Drumlins Park Wind Farm

Chapter 10: Cultural Heritage

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Contents

10.1 Introduction

This chapter has been prepared to assess and define any likely significant impacts or effects which the construction, operation and decommissioning of the proposed development may have on the archaeological, architectural and cultural heritage resource.

The chapter includes an identification of likely significant impacts or effects which may arise and outlines mitigation measures, based on current information, which may be used to avoid, reduce or offset any likely adverse effects. In addition, the chapter includes an assessment of the scoping response received from Historic Environment Division (Department for Communities; see **Annex 1.4**) regarding visual impacts on above-ground archaeological monuments and Listed Buildings in Northern Ireland.

10.1.1 Objectives

The objectives of this chapter are to:-

- identify all known features of archaeological, architectural and cultural heritage importance in the vicinity of the proposed development;
- determine any likely impacts of the proposed development on the archaeological, architectural and cultural heritage resource; and
- identify measures to mitigate any likely impacts of the development on the archaeological, architectural and cultural heritage resource.

The following key issues are addressed:-

- Direct and indirect impacts of the construction of the development on the archaeological, architectural and cultural heritage resource;
- Direct and indirect impacts of the operation of the development on the archaeological, architectural and cultural heritage resource; and
- Cumulative impacts of the construction and operation of the development on the archaeological, architectural and cultural heritage resource with other existing, permitted or proposed developments or projects.

10.1.2 The Proposed Development

The proposed development will involve the construction and operation of an 8 no. wind farm, associated infrastructure and permanent road upgrades. A detailed description of the proposed development is provided in **Chapter 3**. This chapter also includes an assessment of 3 no. options to connect the proposed development to the national grid.

10.1.3 Statement of Authority

Dermot Nelis BA ArchOxon AIFA MIAI

Dermot Nelis graduated from Queen's University Belfast, and after gaining extensive fieldwork experience undertook postgraduate studies at the University of Oxford in archaeological consultancy and project management.

Dermot has acted as Senior Archaeologist on several road schemes and has directed large-scale multi-period excavations associated with those developments. He has completed over 170 licensed fieldwork programmes and over 250 archaeological, architectural and cultural heritage desk-based reports, including assessments for Environmental Impact Statements and Environmental Impact Assessment Reports.

10.1.4 Candidate Wind Turbine

As outlined in **Chapter 3**, a specific wind turbine model has not yet been selected and will only be confirmed following a pre-construction tendering process. While turbine selection is unlikely to result in any primary effects on cultural heritage; it is evaluated that the General Electric GE 5.5-158 (Option TU1) is the turbine which would be most likely to result in 'worst case' effects. This conclusion has been reached on the basis of the slightly larger excavations which would be required for this turbine model compared to the alternative option and that the longer turbine blades could result in a slightly greater visual effect on cultural heritage features.

10.2 Methodology

10.2.1 Study Area

There is no professional standard for defining the extent of a study area when assessing the likelihood of effects on archaeological, architectural or cultural heritage remains. A 1km study area has been applied around the proposed development to assess the presence of statutorily protected archaeological remains (RMP sites). In addition, a 5km study area has been applied around the proposed development to assess the presence of any World Heritage Sites, sites included in the Tentative List as consideration for nomination to the World Heritage List, National Monuments, sites with Preservation Orders or Temporary Orders, Protected Structures, Conservation Areas or Proposed Conservation Areas.

A 1km study area has been applied around the proposed development to record the presence of any structures recorded on the National Inventory of Architectural Heritage (NIAH). An assessment has also been made of any historic gardens or designed landscapes as recorded on the NIAH that may exist within the proposed development area.

A 100m study area has been applied around each of the proposed grid connection options, while areas of land take associated with the proposed road upgrade works have also been assessed.

10.2.2 Sources of Information

Research has been undertaken in two phases. The first phase comprised a desk review, namely a paper and digital survey of archaeological, historical and cartographic sources. The second phase involved field inspections of the proposed development area. Each phase is outlined in the following sections.

The following sources were examined and a list of sites and areas of archaeological, architectural and cultural heritage potential was compiled:-

- Record of Monuments and Places of County Monaghan and County Cavan;
- Topographical Files of the National Museum of Ireland;
- Cartographic and documentary sources relating to the study area;
- Aerial photographs of Ordnance Survey Ireland and Bing aerial photography;
- Monaghan County Development Plan (2019 - 2025) and Cavan County Development Plan (2014 – 2020);
- National Inventory of Archaeological Heritage;
- Environmental Protection Agency's *Guidelines on the Information to be Contained in Environmental Impact Statements* (2002) and *Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (2017); and

- Northern Ireland's National Monuments and Buildings Record.

Record of Monuments and Places (RMP) is a list of archaeological sites known to the National Monuments Service. Back-up files of the Sites and Monuments Record (SMR) provide details of documentary sources and field inspections where these have taken place.

Topographical Files of the National Museum of Ireland is the archive of all known finds recorded by the National Museum. This archive relates primarily to artefacts, but also includes references to monuments and unique records of previous excavations. The find spots of artefacts are important sources of information in the discovery of sites of archaeological significance.

Cartographic sources are important in tracing land-use development within an area of land take, as well as providing important topographical information on sites and areas of archaeological potential. Cartographic analysis of relevant maps has been made to identify any topographical anomalies that may no longer remain within the landscape.

Documentary sources were consulted to gain background information on the historical and archaeological landscape of the wider development area.

Aerial photographic coverage is an important source of information regarding the precise location of sites and their extent. It also provides initial information on the terrain and its potential to contain previously unidentified archaeological remains.

Monaghan County Development Plan (2019 - 2025) and **Cavan County Development Plan** (2014 – 2020) contain Objectives and Policies on the preservation and management of archaeological, architectural and cultural heritage features. The grid connection option to the Shankill substation is partially located within County Cavan, and as such the Cavan County Development Plan was evaluated.

National Inventory of Architectural Heritage is a section within the Department of Culture, Heritage and the Gaeltacht. The work of NIAH involves identifying and recording, on a non-statutory basis, the architectural heritage of Ireland from 1700 to the present day. The NIAH website also contains a non-statutory register of historic gardens and designed landscapes in counties Monaghan and Cavan, and this was assessed to look for the presence of any such features within the proposed development.

Environment Protection Agency's "*Guidelines on the Information to be Contained in Environmental Impact Statements*" and "*Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports*" provide definitions for potential effects on archaeological, architectural and cultural heritage remains.

Northern Ireland's National Monuments and Buildings Record holds information on elements of the built environment and includes databases, written records, maps, photographs, drawn and digital images *etc*.

10.2.3 Field Inspection

Field inspection is necessary to determine the extent, character and condition of archaeological, architectural and cultural heritage features, and can also lead to the identification of previously unrecorded or suspected sites and portable finds through topographical observation and local information.

The site visits took place on 11th October 2018 and 13th September 2019. All areas of proposed land take, including the locations of permanent haul route upgrade works, with exception of the grid connection routes to the Clones (Option G1; see **Figure 10.3**) and Shankill (Option G2; see **Figure 10.4**) substations, were walked and visually assessed. The grid connection options to the Clones and Shankill substations were assessed by means of detailed windshield surveys.

