15.0 CULTURAL HERITAGE

15.1 INTRODUCTION

This chapter comprises a cultural heritage impact assessment that addresses archaeological and architectural heritage (under the overall term 'cultural heritage') of the proposed Castlebanny Wind Farm in County Kilkenny as described in Chapter 2 of this EIAR (Description of proposed development). The study identifies previously recorded archaeological and architectural sites within and near to the wind farm project area, along the proposed route of the grid connection cable and at locations of turbine delivery route (TDR) works. This background information is considered in relation to the proposed project designs and informed the methodology and targets of ground surveys of the wind farm and associated works which were carried out in June and November 2020. The results of the study take into account the potential direct and indirect impact of the wind farm development and associated works on cultural heritage.

The Castlebanny Wind Farm project area is located in the South Eastern Uplands of County Kilkenny, on the north/south aligned ridge of Mullennakill Mountain, bounded to the east by the Arrigle River valley with separate sections for the TDR works to the south and southwest. The nearest towns to the project area are Mullinavat, 4.1km to the southwest, Ballyhale, 1.9km to the northwest and Knocktopher, 4km to the northwest; Thomastown is located 6.5km to the north of the project area. The main development area for the wind farm spans eleven townlands: Ballymartin, Ballytarsna, Cappagh, Castlebanny, Coolnahau, Derrylacky, Derrynahinch, Kilvinoge, Glenpipe, Mullennakill in the Barony of Knocktopher and Castlecosker in the Barony of Gowran. The grid connection cable route additionally crosses the townlands of Garrandarragh in the Barony of Ida and Ballyvool in the Barony of Gowran. There are a number of locations which require temporary additional works to accommodate oversize load delivery to site (for turbine components). The current application includes temporary works at two locations in the townland of Ballynoony West. A number of other temporary works areas are not forming part of the current application but are assessed as part of this EIAR and are located within the townlands of Garrandarragh, Granny, Kilmurry, and Rathpatrick, Co Kilkenny, and Ballyduff East, Co. Waterford.

Numerous archaeological monuments are located in the vicinity of the project area: more than 300 monuments are recorded within 5km of the project area of which 28 are within 1km. To the north and east are early medieval and medieval sites including religious sites associated with the early Christian bishop St Molin. The area to the south of the wind farm has a particular concentration of prehistoric features including megalithic tombs, standing stones and burnt mounds (fulachtaí fia).

The cultural heritage assessment addresses three aspects of the development and their potential impacts: 1. the wind farm where construction of turbines, access tracks, compounds and associated works will directly and permanently impact the ground and where the turbines will have a prominent residual impact on the landscape; 2. the grid connection cable route (including loop in/out masts) which will be installed across both open farmland and along existing tracks, running east of the wind farm; and 3. roadside works at eight locations for the TDR between the N29 and N25 in County Waterford and the M9 and R704 in County Kilkenny.

There are two previously recorded archaeological monuments within the area of the wind farm – a structure (KK036-040) and a ringfort/rath (KK032-029); 26 other recorded monuments are located within a 1km radius of the project area; the grid connection cable route passes beside a

ringfort/rath at Ballyvool (KK032-033); and one of the TDR works areas runs beside the location of a recorded castle at Ballynoony West (KK040-003).

Designs for the wind farm, grid connection cable route and TDR works were mapped in relation to recorded archaeological and architectural sites. Development areas were inspected to assess the potential impact of the works on recorded and unrecorded sites. Background research, mapping and field survey inform proposed mitigation measures regarding the cultural heritage of the project area.

15.1.1 Statement of Authority

Personnel involved in the preparation of this chapter are William Anderson, Declan Moore and Nigel Malcolm.

William Anderson (BA, MA, PhD) is a senior archaeologist with Moore Group and has more than 15 years' experience in archaeological research and consulting.

