engine removed. Grain drying kiln on W end of S wall used as carpenter's work shop in early part of 20th century; another addition on W end of N wall. Later addition onto E end of S wall which now houses two pairs of French burr millstones, set on iron table, installed in 1920s; now electrically driven with modern spindles underneath. Numerous modern mill buildings/silos along N side. Pair of semi-detached early 19th-century 2-storey residential mill houses to N still occupied*'.

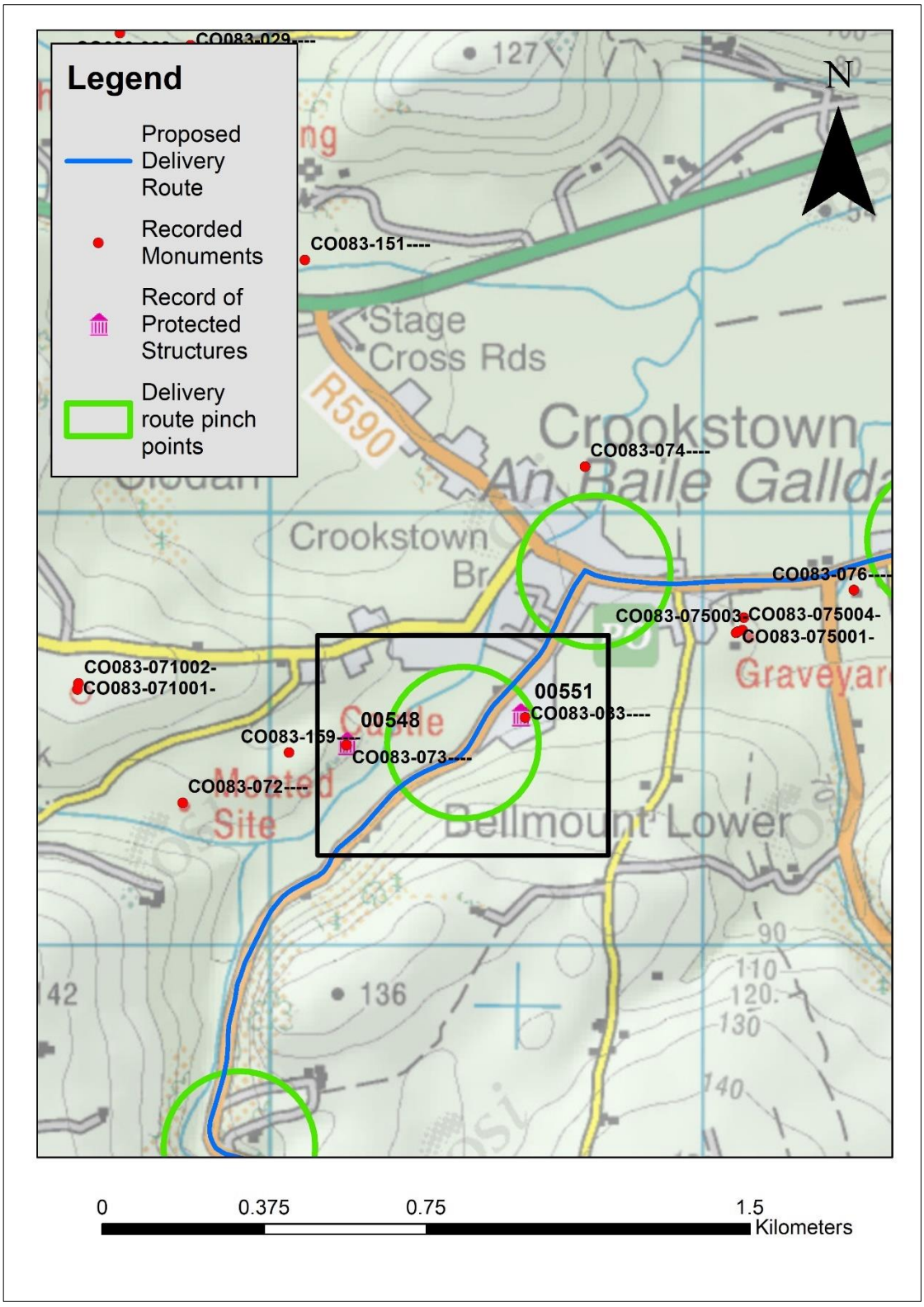

Figure 13-14 Location 3 at Crookstown along delivery route.

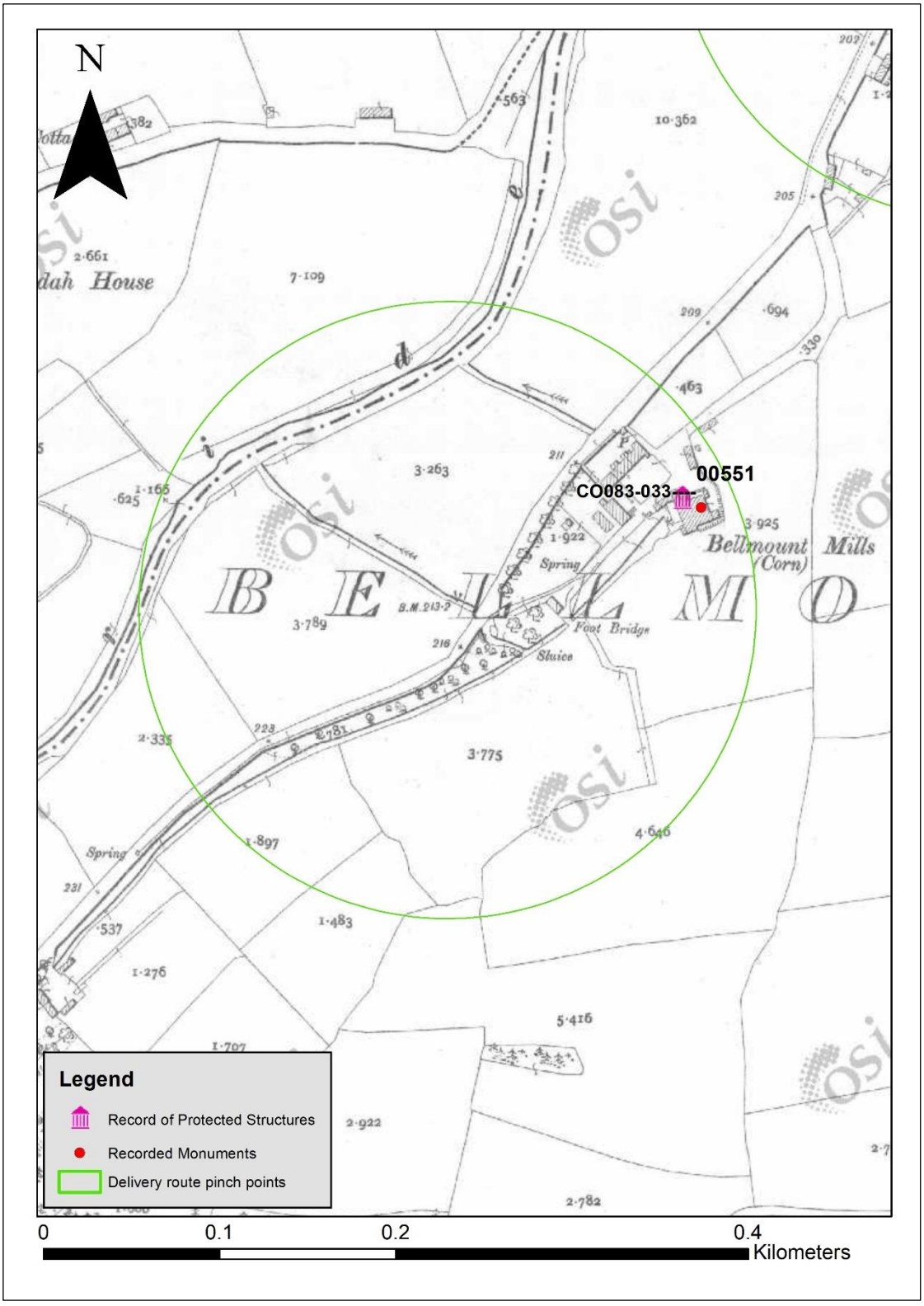

Figure 13-15: More detail of Mill complex on 25-inch OS map.