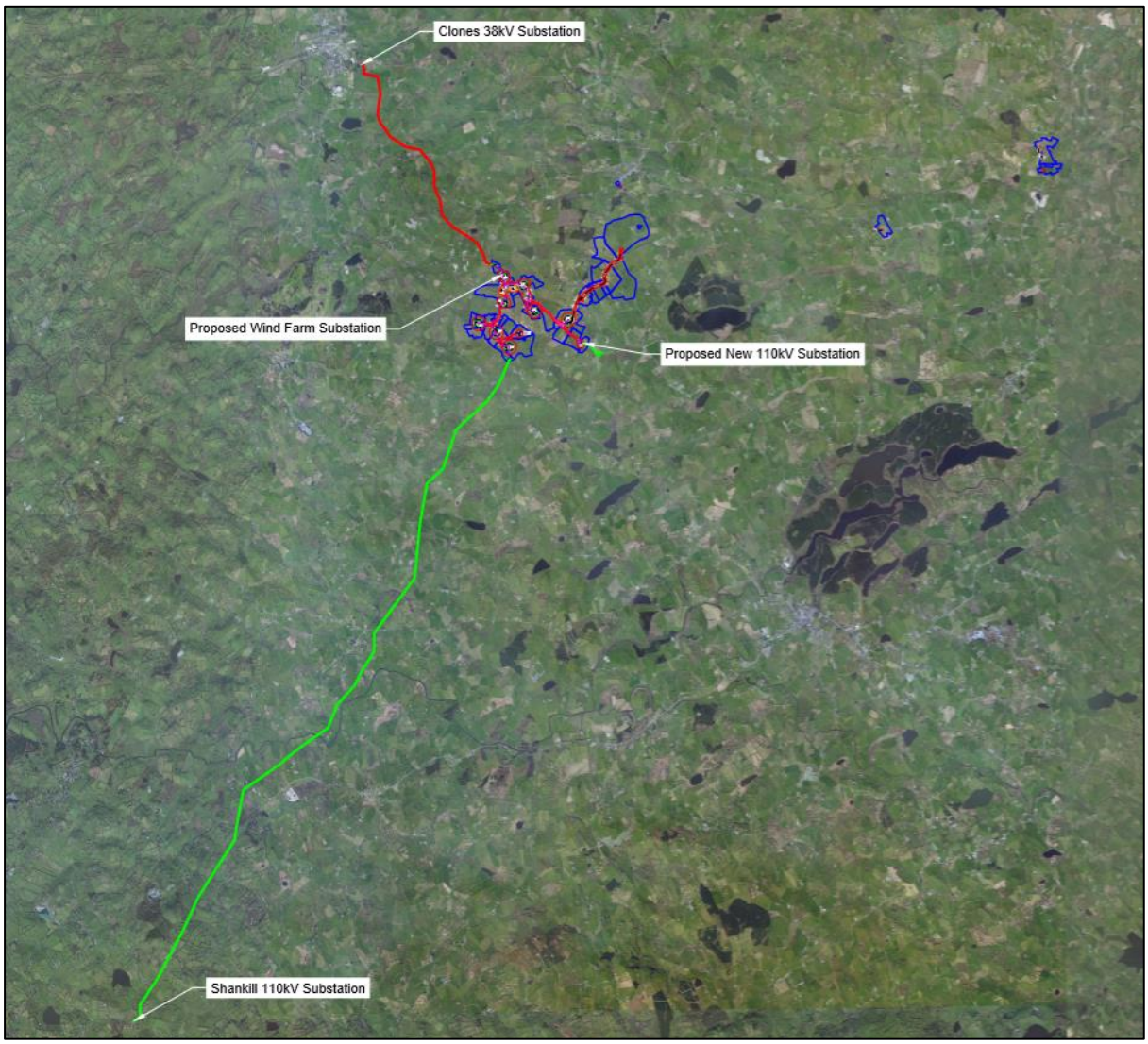

Figure 10.1: Proposed Site Location

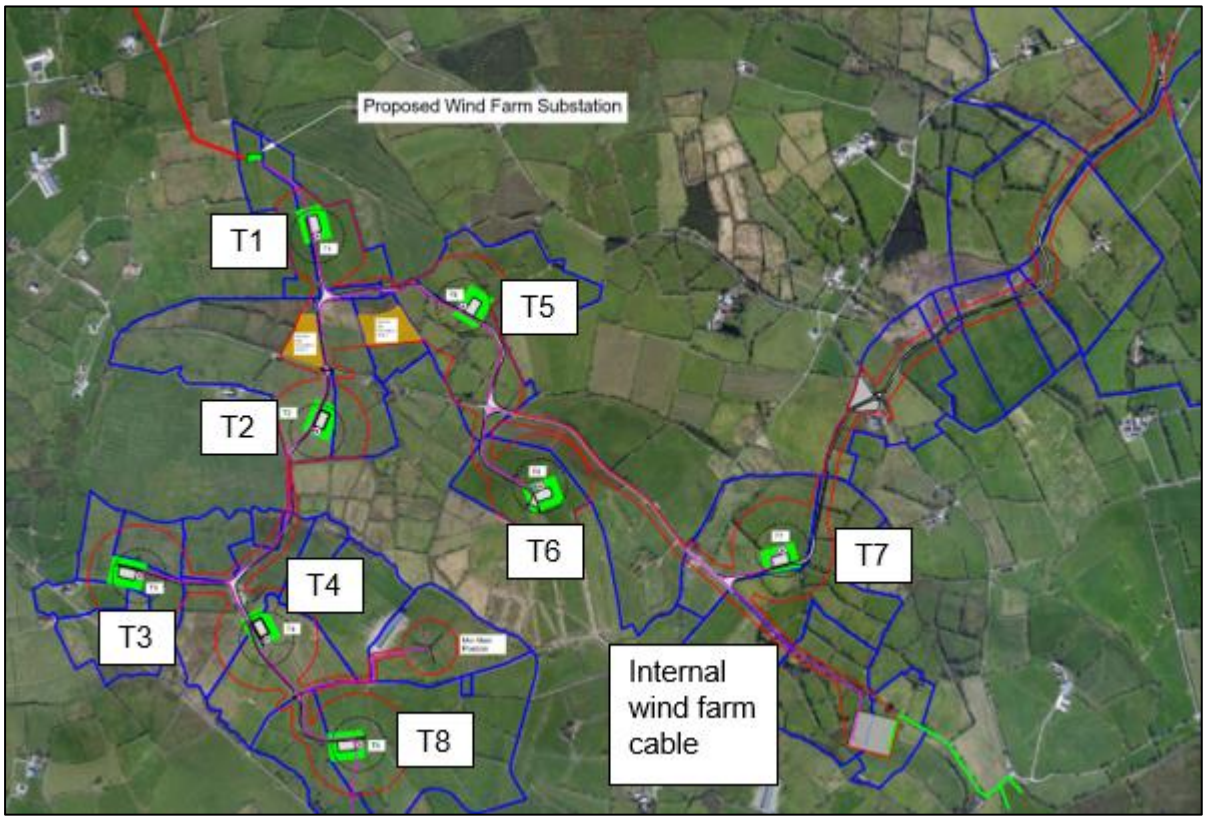

Figure 10.2: Aerial photograph of Proposed Wind Farm (including grid connection Option G3)

10.2.4 Significance Criteria

The likelihood of significant effects can be identified from detailed information about a project, the nature of the area affected and the range of resources potentially affected. The construction and operation of wind farms and their associated activities can affect the archaeological, architectural and cultural heritage resource of a given landscape in a number of ways:-

- Permanent and temporary land-take, associated structures, landscape mounding and their construction may result in damage to or loss of archaeological remains and deposits, or physical loss to the setting of historic monuments and to the physical coherence of the landscape;
- Archaeological sites can be affected adversely in a number of ways: disturbance by excavation, topsoil stripping and the passage of heavy machinery, disturbance by vehicles working in unsuitable conditions, burial of sites thus limiting accessibility for future archaeological investigation;
- Hydrological changes in groundwater or surface water levels can result from construction activities such as de-watering and spoil disposal, or long-term changes in drainage patterns. These may desiccate archaeological remains and associated deposits;
- Visual and noise effects on the historic landscape can arise from construction traffic and facilities, built earthworks and structures, landscape mounding and planting, noise, fences and associated works. These features can impinge directly on historic structures and historic landscape elements as well as their visual amenity value;

- Landscape measures, such as tree planting, can damage sub-surface archaeological features due to topsoil stripping and through the root action of trees and shrubs as they grow;
- Ground consolidation by construction activities or the weight of permanent embankments can cause damage to buried archaeological remains, especially in colluvium or peat deposits;
- Disruption due to construction also offers the potential for adversely affecting archaeological remains. This can include machinery, site offices, service trenches, *etc*; and
- Although not widely appreciated, positive effects can accrue from permitted developments. These can include positive resource management policies, improved maintenance and access to archaeological monuments and the increased level of knowledge of a site or historic landscape as a result of assessment and fieldwork.

There is no standard scale against which the significance of likely effects on the archaeological and historic landscape may be judged. The severity of a given level of land take or visual intrusion varies with the type of monument, site or landscape features and its environment. Significance of impact can be judged taking the following into account:-

- The proportion of the feature affected and how far physical characteristics fundamental to the understanding of the feature would be lost;
- Consideration of the type, date, survival/condition, fragility/vulnerability, rarity, potential and amenity value of the feature affected; and
- Assessment of the levels of visual, noise and hydrological effects, either in general or site specific terms, as may be provided by other specialists.

For this assessment, the significant effects criteria outlined in **Table 10.1** are used.

Level of Effects	Significance Criteria
Imperceptible	An effect capable of measurement but without significant consequences
Not Significant	An effect which causes noticeable changes in the character of the environment but without significant consequences
Slight Effects	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities
Moderate Effects	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends
Significant Effects	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment
Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment
Profound Effects	An effect which obliterates sensitive characteristics

Table 10.1: Significance of Impacts

10.3 Policy and Legislation

10.3.1 Archaeological Resource

The National Monuments Act, 1930 to 2004 and relevant provisions of the National Cultural Institutions Act, 1997 are the primary means of ensuring the satisfactory

protection of archaeological remains, which includes all man-made structures of whatever form or date, except buildings habitually used for ecclesiastical purposes.

A number of mechanisms under the National Monuments Act are applied to secure the protection of archaeological monuments. These include the Record of Monuments and Places, the Register of Historic Monuments, the placing of Preservation Orders and Temporary Preservation Orders on endangered sites and National Monuments in the Ownership or Guardianship of the Minister for Culture, Heritage and the Gaeltacht or a Local Authority.

The Minister may acquire National Monuments by agreement or by compulsory order. The State or the Local Authority may assume guardianship of any National Monument (other than dwellings). The owners of National Monuments (other than dwellings) may also appoint the Minister or the Local Authority as Guardian of that monument if the State or Local Authority agrees. Once the site is in ownership or Guardianship of the State, it may not be interfered with without the written consent of the Minister.

Section 5 of the 1987 Act requires the Minister to establish and maintain a Register of Historic Monuments. Historic Monuments and archaeological areas present on the Register are afforded statutory protection under the 1987 Act. Any interference with sites recorded on the Register is illegal without the permission of the Minister. Two months' notice in writing is required prior to any work being undertaken on or in the vicinity of a Registered Monument. The Register also includes sites under Preservation Orders and Temporary Preservation Orders. All Registered Monuments are included in the Record of Monuments and Places.

Sites deemed to be in danger of injury or destruction can be allocated Preservation Orders under the 1930 Act. Preservation Orders make any interference with the site illegal. Temporary Preservation Orders can be attached under the 1954 Act. These perform the same function as a Preservation Order but have a time limit of six months, after which the situation must be reviewed. Work may only be undertaken on or in the vicinity of sites under Preservation Orders with the written consent, and at the discretion, of the Minister.

Section 12(1) of the 1994 Act requires the Minister to establish and maintain a Record of Monuments and Places where the Minister believes that such monuments exist. The Record comprises a list of monuments and relevant places and a map/s showing each monument and relevant place in respect of each county in the State. All sites recorded on the Record of Monuments and Places receive statutory protection under the National Monuments Act 1994.

Section 12(3) of the 1994 Act provides that:-

> *"where the owner or occupier (other than the Minister for Arts, Heritage and the Gaeltacht) of a monument or place included in the Record, or any other person, proposes to carry out, or to cause or permit the carrying out of, any work at or in relation to such a monument or place, he or she shall give notice in writing to the Minister of Arts, Heritage and the Gaeltacht to carry out work and shall not, except in the case of urgent necessity and with the consent of the Minister, commence the work until two months after the giving of notice"* (www.archaeeology.ie).

10.3.2 Architectural and Built Heritage Resource

The main laws protecting the built heritage are the Architectural Heritage (National

Inventory) and Historic Properties (Miscellaneous Provisions) Act, 1999 and the Planning and Development Act 2000 (as amended). The Architectural Heritage Act requires the Minister to establish a survey to identify, record and assess the architectural heritage of the country. The National Inventory of Architectural Heritage records built heritage structures within all the counties of the State. As inclusion in the Inventory does not provide statutory protection, the document is used to advise Local Authorities on compilation of a Record of Protected Structures (RPS) as required by the Planning and Development Act 2000.

The Planning and Development Act 2000 requires Local Authorities to establish a Record of Protected Structures to be included in the County Development Plan. This Plan includes objectives designed to protect the archaeological, architectural and cultural heritage resource during the planning process. Buildings recorded in the RPS can include Recorded Monuments, structures listed in the NIAH, or buildings deemed to be of architectural, archaeological or artistic importance by the Minister. Sites, areas or structures of archaeological, architectural or artistic interest listed in the RPS receive statutory protection from injury or demolition under the 2000 Act. Damage to or demolition of a site registered on the RPS is an offence. The RPS list is not always comprehensive in every county.

A Local Authority has the power to order conservation and restoration works to be undertaken by the owner of a Protected Structure if it considers the building in need of repair. An owner or developer must make a written request to the Local Authority to carry out any works on a Protected Structure and its environs, which will be reviewed within 12 weeks of application. Failure to do so may result in prosecution.

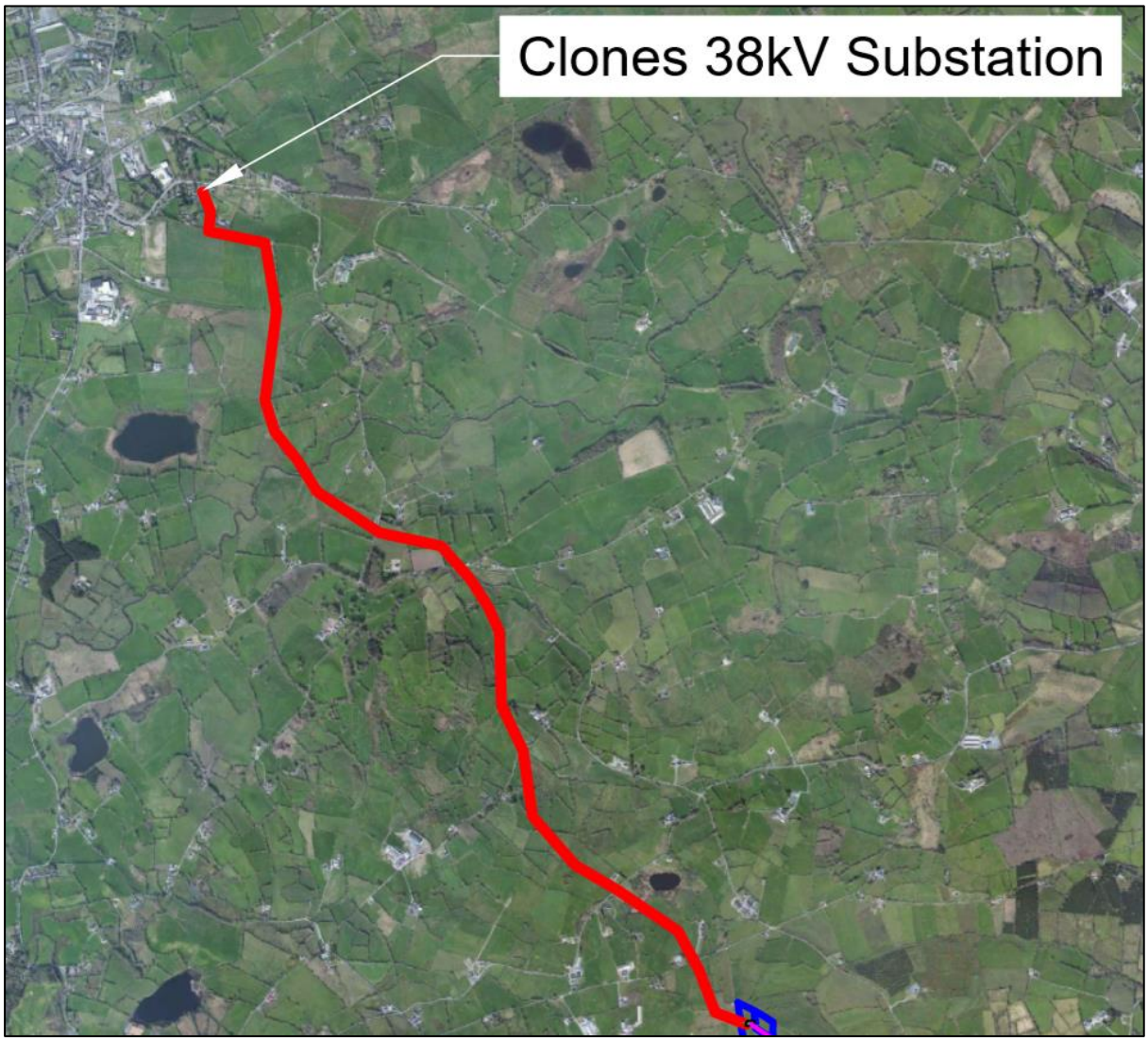

Figure 10.3: Aerial Photograph showing Grid Connection Option G1 to Clones substation

Figure 10.4: Aerial Photograph showing Grid Connection Option G2 to Shankill substation

10.4 Description of the Existing Environment

10.4.1 General Archaeological and Historical Background

There are 3 no. Recorded Monuments located within the planning application boundary for the proposed development. However, it should be noted that the footprint of the proposed development is not located within the extents of any Recorded Monuments.