Declan Moore (BA, MIAI) is Managing Director of Moore Group; he has been a licence eligible archaeologist in Ireland since 1999 and has 30 years' experience in archaeological consulting.

Nigel Malcolm (BSc) has extensive GIS and mapping experience and has worked on all large-scale infrastructural developments that Moore Group has undertaken.

15.2 METHODOLOGY

This study aims to assess the baseline archaeological, architectural and cultural heritage environment to evaluate the potential or likely impacts that the proposed development will have on this environment and, where appropriate, to suggest mitigation measures to ameliorate potential impacts, in accordance with the policies of:

- Department of Culture, Heritage and the Gaeltacht;
- The National Monuments Acts (1930-2005);
- Kilkenny County Development Plan (2014-2020); and
- Best practice guidelines, policies and frameworks as listed below:
  - Department of Culture, Heritage and the Gaeltacht, 1999. Frameworks and Principles for the Protection of the Archaeological Heritage, Government publications, Dublin.
  - Department of Culture, Heritage and the Gaeltacht, 1999. Policy and Guidelines on Archaeological Excavation. Government Publications, Dublin.
  - Department of the Communications, Climate Action and Environment 2000. Landscape and Landscape Assessment. Guidelines for Planning Authorities.
  - EPA 2015. Revised Guidelines on the Information to be contained in Environmental Impact Statements - Draft
  - EPA 2015. Advice Notes for Preparing Environmental Impact Statements – Draft.
  - The Heritage Council 2000. Archaeology & Development: Guidelines for Good Practice for Developers. Kilkenny: The Heritage Council of Ireland.
  - Kilkenny County Development Plan 2014-2020. Kilkenny County Council.
  - The Planning and Heritage Section of the Department of Communications, Climate Action and Environment. Sites and Monuments Record, County Dublin.
  - MoLAS 1994. Museum of London Archaeology Service Archaeological Site Manual. Third Edition.
  - National Monuments Act 1930-2004.

- National Museum of Ireland Topographical Files, County Kilkenny.

For the purposes of this report the definition of "cultural heritage" is taken broadly from the UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage, 1972, which considers the following to be "cultural heritage":

- Tangible cultural heritage;
- movable cultural heritage (artefacts);
- immovable cultural heritage (monuments, archaeological sites, etc);
- underwater cultural heritage (shipwrecks, underwater ruins and cities); and
- Intangible cultural heritage (oral traditions, folklore etc).

The assessment assesses three aspects of the project separately: the wind farm, the grid connection cable route and the TDR works. This is due to the different nature of the potential direct and indirect impacts of these developments: the turbines and associated infrastructure will have an impact upon and below the ground and will have a prominent and lasting above-ground impact; the cable is along a linear alignment and will be installed below ground by trenching along both previously unbuilt ground and existing tracks and a short section of public road; the TDR works will be also have a limited above-ground impact and are temporary in nature.

Spatial data for the proposed turbine locations and the area for the wind farm and grid connection cable route (the project area) were added to the Geographical Information System (GIS). Buffer zones centred on the project area were used to assess the presence and proximity of archaeological monuments and architectural features within these zones and consider the potential direct and indirect (visual) impacts of the development on these sites. For the TDR works, the proposed works areas were added to the GIS, and land along and immediately beside these areas was assessed. TDR works areas were considered separately from the main project areas due to their distance from the main development and the localised impact of the works.

All known cultural heritage sites within the project area and buffer zones were reviewed on the Archaeological Survey of Ireland (ASI) along with aerial photography and Ordnance Survey Ireland (OSI) mapping. Sites mapped included the following:

- UNESCO World Heritage Sites including the tentative list of candidate sites;
- National Monuments, be they in the ownership or guardianship of the State, in the ownership of a local authority or monuments under preservation orders;
- Record of Monuments & Places (RMP) and Sites and Monuments Record (SMR) from www.archaeology.ie;
- Records of Protected Structures from Kilkenny County Council;
- National Inventory of Architectural Heritage (NIAH) for Co. Kilkenny; and
- Demesnes Landscapes and Historic Gardens indicated on the OSI First Edition Mapping.