13.3.4.1.2 Location 12

This pinch point is located at Kealkill (Carriganass townland). A bridge is listed on the National Inventory of Architectural Heritage (NIAH) as being of regional importance (NIAH Ref 20910601). Although it is not currently subject to statutory protection by way of inclusion on the County Councils list of protected structures, it is considered to be of local cultural heritage significance. The applicant is aware from correspondence with locals that during the previous wind farm development at the site, bridge walls were removed and rebuilt. If walls need to be temporarily removed during the turbine delivery phase, this will be discussed with Cork County Council prior to turbine delivery.

Carriganass castle and bawn (RMP CO106-001) as shown in Figure 13-16, is listed in Cork County Councils list of protected structures (RPS ref 00680). The delivery route will pass over the bridge and in close proximity to the bawn wall of the castle. There will be no impact on Carriganass Castle and Bawn wall during the delivery of the turbines to the Proposed Development site. Where there is a requirement, a super wing carrier can be used to lift the blade, so it avoids structures within the surrounding area.

The castle is described as '*On N bank of Owvane river commanding view in all directions; overlooked from N. Remains of tower-house stand in SW quadrant of rectangular bawn. W wall of tower (Wth 10.3m), most of N wall (L 12m) and short return of S wall (L 2m) stand to four storey. 'Ghost' of segmental vaults over 1st and 3rd floors visible on inside of W face (axis E-W). Central window opes in W wall at all levels; first floor embrasure has mural passage on either side; single ogee-headed light at 3rd floor. Small mural chamber in N wall at 1st floor level; mural passage visible in broken face of S wall at 3rd floor level. Similar bartizans atop NW and SW corners: supported by a corbel on each wall with a straight face set across corner.*
Bawn roughly rectangular in plan (26m N-S; 48m E-W) projecting towers at each corner; S face overlooks rock-cut gorge. Appears late in date, probably 17th century. Eastern half altered to accommodate modern farm buildings (now disused). W wall and original W end of N wall pierced by many gun loops. Outward facing corners NE and SE corner towers acutely angled, similar to bastions on star-shaped forts; NW tower more bluntly pointed; SW tower roughly rectangular. SW tower has 4 tiers of nesting boxes on each face at 1st floor level. Castle of the O'Sullivan clan reputedly built by Dermot O'Sullivan about 1540 (Healy 1988, 170); surrendered after the fall of Dunboy in 1602 (Ó Murchadha 1985, 308)'.

Plate 13-51: Bridge NIAH Ref 20910601 looking north towards southern end of bridge.

Plate 13-52: Central portion of bridge looking north.

Plate 13-53: View towards bawn wall where it meets parapet walls of bridge, looking west.

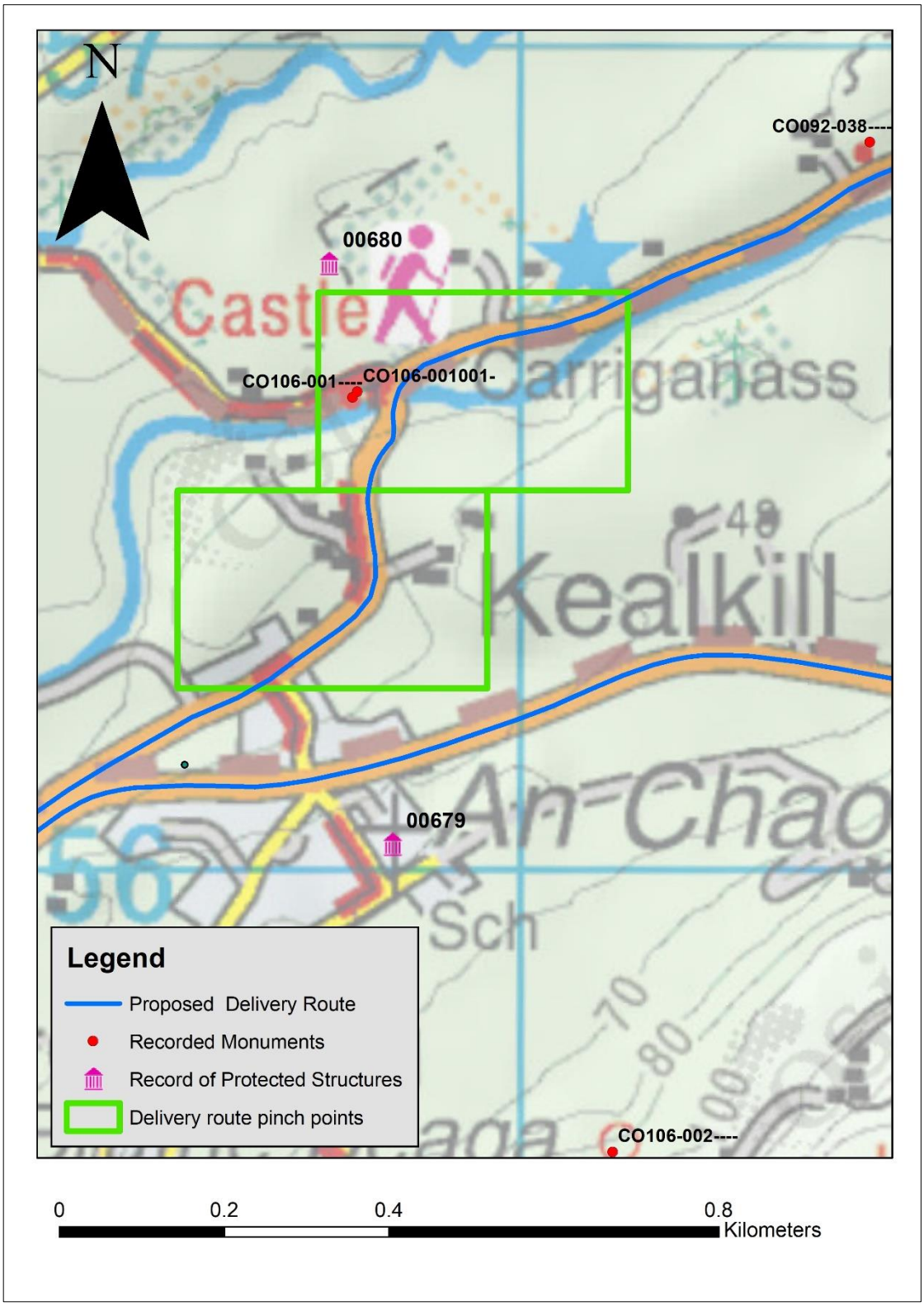

Figure 13-16: Location 12 at Carriganass townland, Kealkill.

13.3.4.2 Option 2

Option 2 follows the same route as Option 1, but the delivery vehicles will continue on the N22, through Macroom before making a turn west at Lissacresig along the L-3402 to Ballingeary. From here the delivery vehicles will travel west along the R584 accessing the site from the north via the existing Coillte entrance

An assessment was completed for this option as seen in Chapter 14, Section 14.1.8. On review of the Historic Environmental Reviewer, all noted Recorded Monuments along the turbine delivery route are located in off-road locations (see Table 13-7 below) and will not be impacted by any proposed accommodation works.

Table 13-7: Monuments located off road along option 2 delivery route.

RMP NO	ITM E	ITM N	CLASS	TOWNLAND
CO069-072	515128	569416	Bullaun stone	Eachros
CO069-084	515111	569729	Ritual site - holy well	Eachros
CO081-008	514833	566839	Clapper bridge	Drom An Ailigh
CO081-037	514616	566661	Bridge	Inse An Osaidh, Drom An Ailigh

The route will pass over Ballingeary Bridge (CO081-037) as detailed above. If this route is selected for delivery of turbines to the Proposed Development site, a detailed assessment and survey will be completed in order to avoid impacts on the bridge structure.