Monaghan is a landlocked county which is characterised by rolling drumlin hills interspersed with lakes, trees and woodlands. The high ground drumlins, which formed during glaciation as ice moulded deposits of till, create the classic "*basket of eggs*" topography, while in the low ground the till is rich in clay. Bedrock generally consists of limestone and shale. There are extensive areas of blanket bog in the north of County Monaghan.

The county contains 129,093 acres of land (1.9% of the total area of the Republic of Ireland). Of this, 69% is given over to agriculture, 4% to forestry and 1.7% is covered by lakes (www.monaghan.ie).

During the Mesolithic period (c. 7,000-4,000 BC) people existed as hunters/gatherers, living on the coastline, along rivers and lakesides. They used flint and other stones to manufacture sharp tools, and locating scatters of discarded stone tools and debris from their manufacture can sometimes identify settlements.

The earliest evidence for prehistoric settlement in County Monaghan dates from the Neolithic period (c. 4,000-2,400 BC). During this period the population became more settled with a subsistence economy based on crop growing and stock-raising. This period of prehistory in Monaghan is represented by megalithic tombs, burials and stray finds of stone axes which are a characteristic artefact of the Neolithic period. Three Neolithic structures were discovered as part of the Carrickmacross Bypass along with numerous pottery sherds (www.archaeology.ie).

The Bronze Age (c. 2,400-600 BC) is characterised by the introduction of metalworking technology to Ireland and coincides with many changes in the archaeological record, both in terms of material culture as well as the nature of the sites and monuments themselves. Though this activity has markedly different characteristics to that of the preceding Neolithic period, including new structural forms and new artefacts, it also reflects a degree of continuity.

Bronze Age monuments from County Monaghan include standing stones, cist and pit burials, cairns, barrows, rock art and *fulachta fiadh,* which are one of the most numerous monument types in Ireland with over 4,500 examples recorded (Waddell 2005, 174).

Linear earthworks consist of a substantial bank and fosse, usually forming a major boundary between two adjacent landholdings. Most date from the late Bronze Age and Iron Age (c. 1200 BC-400 AD).

During the Iron Age (c. 600 BC-400 AD) new influences came into Ireland which gradually introduced the knowledge and use of iron, although for several centuries bronze continued to be widely used. The Iron Age in Ireland however is problematic for archaeologists as few artefacts dating exclusively to this period have been found, and without extensive excavation it cannot be determined whether several monument types, such as ring-barrows or standing stones, date to the Bronze Age or Iron Age.

The Early Medieval period (c. 400-1169 AD) is depicted in the surviving sources as entirely rural, characterised by the basic territorial unit known as *túath.* Walsh (2000, 30) estimates that there were at least 100, and perhaps as many as 150, kings in Ireland at any given time during this period, each ruling over his own *túath.*

During this turbulent period roughly circular defensive enclosures known as ringforts were constructed to protect farmsteads. They were enclosed by an earthen bank and exterior ditch, and ranged from approximately 25m to 50m in diameter. The

smaller sized and single banked type (univallate) was more than likely home to the lower ranks of society, while larger examples with more than one bank (bivallate/trivallate) housed the more powerful kings and lords. They are regarded as defended family homesteads, and the extant dating evidence suggests they were primarily built between the 7th and 9th centuries AD (Stout 1997, 22-31).

The ringfort is considered to be the most common indicator of settlement during the Early Medieval period. The most recent detailed study (*ibid*., 53) has suggested that there is an approximate total of 45,119 potential ringforts or enclosure sites throughout Ireland.

Enclosures belong to a classification of monument whose precise nature is unclear. Often they may represent ringforts, which have either been damaged to a point where they cannot be positively recognised, or are smaller or more irregular in plan than the accepted range for a ringfort. An Early Medieval date is generally likely for this site type, though not a certainty.

Souterrains, deriving their name from the French words *sous* (under) and *terrain* (ground), are underground structures that are often, though not exclusively, found associated with ringforts. They therefore appear to date to the second half of the first millennium AD.

The Early Medieval period is characterised by the foundation of a large number of ecclesiastical sites throughout Ireland in the centuries following the introduction of Christianity in the 5th century AD. The early churches tended to be constructed of wood or post-and-wattle, although between the late 8th and 10th centuries mortared stone churches gradually replaced the earlier structures. Many of the sites, some of which were monastic foundations, were probably originally defined by an enclosing wall or bank similar to that found at coeval secular sites. This enclosing feature was possibly built more to define the sacred character of the area of the church than as a defence against aggression. An inner and outer enclosure can be seen at some of the more important sites; the inner enclosure surrounding the sacred area of church and burial ground and the outer enclosure providing a boundary around living quarters and craft areas. Where remains of an enclosure survive it is often the only evidence that the site was an early Christian foundation.

The commencement of Viking raids at the end of the 8th century and their subsequent settlement during the following two centuries marked the first ever foreign invasion of Ireland. Viking settlement evidence is scarce and has been found in Cork, Dublin and Waterford, however excavations there have revealed extensive remains of the Viking towns. Outside these towns, understanding of Viking settlement is largely drawn from documentary and place-name evidence. In addition to Cork, Dublin and Waterford, documentary sources provide evidence for the Viking foundation of the coastal towns of Limerick and Wexford (Edwards 2006, 179). Other indirect evidence which suggest Viking settlement, or at least a Norse influence in Ireland, is represented by upwards of 120 Viking-age coin hoards, possible votive offerings of Viking style objects and the assimilation of Scandinavian art styles into Irish designs. While the initial Viking raids would have been traumatic, the wealth and urban expansion brought into the country as a result of Viking trading would have eventually benefited the Gaelic Irish, and cultural assimilation in some parts would have been significant.

The arrival of Anglo-Normans in Ireland towards the end of the 12th century resulted in great changes during the following century. Large numbers of colonists arrived

from England and Wales and established towns and villages. They brought with them new methods of agriculture which facilitated an intensification of production. Surplus foods were exported to markets all along Atlantic Europe which created great wealth and economic growth. Results of this wealth can be seen in the landscape in the form of stone castles, churches and monasteries.

The political structure of Anglo-Normans centred around the establishment of shires, manors, castles, villages and churches. In the initial decades after the Anglo-Norman invasion a distinctive type of earth and timber fortification was constructed- the motte and bailey. Mottes were raised mounds of earth topped with a wooden or stone tower, while the bailey was an enclosure surrounded by an earthen ditch with a timber palisade used to house ancillary structures, horses and livestock.

In certain areas of Ireland however Anglo-Norman settlers constructed square or rectangular enclosures, now termed moated sites. Their main defensive feature was a wide, often water-filled, fosse with an internal bank. As in the case of ringforts, these enclosures protected a house and outbuildings usually built of wood. They appear to have been constructed in the latter part of the 13th century though little precise information is available.

More substantial stone castles followed the motte and bailey and moated sites in the 13th and 14th centuries. Tower houses are regarded as a late type of castle and were erected from the 14th to early 17th centuries. Their primary function was defensive, with narrow windows and a tower often surrounded by a high stone wall (bawn). An Act of Parliament of 1429 gave a subsidy of £10 to "*liege*" men to build castles of a minimum size of 20ft in length, 16ft in breadth and 40ft in height (6m x 5m x 12m). By 1449 so many of these £10 castles had been built that a limit had to be placed on the number of grants being made available. The later tower houses were often smaller, with less bulky walls and no vaulting.

The 14th century throughout north west Europe is generally regarded as having been a time of crisis, and Ireland was no exception. Although the Irish economy had been growing in the late 13th century, it was not growing quickly enough to support the rapidly expanding population, especially when Edward I was using the trade of Irish goods to finance his campaigns in Scotland and Wales. When the Great European Famine of 1315-1317 arrived in Ireland, brought about by lengthy periods of severe weather and climate change, its effects were exacerbated by the Bruce Invasion of 1315-1318. Manorial records which date to the early 14th century show that there was a noticeable decline in agricultural production. This economic instability and decline was further worsened with the onset of the Bubonic Plague in 1348.

Before the Tudors came to the throne the kings of England were also the kings of western France and so, during the 14th and 15th centuries, the various lords who ruled in Ireland were largely left to themselves. The Tudors however took more of an interest in the affairs of Ireland, and they wanted to put a stop to the raids of the Gaelic Irish on areas under English rule. To do this, they ruthlessly put down any rebellions and even quashed inter-tribal feuds. English settlers were then brought in to settle their lands. The first of these plantations occurred in the mid-16th century in what is now Laois and Offaly. After the Desmond rising in Munster in 1585 came another plantation, and parts of south western Tipperary were planted at that time.

From 1593 until 1603 there was a countrywide war between the Gaelic Irish, who were supported by the French, and the Elizabethan English. The Irish were finally defeated and with the "*Flight of the Earls*" from Rathmullan, County Donegal in

1607, Ulster, which had previously been independent of English rule, was planted.

Expansion in the agricultural sector following a period of economic growth in Ireland from the mid-1730s led to rising prices and increase in trade. This increase in agricultural productivity lead to growth in related industrial development throughout the country.

10.4.2 Site-Specific Archaeological Background

There are nine Recorded Monuments within 1km of the proposed development, each of which is described below.

RMP MO017-035: enclosure

RMP MO017-035 is a large enclosure recorded 700m north west of the proposed development in Crossbane townland. It is represented as a large embanked oval enclosure on the First Edition Ordnance Survey map (1835) where it is recorded "*Caldragh fort*". It is a large oval, grass-covered area (96m north north east/south south west x 69.5m east north east/west south west) defined by a field bank (*c.* 2m wide x *c.* 1m high) from south east to south south west and a scarp (1.7m wide x 2m high at west north west) and hedge elsewhere. It has an external ditch or drain from north west to north to south east. There is a 1.8m wide entrance at the south east. Although the name "*Caldragh*" suggests a burial ground, there is no above-ground evidence for such a feature.

RMP MO017-036: ringfort

RMP MO017-036 is located in Crossreagh townland, 900m north east of the proposed development. It is depicted on McCrea's map of County Monaghan (1793) and Ordnance Survey mapping (www.archaeology.ie). It is a circular grass and rush-covered area (diameter 32m north east/south west x 29m north west/south east) defined by a grass-covered earthen bank and a complete outer fosse. An entrance with a causeway exists at the south east. Inside a gap in the bank are two slight circular depressions which are probably quarries.

RMP MO017-055: ringfort

RMP MO017-055 is located 100m north of Turbine 4 in Lislongfield townland. It is a circular grass-covered area (diameter 39m north east/south west x 37m north west/south east) defined by an earthen bank incorporated into a field bank and hedge, with traces of an outer ditch visible as a band of lush vegetation. There is no identifiable original entrance, but the hedge has been removed and the scarp lowered towards the south east and south west.

RMP MO017-056: enclosure

RMP MO017-056 is located in Drumgramph townland, 100m south of Turbine 6. It is depicted as an embanked rectangular enclosure on Ordnance Survey 6-inch maps. It is a rectangular grass-covered area (41m east/west x 40m north/south) defined by an overgrown earthen bank (*c.* 3m wide; internal height *c.* 0.5m; external height *c.* 1.8m), an outer ditch and outer bank at north, and scarps with hedges and outer drains. There is a ramp entrance (width of top 3.2m) at the eastern end, and another entrance gap (width of base 2m) at the west. The on-line National Monuments Service database (www.archaeology.ie) notes that this site may in fact be "*a small field*".