Townlands crossed by the area for the proposed wind farm, grid connection cable and TDR works were listed and cross-referenced with information on:

- National Monuments, available from www.archaeology.ie;
- Preservation Orders, a list available from the National Monuments Service; and
- Lists contained into the Report of the Commissioners or Church Temporalities of Ireland (1879) which contain lists of Churches, School Houses and Graveyards that were vested in the Representative Church Body and the Burial Boards under The Irish Church Act,

1869. These sites which have the potential to be in the ownership of the Local Authorities were highlighted as potential National Monuments.

The Kilkenny County Development Plan (2014-2020) was reviewed to obtain a comprehensive understanding of the cultural heritage of the wind farm project area. The development plan contains lists of cultural heritage sites including national monuments, recorded monuments, architectural conservation areas, protected structures and protected views as well as baseline assessments of the landscape character of the county.

Chapter 8 of the Development Plan outlines the county's heritage policies and objectives that aim to protect and promote the county's archaeological, architectural and cultural heritage. This includes policies and objectives on archaeological heritage, protected structures, architectural conservation, country houses and demesnes and vernacular architecture. The present assessment was carried out with due regard to these policies and other relevant information contained within the plans.

To assess the potential impact of the proposal the following sources were also consulted or reviewed:

- Excavations Bulletin;
- Topographical files of the National Museum of Ireland;
- Cartographic Sources;
- Toponyms;
- Aerial photographs;
- Published archaeological inventories; and
- Documentary Sources.

Following the desktop assessment, the project area was inspected by Declan Moore (Moore Group) on 27 June 2019 and by William Anderson (Moore Group) on 23-24 June 2020 and 9 November 2020. The inspections assessed recorded monuments around the perimeter of the wind farm site, surveyed recorded monuments within the wind farm, visited the location of proposed turbine locations, tracks and compound areas, followed the length of the grid connection cable routes and inspected planned TDR works; areas of potential or suspected archaeological and vernacular historical sites were inspected and recorded.

The background research and field inspections gave a comprehensive understanding of the archaeological and architectural heritage that may be impacted by the wind farm development, and informs the proposed mitigation measures contained in this chapter.

15.3 EXISTING ENVIRONMENT

15.3.1 Archaeological and historical background

The South Eastern Uplands of Kilkenny is a landscape with a rich cultural heritage that includes prehistoric settlements and monuments and medieval religious and secular sites. The area to the south of the proposed Castlebanny wind farm has a particular concentration of prehistoric features including megalithic tombs, standing stones and burned mounds (fulachtaí fia). Medieval sites in the region include Christian monuments that range from small churches and holy wells to high-status institutions such as the Cistercian abbey at Jerpoint. Fortified sites of the medieval period include early medieval ringforts, high medieval moated sites and later medieval tower houses.

15.3.1.1 Prehistoric

Prehistoric habitation in the surroundings of the project area is attested by a variety of material remains that include above-ground monuments such as megalithic tombs and below-ground and excavated features including domestic structures and burned mounds. There are plentiful prehistoric remains in the surroundings of the project area, particularly to its south, from Earlsrath and Ballynoona West to Ballymartin and Smithstown, an area which has been described as 'renowned for its wealth of prehistoric archaeology'.

The earliest human habitation of Ireland dates to the Mesolithic period, when people migrated to Ireland about 9000 years ago. They were a mobile and hunter gatherer society who used stone tools as well as boats, nets and traps. Evidence for Mesolithic activity in Kilkenny is relatively scarce and primarily focussed on river valleys, including the Nore, Suir and Barrow. Lithic scatters from the period have been found along the banks of the Barrow River in Wexford near Camolin and flint tools dated to the Mesolithic have been dredged from the River Nore in Kilkenny City.