13.3.5 The Proposed Grid Connection

A connection between the proposed substation and the national electricity grid will be necessary to export the electricity generated by the Proposed Development.

The Proposed Development will connect to the existing 38kV overhead line within the site. This overhead line connects into Ballylickey Substation, located approximately 12 kilometres southwest of the site. The connection will comprise of an internal underground cable, approximately 120m in length, which will connect the proposed substation to the existing overhead line infrastructure within the site. As there is no road or off-road grid connection required outside the Proposed Development site, no methodology for these works is required.

The area of the proposed substation was fully assessed and no cultural heritage assets (RMPS, NIAHs or any newly recorded monuments/sites were recorded).

13.4 Likely Significant Effects and Associated Mitigation Measures

13.4.1 Do Nothing Scenario

The do-nothing scenario seeks to describe the consequences that are reasonably likely to occur without the proposed project. If the Proposed Development were not to proceed, no changes would be made to the current land-use practice of forestry and the site would continue to be managed under the existing commercial forestry arrangements.

Works within the site could result in potential direct impacts to recorded monuments and any sub-surface archaeological features that are present. Indirect effects to Cultural Heritage, in particular, in the wider landscape setting would not occur.

13.4.2 Construction Phase Potential 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 effects are only possible once the proposed turbines are constructed, they are considered operational effects and are therefore discussed in Section 13.4.4 below. No indirect effects were identified which would occur at the construction stage.

13.4.3 Construction Phase Potential 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. The potential impacts on the known and potential archaeological, architectural and cultural heritage of the area are outlined below with the suggested mitigation measures. The impacts are described according to each element of the Proposed Development, turbines, grid connection, delivery routes etc. Where any potential direct impacts do occur, they are negated through the use of suitable mitigation measures such as exclusions zones (buffer zones), and monitoring.

13.4.3.1 National Monuments in State Care including those with Preservation Order (Direct Effects)

No National Monuments in State Ownership/Guardianship are located within or adjacent to the EIAR site boundary and therefore no direct impacts on these aspects of the archaeological resource are identified. Indirect Operational effects are addressed in Section 13.4.5 below.

13.4.3.2 Recorded Monuments (Direct Effects)

Five recorded monuments (three redundant) are located within the proposed EIAR site boundary towards the west and away from the proposed infrastructure (including hardstands, turbine bases, construction compounds, borrow pits, new roads and the proposed substation). The monuments have been designed out of the proposed site layout and therefore they have been mitigated by avoidance. No construction effects will occur in this regard. Protective buffer zones of 30m around each hut site is required as mitigation however.

Pre-Mitigation Impact

There will be no direct effects to the known cultural heritage resource as a result of the construction activities. Five recorded monuments are located at the western boundary in excess of 700m from the construction area.

Proposed Mitigation Measures

Since no impacts have been identified, no mitigation measures are required

Residual Impact

No residual impacts will occur if the mitigation measures are implemented.

Significance of Impacts

The construction stage will not have any significant direct effects on recorded monuments within the EIAR site boundary.

13.4.3.3 Newly Recorded site within the EIAR site boundary (Direct Effects)

A hut site was recorded within the EIAR site boundary, albeit poorly preserved and in clear-felled forestry. This is described in Section 13.3.1.3 above. The hut site is situated just 35m from the existing road (utilised as part of the previous wind farm). It is proposed to construct a small section of interlinking road in order to avoid using the existing sharp bends. The new section of road will then measure 87m to the north of the hut site. A protective buffer zone is required as mitigation.

Pre-Mitigation Impact

The proximity of the newly recorded hut site to the section of proposed new road is such that accidental damage to the monument may occur during groundworks.

Proposed Mitigation Measures

To protect the monument from accidental damage, the following is required: a 30m protective buffer zone around the hut site is established as per Figure 13-17.

Residual Impact

No residual impacts will occur if the mitigation measures are implemented.

Significance of Impacts

The construction of the proposed road in this location and the borrow pit will not have any significant direct effects on recorded monuments and if the mitigation measures are implemented the overall impact is likely to be 'Not Significant'.

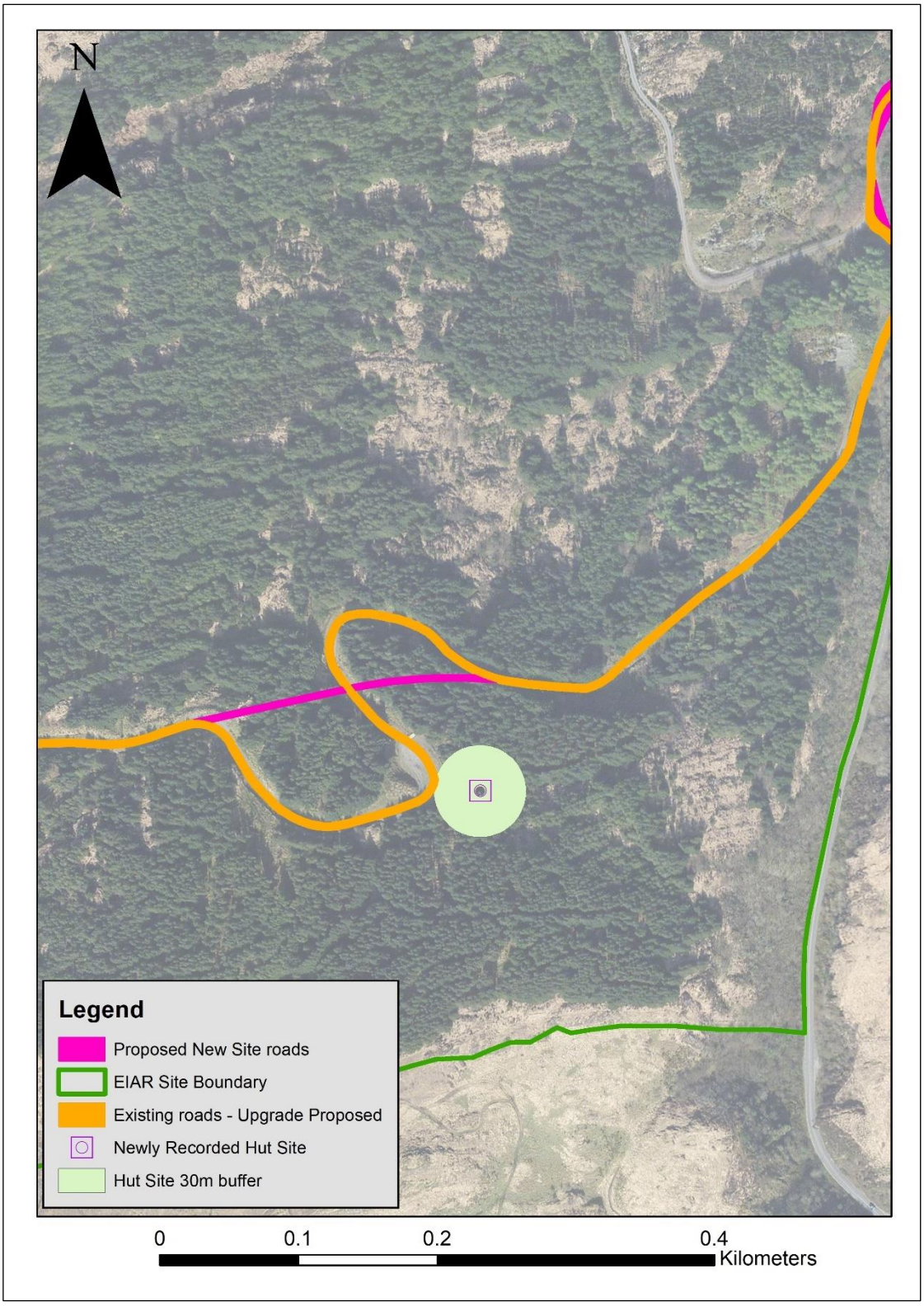

Figure 13-17: Location of newly recorded hut site within the EIAR site boundary with suggested 30m buffer zone shown.