RMP MO017-060: ringfort

RMP MO017-060 is located in Lurganboy townland, 1km south west of Turbine 3. It is depicted as an earthwork on McCrea's map of County Monaghan (1793) and Ordnance Survey mapping (www.archaeology.ie). It is a sub-circular grass-covered area (50m north west/south east x 45m north east/south west) defined by a grass-covered earthen bank and remnants of a fosse from south east to south and at the north west. The original entrance and causeway are located at the east south east.

RMP MO017-061: ringfort

RMP MO017-061 is located 700m south east of Turbine 8 in Creeran townland. It is depicted as a fragment of an earthen bank on the First Edition (1835) Ordnance Survey 6-inch map, and an arc of hachures on later edition Ordnance Survey mapping. The perimeter survives from east to south west as an outer scarp and hedge, with an outer fosse from south east to south.

RMP MO017-062: ringfort

RMP MO017-062 is located in Lislea townland, 700m south west of Turbine 7. It is a circular overgrown area (diameter measuring c. 35m - 40m), defined by an earthen bank which is separated by a fosse from an outer bank and an outer fosse. Both fosses and the outer bank have been removed from south to west, and a lane occupies the outer fosse from north to south south east. The entrance through the inner and outer banks and a causeway are located at the north east.

RMP MO017-063: ringfort

RMP MO017-063 is located 900m south of Turbine 7 in Drumilkin townland. It is a circular grass-covered area (diameter 37m north east/south west x 36m north west/south east) defined by an earthen bank and an external fosse which survive from south to west to north east. The original entrance is located at the south east.

RMP MO017-069: enclosure

RMP MO017-069 is located on top of a drumlin in Drumanan townland, 55m south of Turbine 7 (see **Figure 10.8**). A sub-rectangular earthwork (c. 50m north north east/south south west x c. 50m west north west/east south east) is depicted at this location on historic cartographic sources. A sub-circular enclosure is suggested by a curving field bank. The field bank is extant but no archaeological feature is visible at ground level, although it appears to be recorded on aerial photography (www.bing.com/maps).

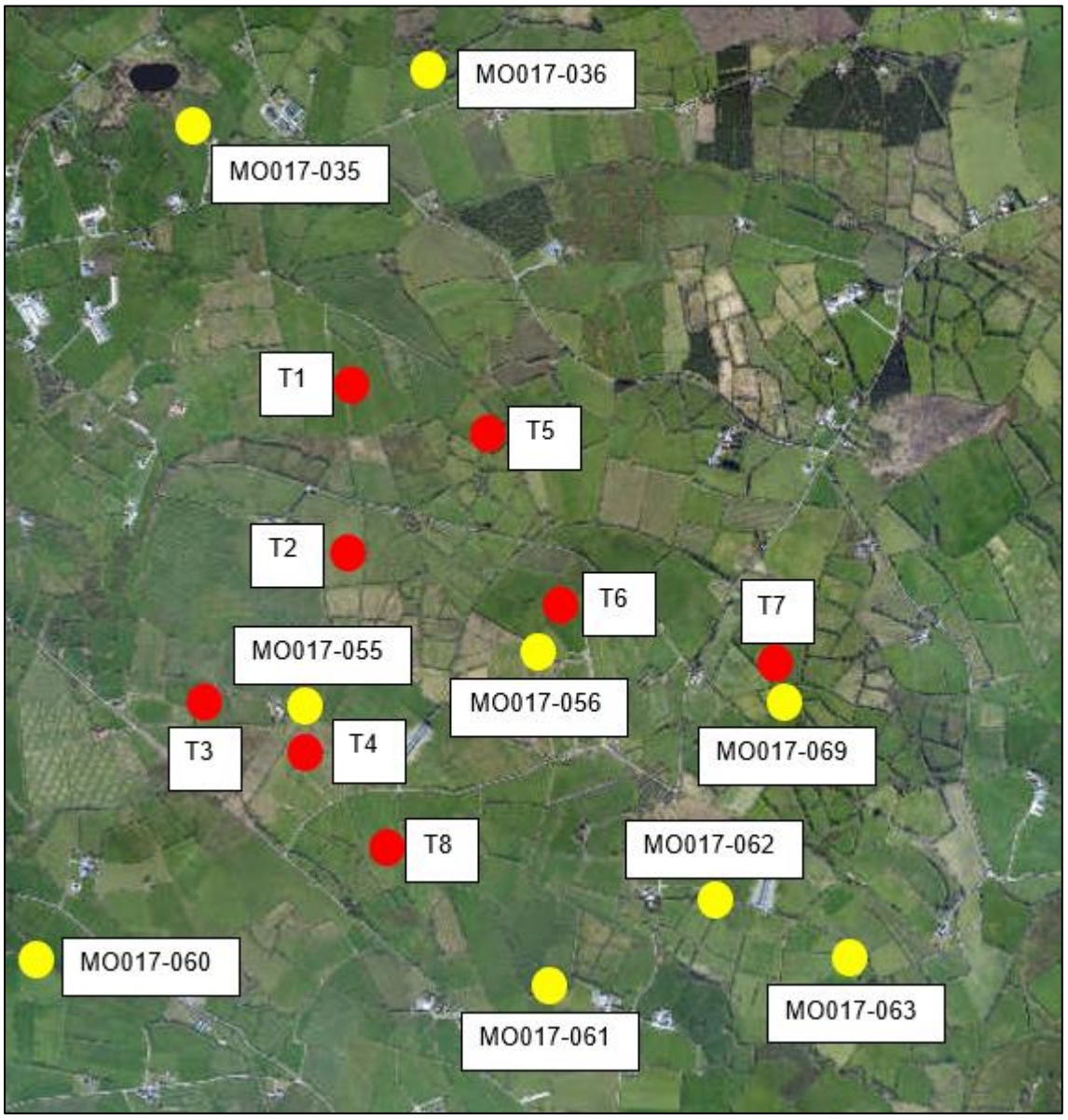

Figure 10.5: Recorded Monuments within 1km of the Proposed Wind Farm

There are three Recorded Monuments within 100m of the grid connection option to the Clones substation.

RMP MO017-034: ringfort and RMP MO017-034001: souterrain

RMP MO017-034 is a circular grass-covered area (c. 40m - 42m in diameter) defined by an overgrown earthen bank (width c. 5m; internal height 1m - 1.5m; external height 3m - 4m), with an outer ditch (width c. 3m; external diameter 0.3m - 0.6m) from south to west to north east. The original entrance (width of base 3.5m) is at the south east and there is a modern entrance at the south. Inside the bank at the northern end is a grass-covered depression (RMP MO017-034001) measuring 14.2m north/south x 3.4m east/west x 0.5m deep which might be a collapsed souterrain, although there is no evidence of any stones.

RMP MO017-035: enclosure- large

RMP MO017-035 is a large enclosure located at the tip of a short south/north spur in

Crossbane townland. It is represented as a large embanked oval enclosure on the First Edition Ordnance Survey map (1835) where it is recorded "*Caldragh fort*". It is a large oval, grass-covered area (96m north north east/south south west x 69.5m east north east/west south west) defined by a field bank (c. 2m wide x c. 1m high) from south east to south south west and a scarp (1.7m wide x 2m high at west north west) and hedge elsewhere. It has an external ditch or drain from north west to north to south east. There is a 1.8m wide entrance at the south east. Although the name "*Caldragh*" suggests a burial ground, there is no above-ground evidence for such a feature.

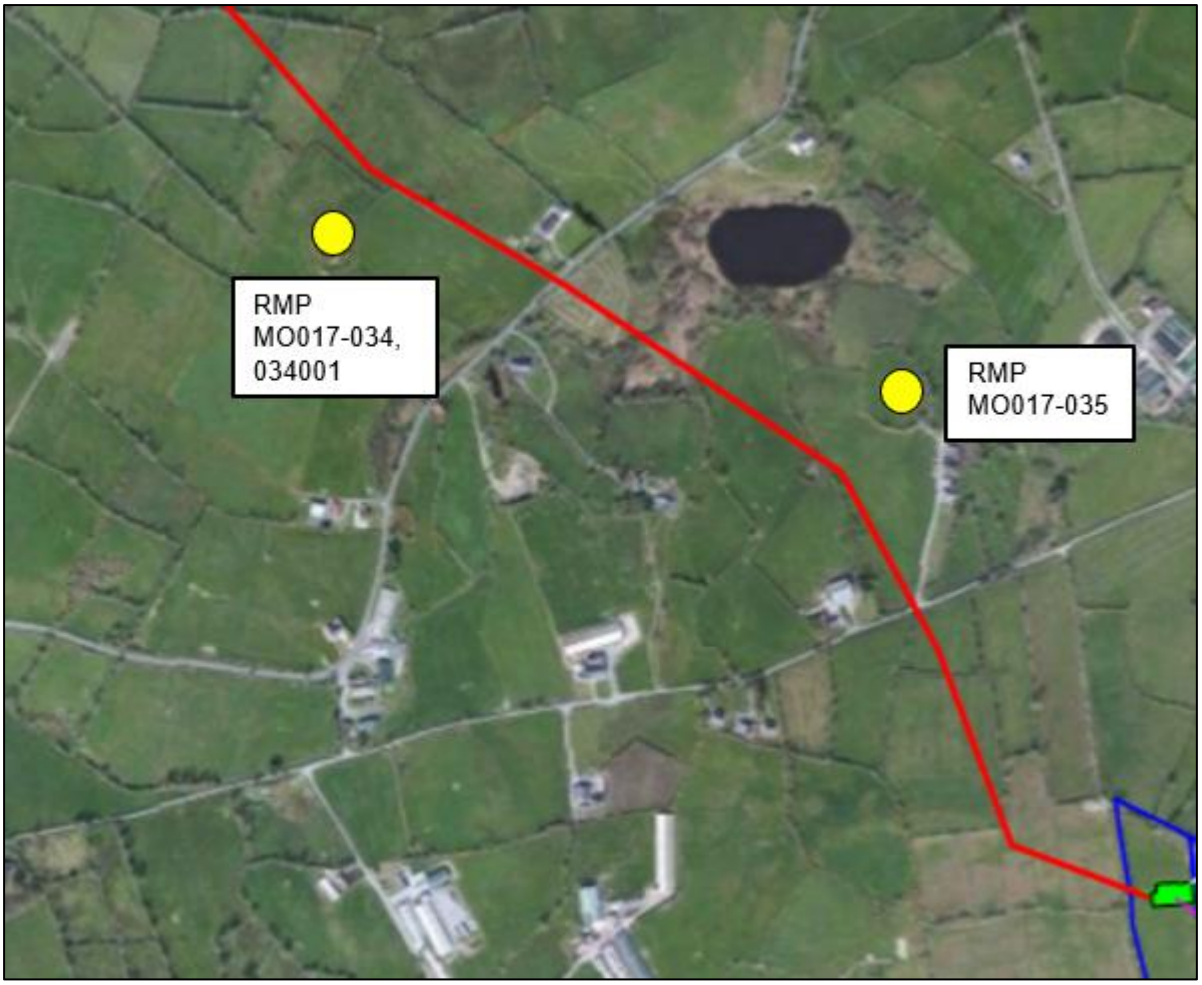

Figure 10.6: Recorded Monuments within 100m of the Grid Connection Option to Clones substation

There are seven Recorded Monuments within 100m of the grid connection option to the Shankill substation.

RMP MO021-011: linear earthwork

The Black Pig's Dyke is a name that is generally applied to a number of linear earthworks in south Ulster and north Connaught. They form discontinuous sections extending mostly through drumlin country from Donegal Bay in the west almost as far as Dundalk Bay in the east. Linear earthworks can date from the Late Bronze Age up to the high Medieval Period, but the Black Pig's Dyke dates mainly to the Iron Age (c. 600 BC-400 AD). It was usually positioned in the valleys and hollows between drumlins, and where it is on a slope it is generally south-facing. Where it survives

intact it consists of two banks with associated fosses on the up-slope side or a bank with fosses on either side. Where two banks are present the northern is invariably the stronger.