From around 4000 BCE, Neolithic societies practiced settled farming, causing a transition in the local economy from one based on hunting and foraging to one of cereal cultivation and livestock rearing. The arrival of the first farmers resulted in land clearance by burning or felling trees which led to the spread of blanket bog (heath). Settlers brought with them wheat and barley as well as domesticated sheep, goats and cattle. Tending of crops and animals required a more sedentary lifestyle and larger permanent settlements. New stone tool technologies emerged, including the use of polished stone axes and knapped blades, scrapers and arrowheads. Pottery was also introduced, for use in subsistence and ritual situations.

Neolithic activity is apparent from the presence of megalithic monuments that include tombs for the burial of the dead and ceremonial monuments including stone circles, stone rows or single standing stones whose function was probably ceremonial. Their construction indicated status, knowledge of engineering, and the ability to organise resources, including labour. Five megalithic tombs are recorded within 5km of the area, two of which are within 1km distance: a passage tomb at Derrynahinch (KK032-021), a portal tomb at Ballylowra (KK032-009001), a wedge tomb at Ballynoona West (KK036-051) and two unclassified tombs (KK032-010 and KK040-037).

Neolithic settlements are formed of large rectangular houses, examples of which have been excavated near to the project area. Two of the three Neolithic houses recorded in the surroundings of the project area (KK040-081 and KK040-082) are in Earlsrath townland, 2.23km southwest of the area. They were excavated in 2006 in advance of the N9/N10 Waterford to Kilcullen Road Scheme (McKinstry 2010). They consist of parallel rectangular houses built using deep, stone-filled foundation trenches and postholes. Ritually deposited lithics and sherds of carinated bowls confirm that the houses were of Early Neolithic date: the earliest radiocarbon date was 3788-3659 cal BC.

As stone tools were replaced by copper, later combined with tin to make bronze, the structure of society also changed over centuries. While some communal megalithic monuments, particularly wedge tombs continued to be used, the Bronze Age is characterised by a movement towards single burial and the production of prestige items and weapons, suggesting that society was increasingly stratified and warlike. In the late Bronze Age the use of the metal reached a high point with the production of high quality decorated weapons, ornament and instruments, often discovered from hoards or ritual deposits.

The funerary tradition of the Bronze Age is dominated by burial mounds known as barrows. They appear in the landscape as low circular mounds and have many variants with fosses, banks, raised or stepped interiors and in general measure between 10-25m in diameter. Barrows are often found in clusters and may hold single or multiple burials interred in cists (stone-built boxes). Cremations or inhumations or also found in these contexts. Cists often contain decorated bowls and vases called 'food vessels' buried with the remains. One cist is recorded in the environs of the project area, at Ballyvool townland (KK032-041).

Although there is some debate about the provenance of the standing stones, it is generally accepted that they date from the later part of the Bronze Age. Stone rows or single standing stones were probably ceremonial in function, although single standing stones may have acted as foci or markers at the edges of territories. There are seven standing stones within a 5km radius of the area, one of which is 0.64km distance (KK036-062) and a stone row of three stones known colloquially as 'the three friars' (KK036-035) which is just 370m from the southeast corner of the project area, in Smithstown townland.

Fulachtaí fia, generally dating from the Bronze Age but continuing into the early medieval period, consist of small, horseshoe shaped mounds, which are composed of burnt and fire cracked stones with a central pit or trough. These features, designed to heat water, were most likely multifunctional and used for cooking, bathing and brewing. They are commonly found in river valleys or in boggy ground, at the interface of dry and wet land, and they are indicative of communal activity. They are common throughout the country and many are identified each year. There are 16 sites classified as fulachtaí fia recorded within 5km of the project area; another three sites are classified as 'burned mound' or 'burned spread', which can be considered an interchangeable term. The closest is 0.95km from the southwest of the area at Coolanimod South (KK036-061). A cluster of three fulachtaí fia are in Earlsrath townland, southwest of the project area, which were excavated as part of the N9/N10 road scheme (KK040-092, KK040-093 and KK040-094).