13.4.3.4 Previously unrecorded sub-surface archaeological features

The Proposed Development site was a previously operational wind farm. Numerous existing roads, hardstands and turbine bases were constructed as well as a substation site and associated underground cables. The Proposed Development is partially located on existing infrastructure thereby minimising the potential for uncovering any sub-surface archaeological features. Furthermore, the original site was subject to archaeological monitoring at the construction stage in 2005 under licence (Tobar Archaeological Services). No features were uncovered at the time of monitoring. It is not considered that archaeological testing is required due to the previous archaeological input on the site as well as the extensive network of existing infrastructure within the site. Furthermore, any new proposed infrastructure is located mainly within forestry.

The potential for the development area to contain as yet unrecorded sub-surface sites and artefacts is low. The excavation of topsoil /peat for the new turbine bases, hardstands, construction compounds, borrow pits and the substation where they are located on undisturbed ground may impact on any new sub-surface sites, if present. Mitigation measures will include archaeological monitoring of groundworks in undisturbed areas of the site.

Pre-Mitigation Impact

Should new sub-surface sites or features be present within the site (currently not visible on the surface) the impact is likely to be significant negative and permanent (i.e. the excavation by machinery would permanently remove the sites resulting in a significant negative impact).

Proposed Mitigation Measures

- Archaeological monitoring (under licence from the National Monuments Service) of any further geotechnical / engineering trial pits or investigations and a report detailing the results of same.
- Archaeological monitoring of ground works during construction (in areas of previously undisturbed ground). The National Monuments Service will be informed of such findings to discuss how best to proceed. If archaeological finds, features or deposits are uncovered during archaeological monitoring, the developer will be prepared to provide resources for the resolution of such features whether by preservation by record (excavation) or preservation in situ (avoidance).Once the project is completed, a report on the results of the monitoring will be compiled and submitted to the relevant authorities.

Residual Impact

The sites/features, if detected, during monitoring will be preserved by record (archaeologically excavated) or preserved in-situ (avoidance) and therefore a full record made of same. In this regard, the potential impact after the mitigation measures is likely to be 'Not Significant'.

Significance of Impacts

The construction stage will not have any significant effects on unrecorded potential sub-surface sites since they will be dealt with by way of mitigation measures.

13.4.3.5 Protected Structures/NIAH within the proposed EIAR site boundary (direct effects)

No built heritage structures which are subject to statutory protection or otherwise are located within the EIAR site boundary.

13.4.3.6 Protected Structures/NIAH/RMP along the proposed delivery route (direct effects)

At Carriganass townland, north of Kealkill the delivery route will pass a bridge and castle/bawn. These are described on Section 13.3.4.1.2 above. The bridge is listed on the National Inventory of Architectural Heritage (NIAH) as being of regional importance (NIAH Ref 20910601). Although it is not currently subject to statutory protection by way of inclusion on the County Councils list of protected structures, it is considered to be of local cultural heritage significance.

Carriganass castle and bawn (RMP CO106-001) is listed in Cork County Councils list of protected structures (RPS ref 00680). The delivery route will pass over the bridge and in close proximity to the bawn wall of the castle.

Pre-Mitigation Impact

The proximity of the bawn wall to the public road is such that damage could occur to the masonry during the delivery of large components to the wind farm. The bawn wall is located on the public road where it meets the bridge.

Proposed Mitigation Measures

- Impacts on Carriganass Castle Bawn wall will be avoided during the delivery of the turbines to the Proposed Development site and where there is a requirement, a super wing carrier can be used to lift the blade so it avoids structures within the surrounding area.
- As noted previously in Section 13.3.4.1.2, the applicant is aware from correspondence with locals that during the previous wind farm development at the site, bridge walls were removed and rebuilt. If walls need temporarily removed during the turbine delivery phase, this will be discussed with Cork County Council prior to turbine delivery.
- A full dry run will be completed prior to turbine delivery

Residual Impact

If the above methodology is implemented during the delivery process, no impacts will occur.

Significance of Impacts

The impacts, after the implementation of mitigation/suitable methodology, is likely to be 'Not Significant'.

13.4.3.7 Cultural Heritage Features (Direct Effects)

Pre-Mitigation Impact

A 19th century settlement was recorded approximately 360m to the north west of Turbine 5 adjacent to a forest road and within forestry. No proposed infrastructure such as turbine bases, hardstands, new roads, borrow pits, etc will be located here. No impacts will occur.

Proposed Mitigation Measures

Since no impacts have been identified, no mitigation measures are required

Residual Impact

There will be no residual impacts.

Significance of Impacts

No impacts will occur and therefore the significance of effects will be imperceptible.

13.4.4 Operational Phase Potential Impacts (Direct)

In terms of archaeology, architecture and cultural heritage, since peat removal and groundworks would be complete, it is considered that no direct effects would occur at the operational stage.

13.4.5 Operational Phase Potential 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 Proposed Development. Indirect impacts here are mainly concerned with impacts on setting. Impacts on settings of sites may arise when a development is proposed immediately adjacent to a recorded monument or cluster of monuments or any cultural heritage asset. While the Proposed Development may 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 13.2.5 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*'.

Potential impact to 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 Proposed Development.

Potential operational impacts are discussed below according to each element of the Proposed Development. Those elements of the Proposed Development which are not capable of impacting on the visual setting of monuments (such as proposed roads, borrow pits, 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.

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

National Monument No 450 (PO 84/1940) CO106-005001 and CO106-005002 Breeny More Stone Circle & boulder burials

This monument is subject to a preservation order made under the National Monuments Acts 1930 to 2014 (PO no. 84/1940). Viewshed analysis results are a worst-case scenario since the model does not take natural screening such as vegetation, boundaries or buildings into consideration. Figure 13-3 above shows that potentially two turbines may theoretically be seen in full (T1 and T3 in light blue areas). It shows that potentially a further 4 (T2, T4, T5 and T6 in red hachured areas) may be seen from mid-shaft up and that only the upper portion of T7 (green areas) may be seen. The Zone of Theoretical Visibility used in the LVIA Chapter 12 shows that this monument is located within an area that shows visibility of potentially 5-7 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 proposed turbine (just under 7km) and the natural screening, mainly from vegetation and forestry, the impacts on setting are likely to be slight. Furthermore, the distance of 7km is such that no impacts on potential sun alignments of the monument would be possible. The monument will not be overshadowed by proposed turbines at this distance.

National Monument Preservation Order No 69/1938 CO106-00601, CO106-006002 and CO106-006003- Kealkill Stone circle - five-stone

This monument is subject to a preservation order made under the National Monuments Acts 1930 to 2014 (PO no. 69/1938). Viewshed analysis results are a worst-case scenario since the model does not take natural screening such as vegetation, boundaries or buildings into consideration. Figure 13-3 shows that potentially two turbines may theoretically be seen in full (T1 and T3 in green areas). It shows that potentially a further 4 (T2, T4, T5 and T6 in red hachured areas) may be seen from mid-shaft up and that only the upper portion of T7 (light blue areas) may be seen. The Zone of Theoretical Visibility used in the LVIA Chapter 12 shows that this monument is located within an area that shows visibility of potentially 5-7 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 proposed turbine (just under 7km) and the natural screening, mainly from vegetation and forestry, the impacts on setting are likely to be slight. Furthermore, the distance of 7km is such that no impacts on potential sun alignments of the monument would be possible. The monument will not be overshadowed by proposed turbines at this distance.

National Monument No 600 CO106-019 and CO106-057 Derryarkane Stone Circle & Standing Stone

The viewshed analysis undertaken from this monument shows that no turbines will be visible from this monument (No turbines are located in any of the shaded areas on Figure 13-4. The area in which this monument is located on the ZTV also shows no visibility.