RMP CV016-007: ringfort

A raised circular area (internal diameter 26.8m) enclosed by a substantial earthen bank and a wide, deep fosse. The perimeter has been destroyed from north east to east to south east as a result of the construction of a dwelling-house and its associated farm buildings. The original entrance may have been either at the east north east or the north.

RMP CV016-057: ringfort

A largely levelled, raised circular area enclosed from south east to south to north west by a very low earthen bank and a wide, shallow fosse. From south east to west the perimeter is incorporated into a field boundary and has been ploughed-out elsewhere. The original entrance is not recognisable.

RMP CV016-058: ringfort

A report from 1968 noted a small circular area defined by a very low scarp, presumably representing the perimeter of the site, in this location. The site has been levelled and no longer survives above-ground.

RMP CV021-007: ringfort

Depicted as a large circular tree-covered enclosure on the First Edition Ordnance Survey map (1836) but it is not recorded on later cartographic sources. It is located on a drumlin hilltop and is not visible at ground level.

RMP CV021-008: ringfort

Marked "Fort" on the First Edition Ordnance Survey map and "Site of" on a later edition map. It is not visible at ground level and no longer survives above-ground.

RMP CV021-022: ringfort

A raised circular area (measuring approximately 43.5m north east/south west x 40m north west/south east) enclosed by a substantial earthen bank and a wide, deep fosse. A break in the bank with an accompanying causeway at east south east probably represents the original entrance.

Figure 10.7: Recorded Monuments within 100m of the Grid Connection Option to Shankill substation

There is one Recorded Monument within 100m of the proposed 110kV substation grid connection option.

RMP MO017-069: enclosure

Located on top of a drumlin. A sub-rectangular earthwork (c. 50m north north east/south south west x c. 50m west north west/east south east) is depicted at this location on historic cartographic sources. A sub-circular enclosure is suggested by a curving field bank. The field bank is extant but no archaeological feature is visible at ground level, although it appears to be recorded on aerial photography

(www.bing.com/maps).

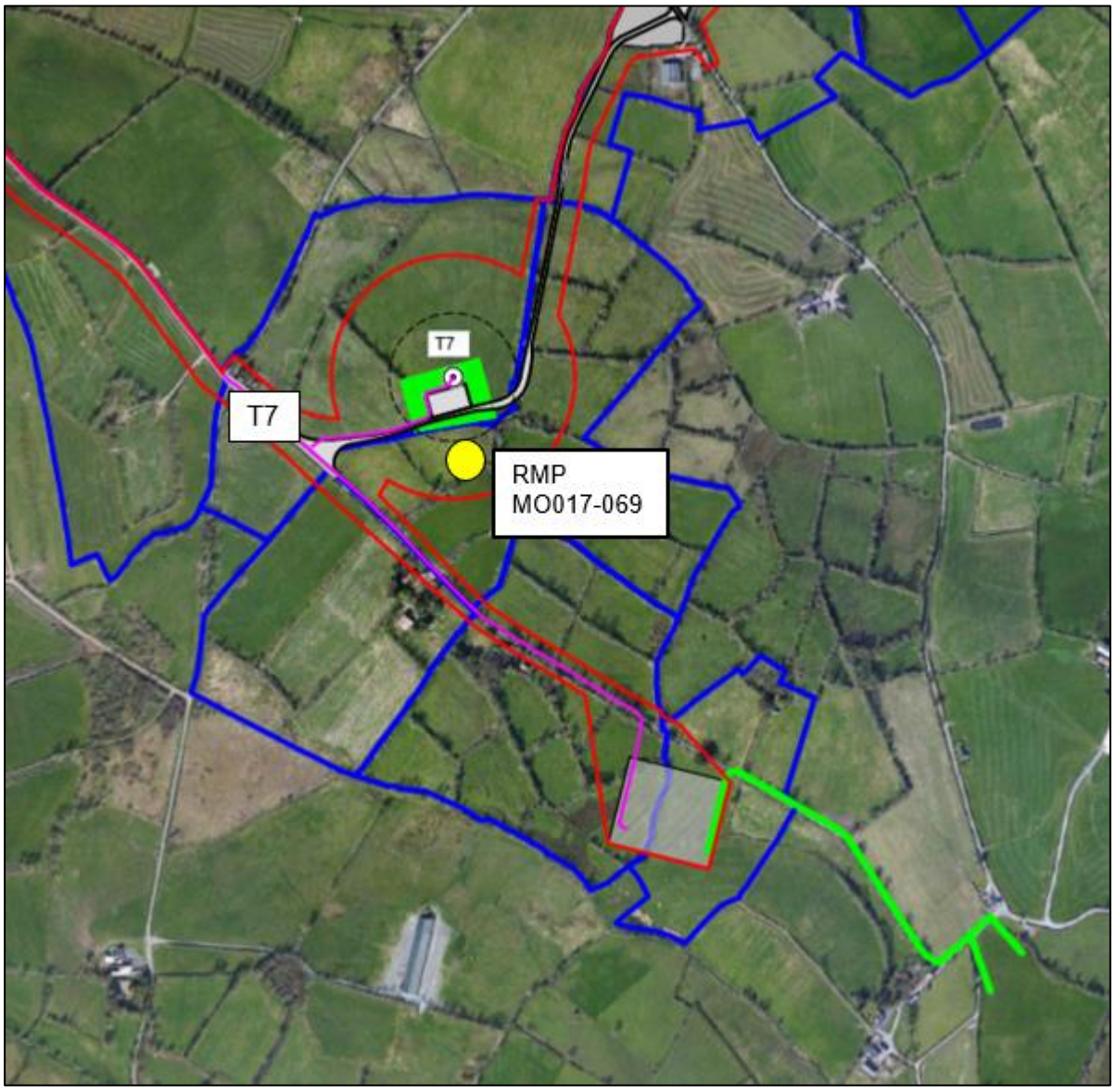

Figure 10.8: Recorded Monument within 100m of the 110kV Grid Connection Option

There are no RMP sites within any areas of land take required for the proposed permanent or temporary road upgrades.

10.4.3 Cartographic Analysis

Ordnance Survey Maps: First Edition 1:10,560 (1835, 1836)*; First Edition 1:2,500* (1907, 1908-1911) and *Third Edition 1:10,560* (1909-1910, 1913)

The access road between Turbine 1 and Turbine 2 will cross the line of a townland and a parish boundary, while the access road between Turbine 1 and Turbine 5 will cross two townland boundaries and a parish boundary. The access road between Turbine 2 and Turbine 4 will cross a townland boundary, while the access road to Turbine 3 will cross two townland boundaries and a parish boundary. The access road between Turbine 5 and Turbine 6 will cross a townland boundary. The road leading north east from Turbine 7 will cross three townland boundaries, and will be located immediately south of a townland boundary and a townland and parish

boundary. The proposed grid connection options will cross a number of townland, parish and barony boundaries, as well as a county boundary. Recent research suggests that:-

> "*hoards and single finds of Bronze Age weapons, shields, horns, cauldrons and gold personal objects can all be shown to occur on boundaries*" (Kelly 2006, 28).

A number of small vernacular structures are recorded on historic cartographic sources in the immediate vicinity of Turbine 1, although none are shown within the area of proposed land take/development footprint. None of these structures were recorded as surviving above-ground during the walkover surveys. A number of small vernacular structures are recorded in the vicinity of Turbine 4 and along the access road leading to Turbine 4. None of these structures were noted as surviving above-ground during the walkover survey, although it is noted that some of these areas were recorded as overgrown. A number of small vernacular structures are recorded on the historic cartographic sources in the vicinity of the access road leading north east from Turbine 7. None of these structures were recorded as surviving above-ground during the walkover survey.

There are no archaeological, architectural or cultural heritage features recorded within the land take/footprint of the proposed wind farm on historic cartographic sources. All three Editions of the Ordnance Survey maps record a number of vernacular structures, associated farm tracks, wells, springs, gravel pits, *etc*. in the general vicinity of the proposed grid connection options, the permanent road upgrade works and the temporary road upgrade works.

10.4.4 Aerial Photographs

Aerial photographs held by Ordnance Survey Ireland (map.geohive.ie) and Bing aerial photography (www.bing.com/maps) were consulted to look for the presence of archaeological and architectural remains within the land take of the proposed development.

Aerial photography records a similar landscape to that which was noted during the walkover surveys, with Turbines 1 – 8 and associated access tracks mainly located in medium-sized fields enclosed by mature field boundaries.

There was no evidence of any archaeological or architectural features recorded on aerial photography within the land take of the proposed wind farm, the three grid connection options or the road upgrade works .

10.4.5 Topographical Files of the National Museum of Ireland

Information on artefact finds and excavations from counties Monaghan and Cavan is recorded by the National Museum of Ireland. Location information relating to such finds is important in establishing prehistoric and historic activity in the study area.

There are no entries recorded in the Topographical Files within the land take of the proposed wind farm, the three grid connection options or the road upgrade works. Similarly, there are no entries recorded in close proximity to the proposed development (www.heritagemaps.ie).

10.4.6 Previous Archaeological Fieldwork

Reference to Summary Accounts of Archaeological Excavations in Ireland (www.excavations.ie) confirmed that no fieldwork programmes have been carried out within the proposed wind farm or within the footprint of the 3 no. grid connection

options or road upgrades.

10.4.7 Toponyms

Townland names are an important source in understanding the archaeology, geology, land-use, ownership and cultural heritage of an area. The proposed wind farm is located within the following townlands (non-exhaustive list).

Name	Irish	Translation
Closdaw	*Clais Damh*	Possibly translates as *David's trench or furrow*
Crossbane	*An Chrois Bhán*	*White cross*
Drumanan	*Droim Meannán*	Possibly translates as *Ridge of the kids*
Drumcrow	*Doirín an Chró*	Possibly translates as *Ridge of the hovel*
Drumgramph	*Droim gCreamha*	Possibly translates as *Ridge of the wild garlic*
Killyleg	*Coillidh Loig*	Possibly translates as *Wood of the hollow*
Lislongfield	*Lios Leamhchoille*	Translates as *Fort of the elm-wood*

Table 10.2: Toponyms

10.4.8 National Monuments

The Department of Culture, Heritage and the Gaeltacht maintains a database on a county basis of National Monuments in State Care: Ownership and Guardianship. The term National Monument is defined in Section 2 of the National Monuments Act (1930) as:-

> "*a monument or the remains of a monument the preservation of which is a matter of national importance by reason of the historical, architectural, traditional, artistic or archaeological interest attaching thereto*" (www.archaeology.ie).

There are no National Monuments in State Care within the proposed wind farm or within 1km of the proposed wind farm.

There are three National Monuments in State Care recorded in Clones, approximately 5km north west of Turbine 1: A round tower (National Monument Number 111 - Ownership); a high cross (National Monument Number 112 - Ownership) and a church (National Monument Number 111 - Ownership).