The Iron Age in Ireland is characterised by a relative sparsity and low visibility of material remains, though it is the moment when Celtic culture spread and became established. As in other parts of Europe, there are two phases of the Iron Age in Ireland; the Hallstatt and the La Tène. The Hallstatt period dates from 700 BC onwards and spread rapidly from Austria, across Europe, and then into Ireland. The later Iron Age or La Tène culture also originated in Europe during the middle of the 5th Century BC. Important Iron Age sites in Ireland include the large ceremonial, 'Royal' sites - Emain Macha/Navan Fort in Co. Armagh, Dun Ailinne in Co Kildare and Rathcroghan in Co. Roscommon.

Hillforts, linear earthworks, rotary querns for milling; large, decorated stones and ogham stones are all associated with this period. Burial rites continued from the Bronze Age—such as ring barrows, ring ditches, mounds and enclosures. Cremation continued to be the predominant burial rite and the burnt remains were sometimes accompanied by small personal items such as beads or jewellery. Iron tools and weapons were produced, although bronze continued to be used, including to make jewellery.

15.3.1.2 Medieval

With an expansion in population, the Early Medieval Period witnessed the introduction of a new settlement type generally known as the ringfort. Other names for this site type include rath, lios, cashel and dún. These circular enclosures, numbering more than 40,000 across the country, represent the homesteads of Irish Early Medieval society. Ringforts are generally circular areas surrounded by a bank(s), walls and an external ditch. In some cases, there can be up to three sets

of defences. The larger more impressive multi-vallate, raised and platform raths are generally regarded as higher status settlements and are the foci around which the smaller satellite univallate enclosures would be arranged. Ringforts are frequently found on sloped sites within lowland areas providing better access to soils and having the security of wide visibility. In some cases, they can be associated with underground chambers and passages, known as souterrains dating to c. AD 750–1250.

The spatial relationship between ringforts is the physical evidence for the Túath system characterised by petty kingdoms, sovereigns that paid fealty to a larger regional / provincial state. It is estimated that over 150 of these Túath existed across the country vying for territory and dominion. Ringforts and enclosures represent the most numerous of the recorded archaeological monuments within the project area usually occupying sloping sites on hillsides chosen for their better access to soils and open visibility. These sites survive in varying states of preservation, some are fully extent and highly visible in the landscape others that formerly appeared on historic maps but have been lost to the plough and survive as cropmarks.

Within 5km of the project area there are 32 recorded ringforts/raths and a further 17 unclassified ringforts making this the most frequently recorded archaeological site type in the region. One of these raths (KK032-029) is located within the project area (though no detailed information on this site is available); another rath, at Ballyvool, is directly beside the proposed grid connection cable route (KK032-033); another two raths are within 1km of the area. These sites are located in all directions of the project area, reflecting the dispersed nature of early medieval occupation. Four souterrains are located within 5km of the project area, though all are more than 2km distance. Other early medieval secular monuments of note include the ogham stone at Ballyboodan, 3.4km to the northwest, a National Monument (NM 599, KK031-058), which is a slab of slate inscribed with a carving translated as reading 'Here is Corb, son of Labraid', and is dated to AD 700-900.

In the fifth century Christianity was introduced to Ireland and monastic sites began to be founded throughout the country. Between the 6th and 8th centuries the influence of the Church continued to grow and through the secular and ecclesiastical legislation, it is possible to trace the gradual assimilation of the Church into early Irish society. The impact of Christianity on the region is indicated by the presence of important ecclesiastical sites that date from before and after the Norman period.