National Monument (No Number) CO092-019 Maughanasilly Stone Row

Viewshed analysis results are a worst-case scenario since the model does not take natural screening such as vegetation, boundaries or buildings into consideration. Figure 13-5 shows that potentially one turbine may theoretically be seen in full from the monument (T1) in green areas). It shows that potentially a further 2 (T2 and T3) in red hachured areas) may be seen from mid-shaft up and that only the upper portion of T4 (light blue areas) may be seen. The viewshed results show that three turbines (T5-T7) may theoretically not been seen from the monument. The Zone of Theoretical Visibility used in the LVIA Chapter 12 shows that this monument is located within an area that shows visibility of potentially 5-7 turbines. This accords with the viewshed in that some level of potential visibility was demonstrated for most turbines.

Given the distance of the monument from the nearest proposed turbine (5.5km) and the natural screening, mainly from vegetation and forestry, the impacts on setting are likely to be slight. Furthermore, the distance of 5km is such that no impacts on potential sun alignments of the monument would be possible in that the monument will not be overshadowed by proposed turbines at this distance.

Pre-Mitigation Impact

The proposed 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 considered to be slight mainly due to the intervening distance and the varying degrees of visibility (Slight impacts being described as '*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*'.

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 considered to be slight.

Significance of Impacts

The turbines will not have any significant/adverse indirect effects on National Monuments within 10km. Impacts will be slight.

13.4.5.2 Recorded Monuments within the EIAR site boundary (indirect effects)

These monuments are discussed in Section 13.3.1.2 above. The Zone of Theoretical Visibility located in Chapter 12 as Figure 12-1, shows that the monuments are located in an area where potentially 5-7 turbines may be seen. The monuments are located at a remove (in excess of 700m) from the construction area therefore their immediate setting will be preserved. The ability to see the turbines from this location is such that their wider landscape setting will be altered in the same way as the original wind farm.

Pre-Mitigation Impact

The impact is considered to be slight/moderate. The site types 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 considered to be slight/moderate.

Significance of Impacts

The turbines will not have any significant/adverse indirect effects on National Monuments within 10km. Impacts will be slight/moderate (Moderate being an effect arising 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).

13.4.5.3 Newly Recorded site within the EIAR site boundary (Indirect Effects)

A hut site was recorded within the EIAR site boundary, albeit poorly preserved and in clear-felled forestry. This is described in Section 13.3.1.3 above. The hut site is situated just 35m from the existing road (utilised as part of the previous wind farm). It is proposed to construct a small section of interlinking road in order to avoid using the existing sharp bends. The new section of road will then measure 87m to the north of the hut site. The nearest turbine (T2) measures 567m to the west of the hut site. The Zone of Theoretical Visibility located in Chapter 12 as Figure 12-1, shows that 3-4 turbines may be visible from the area where the hut site is located. In this regard the effect on setting is considered to be not significant. Furthermore, the hut site is low visibility and located with an area clear-felled and replanted. The original landscape setting has been much altered in this location.

Pre-Mitigation Impact

The effects on setting (taking all variables into consideration) is considered to be Not significant.

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

Residual Impacts will continue to be 'Not Significant'.

Significance of Impacts

The overall impact is 'Not Significant'.

13.4.5.4 Recorded Monuments within 5km of the proposed Turbines (Indirect Effects)

All monument types within 5km of the nearest proposed turbines are discussed in Section 13.3.1.4 above. Where a potential impact on setting has been identified through viewshed analysis or the Zone of Theoretical Visibility located in Chapter 12 as Figure 12-1, they are discussed here.

13.4.5.4.1 *Wedge Tombs*

Five wedge tombs are located within 5km of the nearest proposed turbines. All are located in excess of 3.5km from the proposed turbines and are distributed to the north-east, east and south-east of the EIAR site boundary where any existing potential inter-visibility or alignments will not be impacted. Four of the five wedge tombs are located in an area where the ZTV shows no visibility in the direction of the turbines. Overall the impact on the wedge tombs in the study area is considered to be Not Significant.

13.4.5.4.2 *Radial Stone Cairn*

A possible radial stone cairn (CO080-047) is situated less than 100m to the east of the walls noted in cut-away bog in Dooneens at 3km from the nearest turbine T2. The Zone of Theoretical Visibility shows that the radial stone cairn is located in an area where potentially 1-2 turbines may be visible (not assuming natural screening or trees). This may result in a slight impact on setting.

13.4.5.4.3 *Standing Stones*

Nineteen standing stones are distributed within the 5km study area with a particular concentration to the south of the EIAR site boundary, all in excess of 1.3km from the nearest proposed turbines. The Zone of Theoretical Visibility suggests that 5-7 turbines may be visible from seven of the 19 standing stones with no turbines visible from another seven standing stones. The remaining five are located in areas where only 1-2 turbines may be visible. This model does not assume trees or natural screening that may in reality minimise or remove any potential impacts on setting altogether.

Based on the worst-case scenario, the likely impact on setting will be slight/moderate and at the distance to the proposed turbines, potential alignments will not be impacted.

13.4.5.4.4 *Stone Row*

One stone row is located within the 5km study area and is located 4.6km from the nearest proposed turbine. Although stone rows are associated with lunar and solar events and are aligned NE/SW, this example is located 4.6km to the east which is considered an adequate distance from the proposed turbines. Furthermore, the intervening topography (i.e. Doughill Mountain) is such that visibility of the proposed turbines is not likely to occur. The ZTV shows that no turbines are visible from this location. The overall impact on the stone row is therefore imperceptible.

13.4.5.4.5 *Stone Circles*

Three stone circles are located within the 5km study area.

CO092-001001, a multiple stone circle is located on a W-facing slope near N end of narrow valley of Coomhola river. The ZTV shows that the multiple stone circle is located in an area where no turbines will be visible. This is due to intervening topography. No impacts on setting will occur.

CO092-004 is located 903m from the nearest proposed turbine (T7). The ZTV shows that potentially 5-7 turbines may be seen from this location (not assuming any natural screening that exists). Google Street imagery (2010) shows that the original turbines could be seen from the nearest public road to the stone circle. The stone circle is aligned NE/SW and therefore on the 21st June (Summer Solstice) it's alignment is likely to be associated with the rising sun on this date. Data on the rising / setting and various equinoxes is available on https://www.suncalc.org. An assessment of the impact of the proposed turbines on this potential alignment has shown that T6 is likely located along the trajectory of the rising sun during summer solstice albeit at a distance of 1.2km to the north-east. Although the proposed turbine is located along the trajectory of the rising sun on the 21st June there are a number of mitigating factors which would reduce if not remove the overall potential negative effects on the monument. These are as follows:

- At a distance of 1.2km from the stone circle, potential negative effects on the immediate setting of the monument will not occur.
- Intervening topography, land contour data and forestry suggest that the shadow would not impact on the monument.
- The monument is not accessible to the public.
- The average daily sunshine hours for June is only 5.8 (data from Met Eireann archives from 1981 to 2010 and detailed in Chapter 10, Section 10.2.2). This suggests that there is a low probability of sunshine during June.

Taking regard of the above, the overall impact on the stone circle is momentary and slight.

CO092-016001, the second five-stone circle is located 3.9km SW of the aforementioned stone circle (CO092-004). The ZTV suggests that potentially, not assuming natural screening, 5-7 turbines could be seen from this location. At a distance of 4.6km from the nearest turbine (T7), any associated alignments with the setting/rising sun would not be impacted. The ability to view some or all of the turbines from this location would result in a slight/moderate impact on setting.

13.4.5.4.6 *Standing Stone Pairs*

Five standing stone pairs are located within the 5km study area (See

Table 13-4 above) (CO092-006, CO092-066001, CO092-067, CO092-035, CO080-024 and CO092-044). All are located to the north, east and southeast of the Proposed Development. Any potential existing inter-visibility between these monument types will not be impacted by any proposed turbines.

CO092-006 is located in an area where the ZTV suggests that 3-4 turbines may be visible to the north. The alignment of the monument (NE/SW) would suggest that none of the 7 proposed turbines would impact on the rising/setting of the sun at either summer or winter solstice at this monument. The overall impact on setting by virtue of the fact that turbines may be visible is likely to be slight with just 3-4 turbine visible. A large plantation of forestry is located between the monument and the Proposed Development site which is likely to minimise any impacts on setting due to turbines.