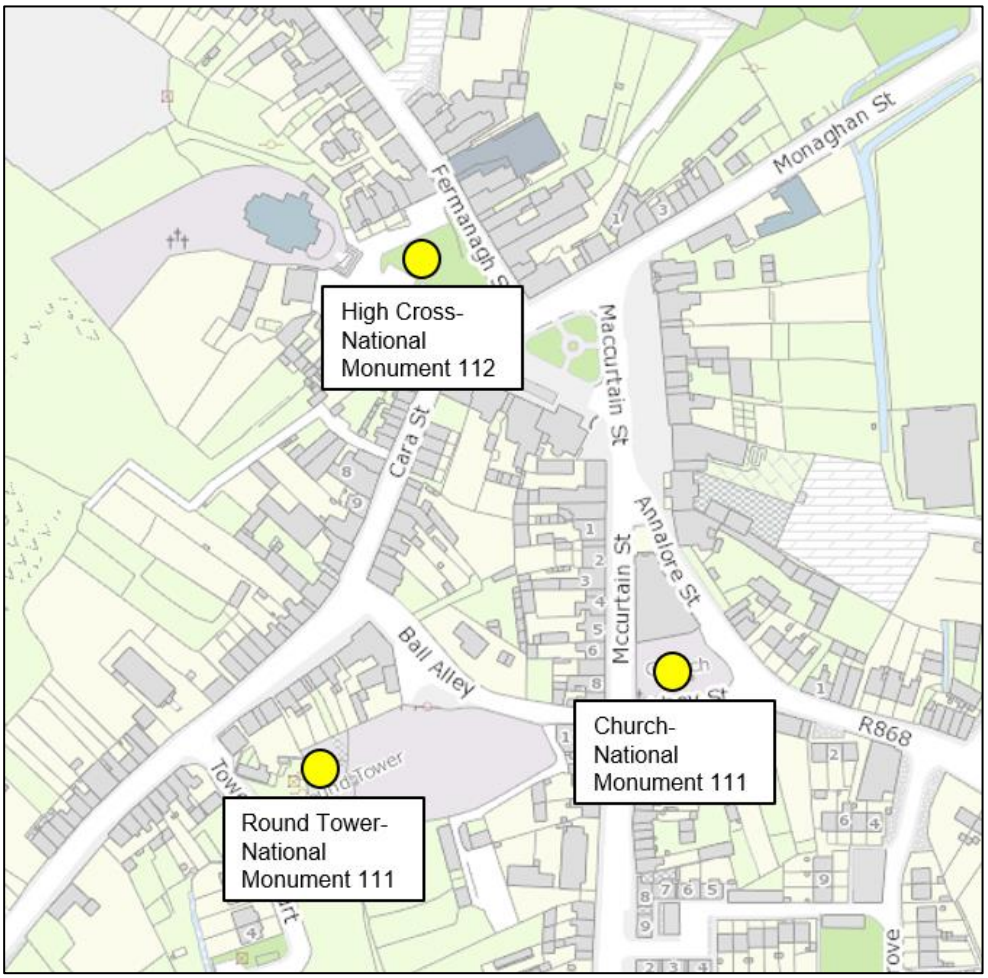

Figure 10.9: Location of National Monuments in State Care in Clones

Each of the 3 no. National Monuments in State Care are located within 1km of the grid connection option to the Clones substation. There are no National Monuments in State Care within 1km of the grid connection route option to Shankill or the 110kV substation option. There are no National Monuments in State Care within the land take or within 1km of the proposed road upgrades or temporary road upgrades.

The Department of Culture, Heritage and the Gaeltacht also maintains a database on a county basis of National Monuments with Preservation Orders or Temporary Preservation Orders.

There are no National Monuments with Preservation Orders or Temporary Preservation Orders within the proposed development or within 1km of the proposed development.

There is one National Monument with a Preservation Order within 5km of the proposed wind farm which comprises a ringfort (Preservation Order Number 3/1987), located approximately 2.5km west of Turbines 1 and 3, in the townland of Ture.

Figure 10.10: Location of National Monument with a Preservation Order within 5km of the proposed Wind Farm

There are no World Heritage Sites or sites included in the Tentative List as being under consideration for nomination to the World Heritage List within the proposed development site or within 5km of the proposed development.

10.4.9 County Development Plans

10.4.9.1 Archaeological Heritage

Monaghan County Development Plan 2019 - 2025

It is the Policy (PMP 1) of Monaghan County Council (Monaghan County Development Plan 2019, 134) to:-

> "*protect the Record of Monuments and Places listed in Appendix 5 (and any subsequent additions by the National Monuments Service) to ensure that the setting of the recorded monument or site is not materially injured and to co-operate with all recommendations of Statutory bodies in the achievement of this objective*".

It is also the Policy (PMP 2) of Monaghan County Council (*ibid.*, 135) to:-

> "*ensure that any development adjacent to an archaeological monument or site shall not be detrimental to the character of the archaeological site or its setting and shall be sited in a manner which minimises the impact on the monument and its setting. Development which is likely to detract from the setting of such a monument or site shall be resisted*".

The proposed development is located entirely beyond the limits of the *Clones Town*

Area of Archaeological Importance as recorded on Map CDP2 of the Monaghan County Development Plan (2019).

Cavan County Development Plan 2014 – 2020

It is the Policy (BHP5) of Cavan County Council (Cavan County Development Plan 2014, 185) to:-

> "*protect and enhance archaeological monuments, their settings and zones of archaeological potential*".

Appendix Two of the *Cavan County Development Plan* (2014) contains a list of *Industrial Heritage* sites. There are no Industrial Heritage sites within 100m of the grid connection option to Shankill substation.

Appendix Four Map 9 of the *Cavan County Development Plan* (2014) contains a list of *County Heritage Sites*. There are no archaeological, architectural or cultural heritage features recorded on the list of County Heritage Sites within 100m of the grid connection option to Shankill substation.

10.4.9.2 Architectural Heritage

Monaghan County Development Plan 2019 - 2025

It is the Policy (BHP 1) of Monaghan County Council (Monaghan County Development Plan 2019, 130) to:-

> "*protect and conserve all structures included in the Record of Protected Structures and to encourage the sympathetic re-use and long-term viability of such structures without detracting from their special interest and character*".

It is also the Policy (BHP 6) of Monaghan County Council (*ibid*., 130 - 131) to:-

> "*ensure that any new development proposed to or in the vicinity of a Protected Structure will complement and be sympathetic to the structure and its setting in terms of its design, scale, height, massing and use of materials and to resist any development which is likely to impact on the building's special interest and/or any views of such buildings and their setting*".

There are no Protected Structures within the proposed development area.

There are 42 no. Protected Structures recorded in Clones (*ibid*., Appendix 2[b]). The closest Protected Structure recorded in Clones to the proposed development is located approximately 500m west of the grid connection option to the Clones substation (Planter's Castle, the Diamond).

There are four Protected Structures recorded in Clones within approximately 5km of the proposed wind farm:-

- Court House, McCurtain Street;
- Round tower and Sarcophagus;
- Abbey, McCurtain Street; and
- Leonard Arms Hotel, McCurtain Street. Located 5km north west of Turbine 1.

There are an additional 39 no. Protected Structures recorded in the Monaghan County Development Plan within 5km of the proposed wind farm:-

- St. Mary's Catholic Church. Located 2.5km west of Turbine 1;
- Hilton House Gate Lodge. Located 3.7km west of Turbine 3;
- Hilton House. Located 4.5km west of Turbine 3;

- Hilton House Stable Yard. Located 4.5km west of Turbine 3;
- Hilton House Bell Tower. Located 4.5km west of Turbine 3;
- Cumber Road Bridge. Located 4.3km north west of Turbine 1;
- Scarvy House. Located 3.2km north west of Turbine 1;
- Scarvy House Farmyard Complex. Located 3.2km north west of Turbine 1;
- Scarvy House Gate Lodge. Located 3.3km north west of Turbine 1;
- Ferneyhill House. Located 4.3km north west of Turbine 1;
- Annaghkilly Railway Bridge. Located 3.5km north of Turbine 1;
- Ballynure Abandoned Railway Tunnel. Located 3.5km north of Turbine 1;
- Anlore Water Mill. Located 4.2km north of Turbine 1;
- Anlore Road Bridge. Located 4.3km north of Turbine 1;
- Killeevan Folly. Located 4km north east of Turbine 1;
- Killevan Rectory. Located 4.2km north east of Turbine 1 and Turbine 5;
- St. Laebhan's Church. Located 4.2km north east of Turbine 1 and Turbine 5;
- St. Livinus Church. Located 4.6km north east of Turbine 5;
- Glinch House. Located 4km north east of Turbine 5;
- Newbliss Presbyterian Church. Located 3.7km north east of Turbine 5;
- Former Coaching Inn, Main Street, Newbliss. Located 3.3km north east of Turbine 5;
- Millennium Pole. Main Street, Newbliss. Located 3.3km north east of Turbine 5;
- Market House, Main Street, Newbliss. Located 3.2km north east of Turbine 5;
- Former County Council Offices. Main Street, Newbliss. Located 3km north east of Turbine 5;
- Water Pump. Main Street, Newbliss. Located 3km north east of Turbine 5;
- Riverside Cottage Gate Lodge. Located 2.9km north east of Turbine 5;
- Lisdarragh Church of Ireland. Located 2.8km north east of Turbine 5;
- Lisdarragh House. Located 3.2km north east of Turbine 5 and Turbine 7;
- Aghabog Church of Ireland. Located 3.7km north east of Turbine 7;
- Annaghmakerig House. Located 2.8km north east of Turbine 7;
- Annaghmakerig House Gate Lodge. Located 3.8km north east of Turbine 7;
- Minore House. Located 3.8km south east of Turbine 8;
- Cortober Church of Ireland. Located 3.6km south east of Turbine 8;
- Anderson's Public House. Located 3.2km south east of Turbine 8;
- Drum Presbyterian Church. Located 3.5km south east of Turbine 8;
- Scotshouse Gate Lodge. Located 4km south west of Turbine 3;
- Church of the Immaculate Conception. Located 4.2km south west of Turbine 3;
- St. Andrew's Church. Located 4.4km south west of Turbine 3; and
- St. Andrew's Grave Yard. Located 4.4km south west of Turbine 3.

There are no Protected Structures within 100m of the grid connection options recorded in the Monaghan County Development Plan.

There are no Protected Structures within any areas of land take required for the permanent or temporary road upgrades recorded in the Monaghan County Development Plan.

There are no Architectural Conservation Areas or Proposed Architectural Conservation Areas within the proposed development recorded in the Monaghan County Development Plan.

There are three Architectural Conservation Areas in Clones as recorded in the Monaghan County Development Plan (*ibid*., 133); McCurtain Street (from the

Diamond to the Ball Alley); the Diamond and the Ball Alley; which are located within 1km of the grid connection option to the Clones substation.

With the exception of the above-mentioned Architectural Conservation Areas recorded in Clones, there are no Architectural Conservation Areas or Proposed Architectural Conservation Areas identified in the Monaghan County Development Plan within 5km of the proposed development.

Cavan County Development Plan 2014 – 2020

There are two Protected Structures recorded in the Cavan County Development Plan within 5km of the proposed wind farm:-

- Hall's Coppanagh flax mill. Located 4.3km south west of Turbine 8; and
- Hall's Coppanagh corn mill. Located 4.3km south west of Turbine 8

There are no Protected Structures within 100m of the grid connection option to the Shankill substation recorded in the Cavan County Development Plan.

There are no Architectural Conservation Areas or Proposed Architectural Conservation Areas recorded in the Cavan County Development Plan within 5km of the grid connection option to the Shankill substation.

10.4.10 National Inventory of Architectural Heritage

10.4.10.1 Building Survey

The National Inventory of Archaeological Heritage (NIAH) maintains a non-statutory register of buildings, structures *etc*. recorded on a county basis (www.buildingsofireland.ie).

There are no structures recorded on the NIAH within the land take of the proposed development.

There is one structure recorded on the NIAH within 1km of the proposed wind farm. This is Cornawall school (Registration Number 41401727), which dates from 1830 – 1850. The building was later used as an Orange Hall, and is noted as being of local architectural and social interest. It is located approximately 770m south east of Turbine 7.