A specifically Irish form of early medieval ecclesiastical architecture is the round tower, of which there are two examples in the wider surroundings of the project area, both National Monuments: at Aghaviller (NM 334, KK031-030003) and Kilree (NM 76, KK027-044003). Less prominent early medieval religious sites, but notable for their proximity to the project area are sites at Mullenakill, west of the Arrigle River, which include a church (KK036-014001), holy well (KK036-012001) with tree (KK036-012003) and font (KK036-012002) and to the west in Cappagh townland, within the project area itself, a structure in a cave associated with the hermit saint Moling (KK036-040, discussed below).

A form of material culture associated with early medieval ecclesiastical sites are bullaun stones. These stones are boulders of stone or bedrock with hemispherical hollows or basin-like depressions, which may have functioned as mortars. They are generally associated with religious sites and date the early medieval period (5th-12th centuries AD). Three bullaun stones are recorded within 5km of the project area: at Powerswood (KK032-023006), Garrandarragh (KK040-007004) and Kilbride (KK040-011008).

From the second half of the 12th century, Ireland was increasingly within the sphere of the Normans, who were initially invited by Diarmuid Mac Murchada as mercenaries to assist in the recovery of his Leinster Kingdom, but soon made territorial claims for themselves. By 1171 King Henry II mounted an invasion which resulted in his Lordship of Ireland. The archaeology of this period is dominated by castles built by the new colonists. Administration of this new order resulted in the shiring of counties, the creation of boroughs and foundation of towns, many surrounded by stone walls. Newly acquired territory was held by the construction of military powerbases in various forms – including motte and baileys, ringworks, moated sites and later masonry castles.

The region was a significant place of settlement and communication during the Norman era, with important sites located directly north and west of the project area, at Knocktopher and Jerpoint Abbey (Empey 1990). There is a concentration of Norman era fortified sites in the surroundings of the project area. These include seven moated sites and two motte castles. The closest moated site is in Castlebanny townland (KK036-006), less than 200m from the project area; another two of the moated sites are within 1km distance (KK032-032 and KK036-010). The 'unclassified' castle site located southwest of the project area (KK036-023), labelled on historic maps as the site of 'Mansel's Court', may also be Norman era.

Tower houses were more widespread than the earlier Norman fortifications, especially in the Ormond lands of Kilkenny. In the succeeding centuries internecine fighting and fluctuating alliances between Anglo-Normans, native Irish and combinations of both resulted in the building of more defensive residences, in particular, the ubiquitous tower house. These imposing buildings were usually rectangular towers of four or five storeys accessed by a spiral staircase leading to the battlements. Other architectural features designed for security included machicolations, bartizans, looped windows, a murder hole over a grilled entrance and a base batter. Most tower houses would have been surrounded by other buildings, often within a defensive walled enclosure known as a bawn. Four tower houses are recorded within 5km of the project area.

Major changes occurred in the ecclesiastical structure took place before and during the Norman era, including the growth of monastic orders with connections to British and continental European orders. Of particular significance for the present project is the foundation of Jerpoint Abbey, a National Monument (NM 80) located near Thomastown just over 5km to the north of the project area. Jerpoint Abbey is a Cistercian abbey initially constructed in 1180, but added to throughout the medieval period. The abbey, founded by the King of Ossory Donogh O'Donoghoe Mac Gilla Patraic, may have been built on the site of an earlier Benedictine monastery. Other high medieval ecclesiastical structures in the region include Knocktopher Church (NM73) and Sheepstown Church (NM73).

15.3.1.3 Modern

During the Munster Plantation in the 16th century, a result of the Desmond Rebellions, the English crown charged undertakers to import settlers and develop new garrisoned towns. These planters cut passes through the remaining wooded areas to enable bridge building and developed a tentative infrastructure. The opening of the countryside led to an increase in arable farming and with it the emergence of a new enclosed field pattern still visible today.