CO092-066001 is located in rough hill grazing, on a terrace at the head of a valley sloping down to the NE, between Doughill Mountain to the NW and Douce Mountain to the SE. The alignment of the stone at NE/SW will not be impacted by the proposed turbines as views from this location are limited by topography. No impacts on setting will occur.

CO092-067 is located in rough hill grazing, on a terrace at the head of a valley sloping down to the NE, between Doughill Mountain to the NW and Douce Mountain to the SE. Similar to CO092-066001 above, the surrounding topography is such that no visibility in the direction of the proposed turbines is possible from this location. The ZTV shows that the area in which this monument is located has no visibility in the direction of the turbines. No impacts on setting will occur.

CO092-035 is located in an area where 5-7 turbines may potentially be visible to the NW (ZTV). The direction of the proposed turbines is such that the NE/SW alignment of the monument will not be impacted. The ability to potentially see the 5-7 turbines will result in an overall slight/moderate impact on setting.

CO080-024 is located at a distance of 3.6km from the nearest proposed turbine (T2). Potential impacts on the alignment of the monument will not occur. According to the ZTV, the monument is, however, located in an area where potentially 5-7 turbines could be seen (not assuming any natural screening). The ability to view the turbines may result in a slight/moderate impact on the wider landscape setting of the monument.

CO092-044 is located 4.5km to the nearest turbine and accordingly no impacts on any potential alignments associated with the monument will occur. It is located in an area which the ZTV suggests will have no visibility in the direction of the proposed turbines. No impacts on setting will occur.

13.4.5.4.7 *Ringforts, Enclosures and Souterrains*

The majority of the remaining monuments (37) within 5km of the proposed turbines consist of those which may be definitively attributed to the Early Medieval period (ringforts, enclosures and souterrains). Thirteen are located in areas in which no turbines would be visible (ZTV). The remainder have varying degrees of potential visibility in the direction of the proposed turbines resulting in an overall slight-not significant impact on setting.

13.4.5.4.8 *Gouganebarra Religious Complex*

A number of monuments are located in Gougane Barra CO080-012001 (Hermitage), CO080-012002 (Ritual site - holy well) and CO080-012003 (Graveyard) at Doire Na Coise townland c. 2.6km north of the Proposed Development (See

Table 13-4 and Figure 13-10). This site is fully screened by the intervening Dereenglass Hill to the south of the religious complex. The ZTV shows that no turbines will be visible from this complex of monuments. No impacts on setting will occur.

In summary, all monument types within 5km of the nearest proposed turbines are discussed in Section 13.3.1.4 above. Potential impacts on setting were identified through viewshed analysis or the Zone of Theoretical Visibility. Impacts on setting vary from Imperceptible to Slight/Moderate. The degree of impact depends on the nature of the RMP and the proximity to the proposed turbines in particular those monuments that have associations with solar events such as summer and winter solstice (Stone circles, rows, single standing stones). There are no instances where any impacts on setting are significant or adverse.

13.4.5.5 Built Heritage including RPS / NIAH within 5km of the proposed Turbines (Indirect Effects)

In terms of built heritage within 5km of the proposed turbines, only one structure listed in the statutory list of protected structures is located within 5km of the nearest proposed turbine. This consists of the Oratory of St Finbarr's at Gouganebarra to the north. This site is fully screened by the intervening Dereenglass Hill to the south of the religious complex. The ZTV located in Chapter 12, shows that no turbines will be visible from this complex of monuments. No impacts on setting will occur.

13.4.5.6 The Gaeltacht

A portion of the Proposed Development site is located within the Gaeltacht (Figure 13-1). The section of the Gaeltacht is located in the townland of Doirín Dún Aodha. The development site itself is located in an area now utilised for a commercial forestry plantation and the original wind farm therefore the overall context of the site has changed in recent decades. In accordance with 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). Whilst this project will not impact on the Irish language, it is recommended that signage in any areas within the Múscraí Gaeltacht if relevant should be erected in Irish. This is in accordance with the County Development Plan Policy HE 5-3 Gaeltacht Areas (CDP 2015-2020, 199).

13.4.5.7 Cultural Heritage Features (Indirect Effects)

Pre-Mitigation Impact

A 19th century settlement was recorded approximately 360m to the north west of Turbine 5 adjacent to a forest road and within forestry. No proposed infrastructure such as turbine bases, hardstands, new roads, borrow pits, etc will be located here or adjacent to same. The settlement is surrounded by forestry with no views in any direction. Clear-felling in the future may allow views from this site but this will be temporary since the area will be planted over again. The structure is considered to be of local heritage merit and is not subject to statutory protection. No significant impacts on setting will occur.

Proposed Mitigation Measures

Since no impacts have been identified, no mitigation measures are required.

Residual Impact

There will be no residual impacts.

Significance of Impacts

No impacts will occur and therefore the significance of effects will be imperceptible.

13.5 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 Proposed Development. Cumulative Impacts at the Construction and Operational Stages are considered.

The developments considered as part of the cumulative effect assessment are described in Section 2.7 of this EIAR. In this regard, in order to assess overall cumulative effects on archaeology and cultural heritage, the Proposed Development is considered in the context of other developments as detailed below.

13.5.1 Cumulative Impacts (Construction Stage)

13.5.1.1 Cumulative impacts (direct) considering other wind farms within 20km

Since all potential direct effects on cultural heritage have been assessed and mitigated, cumulative direct impacts in association with other wind farm developments will not occur at the construction stage of the Proposed Development.

13.5.1.2 Cumulative impact to potential unknown sub-surface sites

At present, the Proposed Development site includes an existing substation that has an associated overhead line connection to the Ballylickey Substation, approximately 12km southwest of the site. The

existing substation on site will be subject to decommissioning under the provisions of the previously granted permission.

The Proposed Development in combination with the above, could result in potential increased negative effects to sub-surface archaeological features (i.e. cumulative impacts).

However, if the mitigation measures prescribed in Section 13.4.3.4 are implemented then cumulative direct effects to unknown sub-surface archaeology will not occur. Additionally, it has been noted in Section 13.1.3.3 that Tobar Archaeological Services, monitored, under licence, all groundworks associated with the previous wind farm (in 2005) under licence No. 05E1062. No archaeological finds, features or deposits were uncovered.

Since all potential direct effects on cultural heritage have been assessed and mitigated, cumulative direct impacts in association with the decommissioning of the existing substation will not occur at the construction stage of the Proposed Development.

13.5.2 Cumulative Impacts (Operational Impacts on Setting)

The potential to be able to see more turbines in the wider landscape setting from National Monuments is such that cumulative impacts could occur since it is not possible to mitigate the effects on setting arising from turbines at the operational stage. Each National Monument is considered separately below.

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

Pre-Mitigation Impacts

National Monument No 450 (PO 84/1940) CO106-005001 and CO106-005002 Breeny More Stone Circle & boulder burials

The viewshed analysis from Breeny Mor stone Circle and boulder burial (see Figure 13-18) shows that none of the other turbines within 20km of the proposed Curraglass Renewable Energy Development will theoretically be visible from the monument. No cumulative impacts will occur at the operational stage.

National Monument Preservation Order No 69/1938 CO106-00601, CO106-006002 and CO106-006003- Kealkill Stone circle - five-stone

Similar to the Breeny More stone circle, the viewshed analysis from Kealkill stone circle (see Figure 13-18) shows that none of the other turbines within 20km of the proposed Curraglass Renewable Energy Development will theoretically be visible from the monument. No cumulative impacts will occur at the operational stage.

National Monument No 600 CO106-019 and CO106-057 Derryarkane Stone Circle & Standing Stone

The viewshed analysis undertaken from this monument (see Figure 13-19) shows that only the permitted Derrenacrinnig and Glanta turbines may theoretically be visible from this monument . Since no proposed Curraglass turbines will theoretically be visible from here, no cumulative effects will occur at the operational stage.