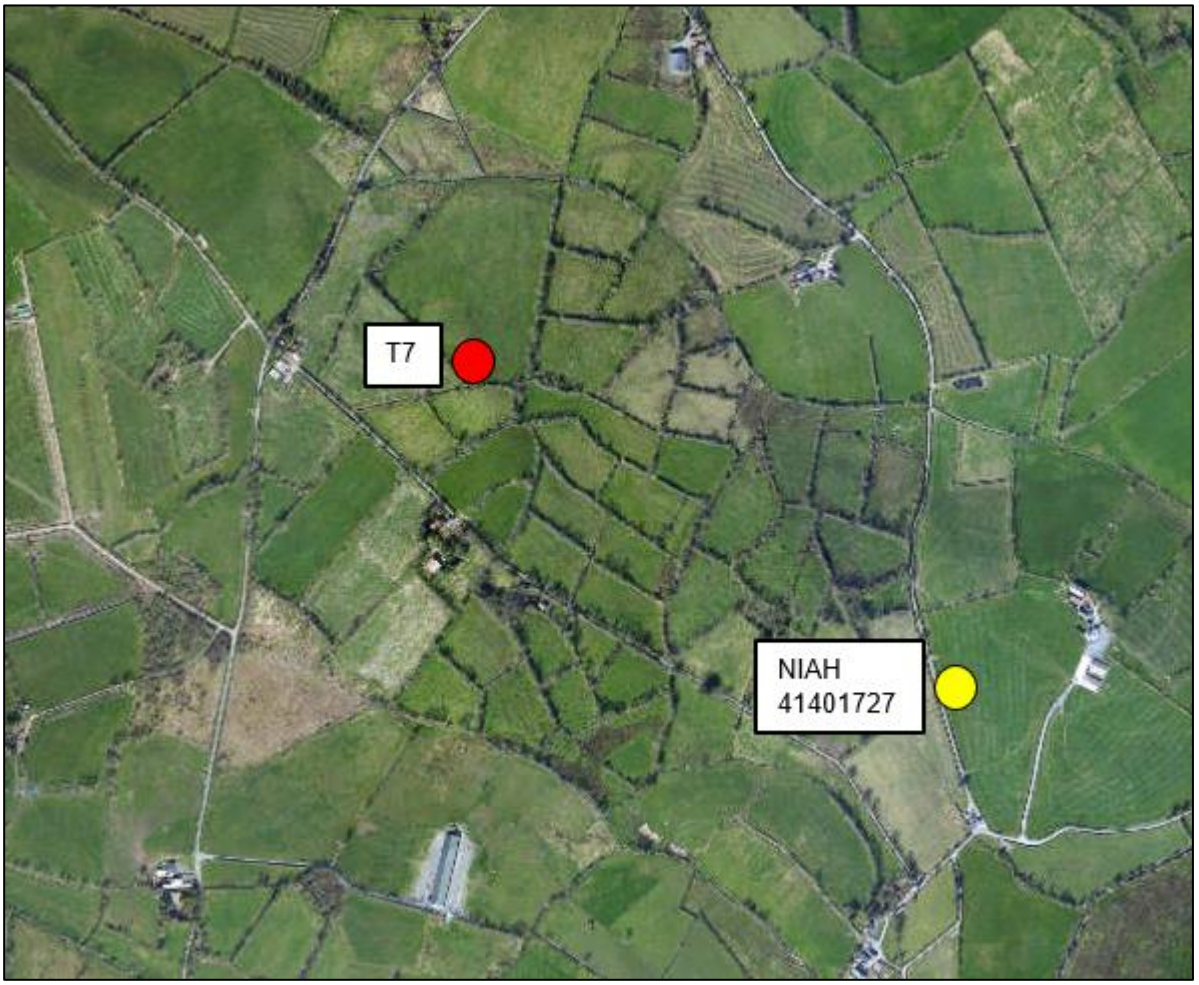

Figure 10.11: NIAH site within 1km of the proposed wind farm

There are no structures recorded on the NIAH within 100m of any of the grid connection options.

10.4.10.2 Historic Gardens and Designed Landscapes

There are no historic gardens or designed landscapes recorded on the NIAH within the proposed wind farm, the proposed grid connection option to Clones substation, the internal wind farm cable route or the proposed road upgrades or temporary road upgrades.

There is one historic garden located within the route of the grid connection option to the Shankill substation. It is recorded as Clonervy, and it is noted that the main features are unrecognisable but peripheral features are visible.

10.4.11 Site Visit

Field inspection is necessary to determine the extent, character and condition of archaeological, architectural and cultural heritage features, and can also lead to the identification of previously unrecorded or suspected sites and portable finds through topographical observation and local information. The site visits took place on 11th October 2018 and 13th September 2019.

Turbine 1 was shown to be located in a large open field which was dry underfoot and with short grass (see **Plate 10.1**). It slopes down to the south. Access to Turbine 1 will be across the same large open field.

Turbine 2 will be in a large open dry field with short grass and which slopes down gently to south and west (see **Plate 10.2**). Rushes were noted at the southern end of the field. Access to Turbine 2 will be across a field which slopes up to north and which generally has short grass. It is damp at the southern end.

Turbine 3 will be located in a large enclosed field which slopes down from the middle to north, south and east (see **Plate 10.3**). It has short grass and was dry underfoot. Access to Turbine 3 will be across undulating areas which are generally dry with short grass but occasionally wet underfoot.

Turbine 4 will be located in a narrow, linear enclosed field which slopes down to south (see **Plate 10.4**). It has short grass and was dry underfoot. Access to Turbine 4 will be past a modern farm building and across an area with short grass which slopes down to south. RMP MO017-055 (ringfort) (see **Plate 10.9**) is directly visible from the proposed location of Turbine 4.

Turbine 5 will be located in a field which was slightly wet underfoot and with ankle-length grass (see **Plate 10.5**). It slopes down quite sharply to north and west. Access to Turbine 5 will be across a flat wet area with rushes.

Turbine 6 will be located in a dry field with short grass and mature field boundaries (see **Plate 10.6**). Access to Turbine 6 will be across both wet boggy areas and dry fields with short grass. RMP MO017-056 (enclosure) (see **Plate 10.10**) is directly visible from the proposed location of Turbine 6.

Turbine 7 will be located in a dry field with short grass which slopes down to north and north east (see **Plate 10.7**). Access to Turbine 7 will be across a dry field with short grass. There is no above-ground evidence of RMP MO017-069 (enclosure) (see **Plate 10.11**) which is located immediately south of Turbine 7 and the location is directly visible from the proposed location of Turbine 7. The road leading north east from Turbine 7 will cross a combination of dry fields with short grass and areas of tall grass and reeds.

Turbine 8 will be located in a large open dry field with calf-length grass which slopes down to south (see **Plate 10.8**). Access to Turbine 8 will be across a dry field with short grass and which slopes down to south.

No archaeological, architectural or cultural heritage features were revealed within the footprint of the proposed wind farm as a result of carrying out the walkover surveys.

No archaeological, architectural or cultural heritage features were revealed within any areas of land take required for permanent or temporary road upgrades as a result of carrying out the walkover surveys.

The grid connection options to Clones substation and Shankill substation were assessed by means of detailed windshield surveys. The grid connection option to Clones substation will generally cross undulating medium-sized fields with short grass enclosed by mature field boundaries. The grid connection option to Shankill substation will traverse an undulating landscape consisting of small to medium-sized fields enclosed by mature boundaries. The 110kV grid connection option will extend from south of Turbine 7 in a south easterly direction along a local road to the location of the 110kV substation. The substation is located within four undulating small to medium-sized enclosed fields, although reeds and tall grass were noted at the southern and western ends. The underground electricity line will then proceed along the local road before extending into a large flat field made up of short grass

to the point of connection with the existing 110kV overhead line.

There is one historic garden located within the route of the grid connection option to the Shankill substation. The windshield survey confirmed the overhead grid connection will be located along the western boundary of the historic garden and, as noted in the NIAH survey, main features of the garden are unrecognisable but some peripheral features are visible.

No additional archaeological, architectural or cultural heritage features were revealed within the land take of the grid connection options as a result of carrying out the windshield surveys or site visits.

Plate 10.1: South of Turbine 1, looking north

Plate 10.2: South of Turbine 2, looking north east

Plate 10.3: West of Turbine 3, looking east

Plate 10.4: East of Turbine 4, looking west

Plate 10.5: South of Turbine 5, looking north west

Plate 10.6: West of Turbine 6, looking east

Plate 10.7: South west of Turbine 7, looking north east

Plate 10.8: South of Turbine 8, looking north

Plate 10.9: South of RMP MO017-055 (ringfort), looking north

Plate 10.10: Western end of RMP MO017-056 (enclosure), looking east

Plate 10.11: Location of RMP MO017-069 (enclosure), looking north east

10.5 Description of Likely Effects

All elements of the proposed development are assessed as having the potential to affect or impact upon archaeological, architectural or cultural heritage either during the construction phase through excavations, or through visual effects during the operational phase.

Construction phase effects may arise as a result of the development of turbine foundations and hardstand areas, access roads, underground cabling, grid connection works, road upgrade works and associated activities; each of which will involve the mechanical excavation of all topsoil and overburden down to and through geologically deposited strata at their identified locations. Operational phase effects may arise as a result of the visual effects resulting from the presence of the proposed wind turbines in the landscape.

As a result of carrying out this assessment, the following likely archaeological, architectural and cultural heritage direct, indirect, construction, operational, cumulative, residual and transboundary effects have been assessed. The following sections undertake an assessment of all elements of the development described in **Chapter 3**.

10.5.1 Construction Phase

10.5.1.1 Archaeological Resource

There are no Recorded Monuments, Protected Structures, Architectural Conservation Areas, NIAH structures or any additional statutorily protected archaeological, architectural or cultural heritage features within the footprint of the proposed development. While there are three RMPs located within the site boundary of the proposed development, there will be no construction activities undertaken within the extents of these RMPs. As a result, there will be no direct or indirect construction phase effect on the recorded archaeological resource.

There are nine Recorded Monuments within 1km of the proposed development, three of which are within 100m of the wind farm (i.e. those RMPs identified above). There are three Recorded Monuments within 100m of the grid connection option to the Clones substation. There are seven Recorded Monuments within 100m of the grid connection option to the Shankill substation. There is one Recorded Monument within 100m of the 110kV grid connection option. There are no Recorded Monuments in the vicinity of the proposed haul route upgrade works.

It is assessed that there will be a likely permanent, direct and imperceptible construction phase effect on any previously unrecorded archaeological remains that may exist within the development area and which may be discovered during the construction phase.

It is assessed that there will be a likely temporary, reversible and imperceptible visual and noise effect on the archaeological resource during the construction phase.

It is assessed that there will be a likely permanent, direct, and imperceptible construction phase effect on any townland, parish, barony or county boundaries that may be impacted on by the proposed development.

10.5.1.2 Architectural Resource

It is assessed that there will be no likely direct or indirect construction phase effect on the architectural resource.

10.5.1.3 Cultural Heritage Resource

There are no protected cultural heritage features within the footprint of the proposed development. As such, it is assessed that there will be no likely direct or indirect construction phase effect on the cultural heritage resource.

10.5.2 Operational Phase

10.5.2.1 Archaeological Resource

It is assessed that there will be a likely long-term, reversible and significant operational phase visual effect on three Recorded Monuments located within 100m of the proposed development (i.e. turbines T4, T6 and T7). This assessment has been reached predominately as a result of the visual effects which the operational development would likely exert of the Recorded Monuments due to their proximity. However, given that the proposed development would be operational for a period of 30 years, the effect is not assessed to be long-term in the context of the lifetime of the Recorded Monument and any effects are entirely reversible and will be reversed following the decommissioning phase.

It is assessed that there will be a likely long-term, reversible and moderate operational phase visual effect on the additional six Recorded Monuments located within the wind farm 1km study area. Similarly, this assessment has been reached due to the proximity of the proposed development to these Recorded Monuments. Any moderate effects which may occur will be reversed during the decommissioning phase.

It is assessed that there will be a likely long-term, reversible and imperceptible operational phase visual effect on Recorded Monuments located within 100m of the grid connection options. The visual effect of the installation of overhead lines is assessed to result in an imperceptible impact. The OHL (to both the Clones and Shankill substations) will comprise a simple 'pole and wire' arrangement, examples of which are commonplace in the Cavan and Monaghan landscapes, and are unlikely to exert any notable effect on the archaeological resource beyond 100m. The installation of UGL, facilitating connection at either end of the grid connection options to Clones and Shankill and connecting to the 110kV substation, will not result in any visual effects during the operational phase.

There are three National Monuments in State Care recorded in Clones. It is assessed that there will be a likely long-term, reversible and, at most, imperceptible operational phase visual effect on these National Monuments. Visual representations of the proposed development have been prepared from each of the National Monuments (**Annex 9.1**). These photomontages demonstrate that the proposed development will be entirely imperceptible in the landscape and are obscured from view by vegetation and the built environment in Clones.

There is one National Monument with a Preservation Order within 5km of the proposed wind farm. It is assessed, based on analysis of photomontages prepared for the proposed development, that there will be a likely long-term, reversible and imperceptible operational phase visual effect on this National Monument with a Preservation Order. Following decommissioning, any imperceptible effects will be reversed.

10.5.2.2 Architectural Resource

There are 42 no. Protected Structures recorded in Clones. There are an additional 41 no. Protected Structures within 5km of the proposed development. It is assessed,

based on analysis of photomontages prepared for the proposed development, that there will be a likely long-term, reversible and slight-imperceptible operational phase visual effect on these Protected Structures. Following decommissioning any slight-imperceptible effects will be reversed.