National Monument (No Number) CO092-019 Maughanasilly Stone Row

The viewshed analysis from Maughanasilly Stone Row (see Figure 13-20) shows that none of the other turbines within 20km of the proposed Curraglass Renewable Energy Development will theoretically be visible from the monument. No cumulative impacts will occur at the operational stage.

Pre-Mitigation Impact

The proposed turbines together with the other additional turbines within 20km have the potential to impact cumulatively on the setting of National Monuments in the wider landscape. In order to ascertain the degree of potential cumulative impact, Viewshed Analysis was utilised. No cumulative effects were identified at the operational stage of the development.

Proposed Mitigation Measures

Since no cumulative effects were identified, no mitigation measures are being proposed.

Residual Impact

Since no cumulative effects were identified no residual impacts will occur.

Significance of Impacts

The turbines will not have any significant/adverse indirect effects on National Monuments within 10km. Cumulative Impacts will not occur.

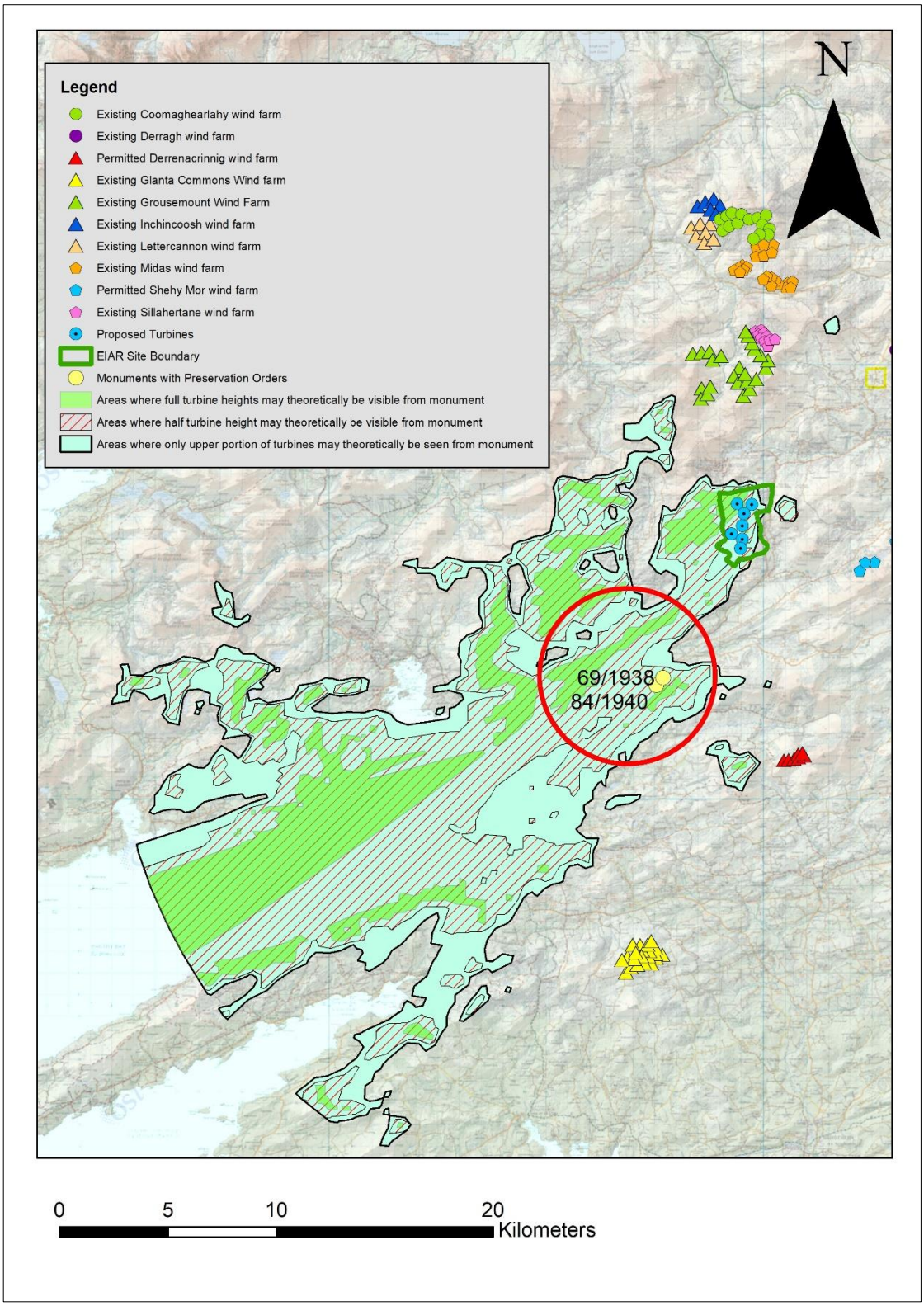

Figure 13-18: Viewshed from Breeny More and Kealkill stone circle showing that no other projects (wind farms) within 20km of the Proposed Development are theoretically visible.

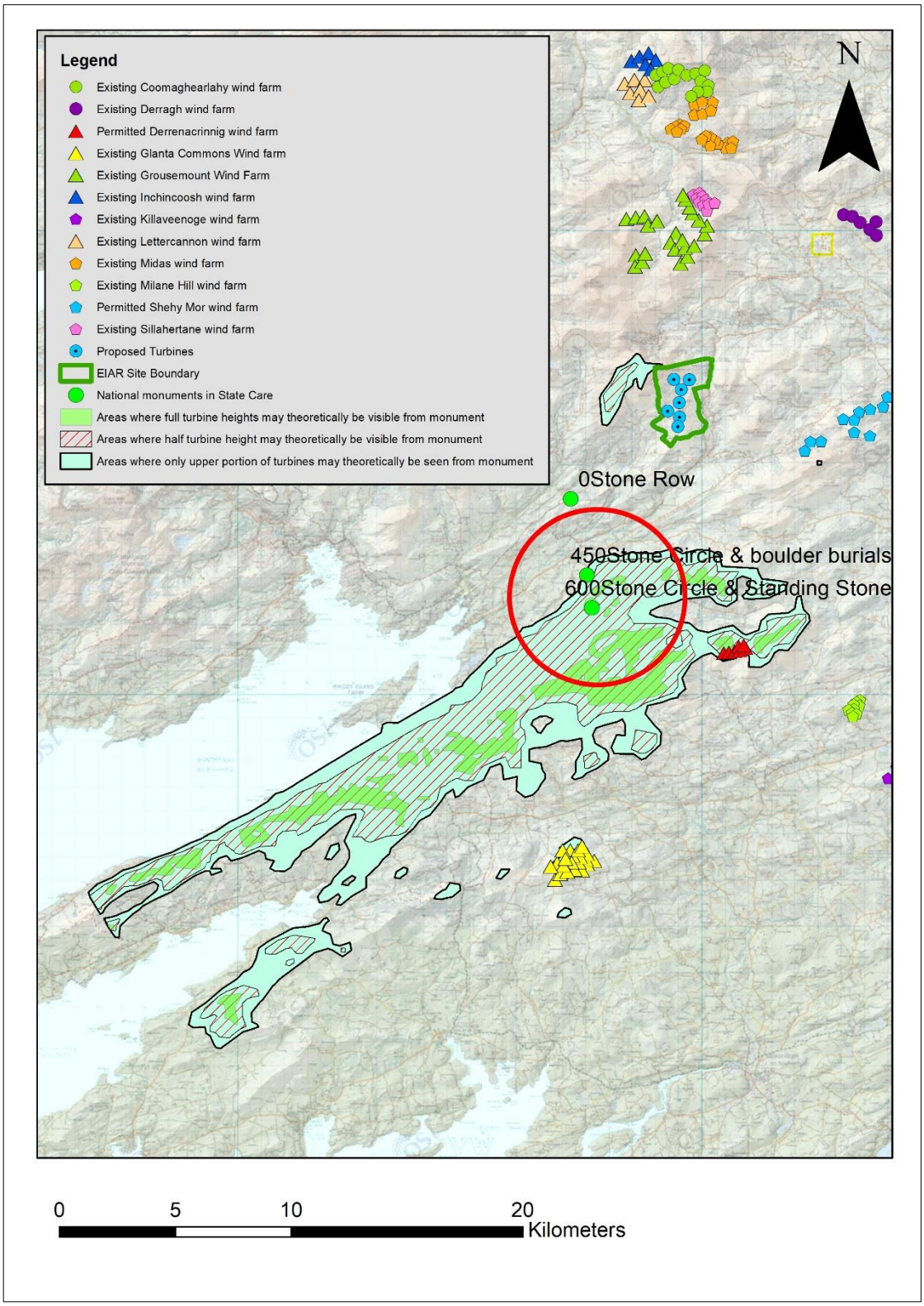

Figure 13-19: Viewshed from National Monument No 600 CO106-019 and CO106-057 Derryarkane Stone Circle & Standing Stone.

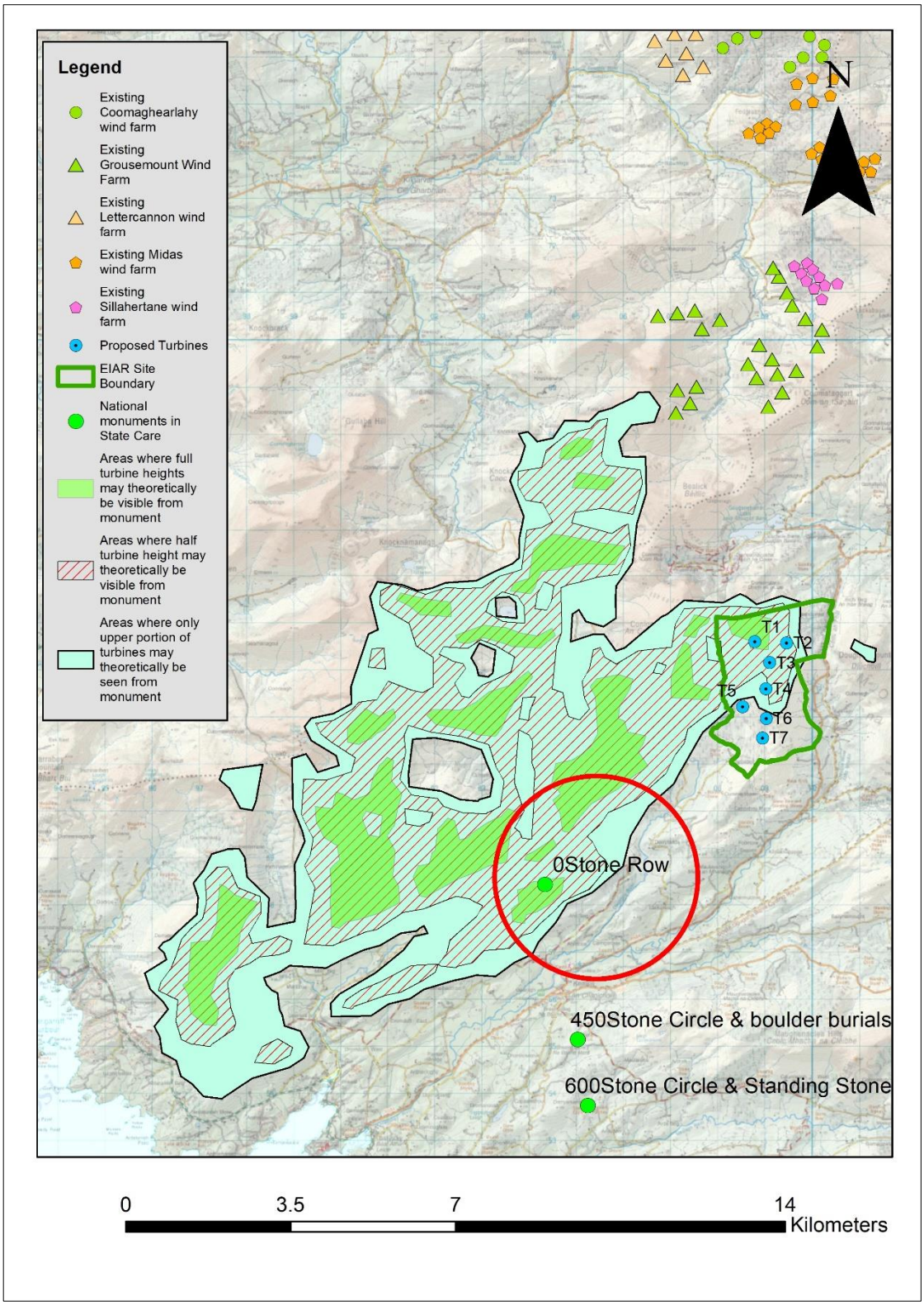

Figure 13-20: Viewshed analysis from National Monument (No Number) CO092-019 Maughanasilly Stone Row. No other turbines from other projects in visibility areas.

13.5.2.2 Cumulative (Indirect) Impacts to Recorded Monuments, RPS and NIAH structures

No other wind farm projects (within 20km of the proposed Curraglass turbines) are located within the 5km study area used to assess impacts on setting of recorded monuments/RPS/NIAH. In this regard no cumulative effects on the immediate setting of such monuments will occur.

In the wider landscape setting, the ability to view other turbines (permitted, proposed and existing) as well as the proposed Curraglass turbines is such that cumulative effects on setting of cultural heritage assets may occur. These cumulative effects are considered to be slight since the distance of other projects from the proposed Curraglass Renewable Energy development is in excess of 5km with the Grousemount turbines to the north being the nearest at 5km.

13.6 Decommissioning Phase

There will be no significant potential impacts on the archaeological, architectural and cultural heritage environment during the decommissioning of the Proposed Development. Any potential direct impacts will already have been resolved through mitigation measures during the construction phase.

13.7 Conclusion

This chapter comprises an assessment of the potential impact of the Proposed Development 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 and a comprehensive programme of field inspection of the proposed infrastructure within the Proposed Development site boundary.

Five recorded monuments (3 redundant) are located within the EIAR site boundary. The wind farm layout has taken their location into consideration in that no RMPs are within the footprint of any proposed infrastructure. No direct impacts to any of the aforementioned sites will occur therefore. Thirty metre buffer zones will be established by an archaeologist prior to construction. A slight/moderate effect on setting will occur (Moderate being an effect arising 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).

The sub-surface archaeological potential of the Proposed Development area is considered to be low taking into consideration that the entire original wind farm site was subject to full time archaeological monitoring during which time no features were uncovered. Furthermore, the Proposed Development is partly located on existing infrastructure (such as roads, hardstands, turbine bases etc). Archaeological monitoring will take place during construction of areas in undisturbed ground.

Indirect effects on the setting of National Monuments within 10km, RMPs within 5km and RPS/NIAH within 5km were included in order to assess impacts on setting in the wider landscape.

The proposed 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 considered to be slight mainly due to the intervening distance and the varying degrees of visibility (Slight impacts being described as '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'. 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.

All monument types within 5km of the nearest proposed turbines are discussed in Section 13.3.1.4 above. Potential impacts on setting were identified through viewshed analysis or the Zone of Theoretical Visibility. Impacts on setting vary from Imperceptible to Moderate. The degree of impact depends on the

nature of the RMP and the proximity to the proposed turbines in particular those monuments that have associations with solar events such as summer and winter solstice (Stone circles, rows, single standing stones).

An assessment of cumulative impacts was also undertaken taking into consideration projects (permitted, proposed and existing turbines) within 20km of the Proposed Development. No cumulative effects will occur at the construction stage since any identified potential impacts have been mitigated effectively in order to reduce or remove the impact altogether.

No cumulative effects on National Monuments at the operational stage of the Proposed Development will occur since there are no occasions where both the Curraglass turbines and other project turbines are visible from the monuments. A slight cumulative effect on RMPs within 5km may occur due to the ability to potentially view both the Curraglass turbines and other turbines within the wider landscape setting. This cumulative effect will be slight.