There are three Architectural Conservation Areas in Clones. It is assessed, based on analysis of photomontages prepared for the proposed development, that there will be a likely long-term, reversible and, at most, imperceptible operational phase visual effect on these Architectural Conservation Areas. The photomontages prepared from Clones (**Annex 9.1**) demonstrate that the proposed development will not be easily identified in the landscape and any views and prospects of the proposed development are unlikely to significantly impinge on the character of the Architectural Conservation Areas. Following decommissioning, any imperceptible effects will be reversed.

There is one structure recorded on the NIAH within 1km of the proposed wind farm. It is assessed, based on analysis of photomontages prepared for the proposed development, that there will be a long-term, reversible and moderate operational phase visual effect on this NIAH structure. Following decommissioning any moderate effects will be reversed.

There is one historic garden recorded on the NIAH within the grid connection option to the Shankill substation. It is assessed that there will be a long-term, reversible and imperceptible operational phase visual effect on this NIAH historic garden. The grid connection, at this location, would comprise OHL and such infrastructure will not result in a significant visual effect on the historic garden. Following decommissioning any imperceptible effects will be reversed.

10.5.2.3 Cultural Heritage Resource

There are no protected cultural heritage features within the footprint of the proposed development. As such, it is assessed that there will be no likely direct or indirect operational phase effect on the cultural heritage resource.

10.5.3 Decommissioning Phase Effects

It is assessed that there will be no likely decommissioning phase effects on the archaeological, architectural or cultural heritage resource. The decommissioning phase will result in the removal of wind farm infrastructure and is likely to result in an improvement in the archaeological, architectural and cultural heritage resource. However, any improvement will be negligible given the generally imperceptible nature of the predicted construction and operational phase effects.

10.5.4 Cumulative Effects

Cumulative effects are defined as:-

> "*The addition of many minor or significant effects, including effects of other projects, to create larger, more significant effects*" (Environmental Protection Agency 2017, 52).

Firstly, it is assessed that there is no likelihood for the proposed development, grid connection options or haul route upgrade works to act, in combination with each other, to result in cumulative effects during either of the construction, operation or decommissioning phases of development.

Secondly, and in terms of cumulative effects with other existing, permitted or proposed development, it is assessed that there are no developments which could

act in combination with the proposed development to result in direct or indirect construction phase effects. During the operational phase, it is assessed that there are no developments which have the likelihood to result in cumulative visual effects with the proposed development.

10.5.5 Transboundary Effects

Given the proximity of the proposed development site to the boundary with Northern Ireland, this assessment has also undertaken an appraisal of the likelihood for effects on the archaeological, architectural and cultural heritage resource in Northern Ireland.

As part of the EIAR scoping process, a scoping response was received from Historic Environment Division (HED - Department for Communities) regarding likely operational phase visual effects on two Scheduled Historic Monuments and a number of Listed Buildings in Northern Ireland (www.communities-ni.gov.uk/services/historic-environment-map-viewer). The response noted that the proposed development is located approximately 7km south east of the two Scheduled Historic Monuments; the Black Pig's Dyke (FER 262:23,29) and Lislea hilltop enclosure (FER 262:10). In addition, the response from HED noted that the proposed development has the potential to visually impact on Listed Buildings of special architectural and historic importance.

Wireframe visualisations, prepared using a bare earth model, which does not account for the screening effect of buildings or vegetation, have been prepared from all the Listed Buildings in Northern Ireland located within 10km of the proposed wind turbines and are enclosed at **Annex 10.1**. The wireframes illustrate that there is no location where the proposed development will dominate any view to or from a Listed Building or affect the context or setting of a Listed Building. From the majority of locations, it is only possible to view the upper extents of the turbines and the presence of intervening vegetation, particularly on ridgelines, will further reduce any visibility. Visual representations (photomontages) and wireframes have been prepared from the vicinity of the two Scheduled Historic Monuments (see **Annex 10.1**) which illustrate that there is no location where the proposed turbines will dominate any view to or from the Scheduled Historic Monuments or affect the context or setting of either of the Scheduled Historic Monuments.

Therefore, it is assessed that there will be a long-term, reversible and at most imperceptible operational phase visual effect on the two Scheduled historic monuments and Listed Buildings recorded in Northern Ireland. Following decommissioning ,any imperceptible effects will be reversed.

10.5.6 Do Nothing Effects

If the proposed development were not to proceed, there would be no likely effect on the archaeological, architectural or cultural heritage resource.

10.5.7 Interactive Effects

The excavation of soil during the construction of the proposed development may result in the discovery of previously unrecorded cultural heritage features; and, therefore, it is considered that there is a likelihood for interaction between land and soil and cultural heritage. However, on the basis of this assessment, it is concluded that the level of interaction will likely not be significant.

During the operational phase, it is assessed that the proposed development will likely result in generally imperceptible effects on cultural heritage features; and, therefore,

will result in an interaction between cultural heritage and landscape. However, this assessment concludes that the level of interaction will not likely be significant.

10.5.8 Risk of Accidents

It is assessed that there will be no likely effects on the archaeological, architectural or cultural heritage resource as a result of any unplanned accidents which may occur during either the construction, operational or decommissioning phases.

10.5.9 Worst Case Effects

It is assessed that, under a 'worst-case' scenario, and in the absence of mitigation, there would be a likely permanent and direct construction phase effect on any previously unrecorded archaeological remains that may exist within the proposed development area.

10.6 Mitigation and Monitoring Measures

10.6.1 Mitigation Measures

- Post-consent pre-construction test trenching shall be carried out in areas of the development footprint in close proximity to the three Recorded Monuments located within 100m of proposed wind turbines T4, T6 and T7. Test trenching will be carried out under licence to the Department of Culture, Heritage and the Gaeltacht and the National Museum of Ireland. Provision will be made for the full excavation and recording of any archaeological features or deposits that may be exposed during test trenching;
- Archaeological monitoring of all excavations associated with construction of the wind farm shall be carried out. Monitoring will be carried out under licence to the Department of Culture, Heritage and the Gaeltacht and the National Museum of Ireland. Provision will be made for the full excavation and recording of any archaeological features or deposits that may be exposed during monitoring;
- Archaeological monitoring of all excavations in the vicinity of Recorded Monuments located within 100m of the grid connection options shall be carried out. Monitoring will be carried out under licence to the Department of Culture, Heritage and the Gaeltacht and the National Museum of Ireland. Provision will be made for the full excavation and recording of any archaeological features or deposits that may be exposed during monitoring;
- Archaeological monitoring of all excavations associated with installation of UGL elements of the grid connection options shall be carried out. Monitoring will be carried out under licence to the Department of Culture, Heritage and the Gaeltacht and the National Museum of Ireland. Provision will be made for the full excavation and recording of any archaeological features or deposits that may be exposed during monitoring;
- Intermittent archaeological monitoring of all excavations associated with construction of the OHL elements of the grid connection options shall be carried out. Monitoring will be carried out under licence to the Department of Culture, Heritage and the Gaeltacht and the National Museum of Ireland. Provision will be made for the full excavation and recording of any archaeological features or deposits that may be exposed during monitoring;
- Archaeological monitoring of all excavations at townland, parish, barony or county boundaries shall be carried out. Monitoring will be carried out under licence to the Department of Culture, Heritage and the Gaeltacht and the National Museum of Ireland. Provision will be made for the full excavation and

recording of any archaeological features or deposits that may be exposed during monitoring; and
- Written and photographic records will be created of any townland, parish, barony or county boundaries that may be impacted on. The written and photographic records will be created in advance of excavations commencing on site.

10.6.2 Micrositing

Given their proximity to existing heritage features, it is recommended that micrositing should not be considered in respect of turbines T4, T6 or T7 should it result in turbines being located within 50m of the Recorded Monuments in these three areas. In addition, it is recommended that micrositing should not be considered in respect of turbines T4, T6 or T7 should it result in associated infrastructure being located within 10m of the Recorded Monuments in these three areas.

The micrositing of other infrastructure, within the tolerances outlined in **Chapter 3**, will not result in any adverse effect on archaeological, architectural or cultural heritage features.

10.6.3 Monitoring Measures

With the exception of the mitigation measures recommended in **Section 10.6.1** which will be implemented in advance of and during the construction phase, there are no future monitoring requirements.

10.7 Residual Effects

Following the implementation of the above mitigation measures, it is concluded that there will be no likely residual effects during the construction of decommissioning phases of the proposed development. Residual effects during the operational phase are addressed below.

10.7.1 Archaeological Resource

It is assessed that there will be a likely residual, long-term, reversible and significant operational phase visual effect on three Recorded Monuments located within 100m of the proposed wind turbines.

It is assessed that there will be a likely residual, long-term, reversible and moderate operational phase visual effect on the additional six Recorded Monuments located within the wind farm 1km study area.

It is assessed that there will be a likely residual, long-term, reversible and imperceptible operational phase visual effect on the Recorded Monuments located within 100m of the grid connection options.

It is assessed that there will be a likely residual, long-term, reversible and at most imperceptible operational phase visual effect on three National Monuments in State Care recorded in Clones.

It is assessed that there will be a likely residual, long-term, reversible and imperceptible operational phase visual effect on one National Monument with a Preservation Order within 5km of the proposed wind farm.

It is assessed that there will be a likely residual, long-term, reversible and at most imperceptible operational phase visual effect on two Scheduled Historic Monuments recorded in Northern Ireland.

It is assessed that there will be no likely construction or operational phase effects on the archaeological, architectural or cultural heritage resource as a result of any proposed road upgrade works.

10.7.2 Architectural Resource

It is assessed that there will be a likely residual, long-term, reversible and slight-imperceptible operational phase visual effect on Protected Structures located in Clones and recorded within the wind farm 5km study area.

It is assessed that there will be a likely residual, long-term, reversible and at most imperceptible operational phase visual effect on the three Architectural Conservation Areas in Clones.

It is assessed that there will be a likely residual, long-term, reversible and moderate operational phase visual effect on one structure recorded on the NIAH within 1km of the proposed wind farm.

It is assessed that there will be a likely residual, long-term, reversible and imperceptible operational phase visual effect on one historic garden recorded on the NIAH within the grid connection route option to the Shankill substation.

It is assessed that there will be a likely residual, long-term, reversible and, at most, imperceptible operational phase visual effect on a number of Listed Buildings recorded in Northern Ireland.

10.8 Summary

The results of this assessment, in relation to construction, operation, decommissioning, cumulative and transboundary effects have been set out in the foregoing sections. This assessment has concluded that the effect on the archaeological, architectural and cultural heritage resource of the proposed development (wind farm, grid connection options and haul route upgrades) will in general be long-term, reversible and imperceptible.

There will be no likely significant direct or indirect construction or operation phase effect on the recorded archaeological, architectural and cultural heritage resource. However, there will be a likely long-term, reversible and significant visual effect on the setting of three Recorded Monuments located within 100m of the proposed wind turbines, a likely long-term, reversible and moderate visual effect on the setting of six Recorded Monuments located within the wind farm 1km study area and a likely long-term, reversible and moderate visual effect on the setting of one NIAH structure within 1km of the proposed wind farm. In addition, there will be a likely long-term, reversible and slight-imperceptible visual effect on the setting of Protected Structures located in Clones and recorded within the wind farm 5km study area.

Following the implementation of mitigation measures outlined in this chapter, the likely residual effects of the proposed development remains imperceptible, however there will be a likely residual long-term, reversible and moderate visual effect on the setting of six Recorded Monuments located within the wind farm 1km study area and a likely residual long-term, reversible and moderate visual effect on the setting of one NIAH structure within 1km of the proposed wind farm. In addition, there will be a likely residual long-term, reversible and slight-imperceptible visual effect on the setting of Protected Structures located in Clones and recorded within the wind farm 5km study area.

This assessment has also concluded that the operation of the proposed development will likely result in a residual, long-term, reversible and significant visual effect on the setting of three Recorded Monuments located within 100m of a proposed wind turbine. However, as noted above, the proposed development provides for an operational phase of 30 years and, as a result, any likely effects will be entirely reversed following the decommissioning of the proposed wind turbines.

This assessment has further concluded that the proposed development will not result in any likely significant cumulative effects with other existing, permitted or proposed development; including those identified at **Chapter 1**. Similarly, this assessment has found that there is no likelihood for any monuments or listed buildings in Northern Ireland to be significantly affected by the proposed development such that would result in any likely significant transboundary effects.

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