Ireland in the 16th and 17th centuries saw massive social and political upheaval a result of the Tudor plantations, Confederate Wars, the Cromwellian Conquest and finally the Wars of the Two kings. The impact on the national population was catastrophic and resulted in the forced transfer of lands from Irish Catholic ownership to English soldier-settlers and transplanters. By

1778 scarcely five per cent of Irish land was left in native hands. With their newfound wealth and status, the Protestant Ascendency expressed their political, economic and social domination by transforming Irish towns and cities with building programmes. Rural areas were now controlled by landlords living in large mansion houses surrounded by walled demesnes. Although the project area does not cross any demesnes, there are some in its surroundings, the closest being a small area to the east which were the gardens of Glenpipe House.

Much of what is characteristic of the Irish countryside, with pasture fields enclosed by drystone walls or ditches and hedgerows, dates from this period. The peasant and cottier class, whose labour transformed the countryside, typically lived in drystone cabins in informal clusters known as clachán or farm villages. Many of these, are recorded on the first edition Ordnance survey map (which for this area was published in 1842) but were subsequently abandoned following the catastrophe of the Great Famine between 1845 and 1852. A review of this historical mapping (detailed below) found that many farmhouses and isolated cottages existed within the project area in the 1840s but were subsequently abandoned and most are now either in ruins or demolished.

The establishment of a forestry plantation within the project area dates from the 1930s. The Forestry Department was offered an area of 1,000 acres in the vicinity of Mullinavat and, as Dáil records from April 1935 indicate, steps to purchase these lands began in the following years. The forest was later managed by Coillte after its establishment in 1989.

15.3.2 Archaeological heritage

15.3.2.1 World Heritage sites

Although not formally recognised in Irish legislation, impacts on World Heritage Sites will nonetheless be a material consideration for developments in their vicinity. There are no World Heritage Sites or sites recorded on the Tentative List of World Heritage Sites near the proposed development.

15.3.2.2 National Monuments

At a national level, the highest degree of protection granted to archaeological monuments are those afforded National Monument status, which are protected under the National Monuments Act and are the pre-eminent archaeological sites in Ireland. National Monument sites fall into several categories including sites in the ownership or guardianship of the State, monuments that are the subject of Preservation Orders, monuments in the ownership of a local authority, and walled towns.

There are no National Monuments within the project area. Within 10km there are nine National Monuments comprising a total of 38 components. The nearest National Monuments to the project area are Ballyboodan Ogham Stone (NM 599), which is 3.4km to the northwest, and Knocktopher Church (NM 73, comprising multiple components), which is 3.7km to the northwest; Jerpoint Abbey (NM 80) is located 4.74km north of the project area.

15.3.2.3 Preservation Orders, Walled Towns and Religious Sites

Afforded the same level of protection as National Monuments in State care are archaeological monuments that are the subject of Preservation Orders, Walled Towns and some archaeological monuments that are in the ownership of a local authority. Work in the vicinity of these sites requires Ministerial Consent. Although there are no formal registers of archaeological

monuments that are in the ownership of local authorities they predominantly consist of Churches and/or Graveyards that were transferred into the ownership of the Burial Boards by the Church Temporalities Commission during the latter half of the 19th century.

There are no sites with Preservation Orders within the project area. There is one site with a Preservation Order within 10km of the project area: a Linkardstown burial, a type of cist burial monument dating from the Neolithic period, at Jerpointchurch townland (KK028-054, PO Jan-88), which is 5.11km to the north.

The nearest walled towns are Inistioge (4.38km northeast) and Thomastown (6.54km north), both situated along the River Nore. The visibility of the proposed development from these places is addressed in the landscape and visual impact assessment (Chapter 13).

There are 135 religious sites recorded within 10km of the project area; eight of these sites are located less than 2km from the project area. Many of the religious sites consist of two or more components at the same location, often a church and associated graveyard. The nearest religious sites to the project area are Kilvinoge Church (KK032-030001-) and graveyard (KK032-030002-), which are 0.4km east of the project area's northeast side.

15.3.2.4 Record of Monuments and Places/Sites and Monuments Record

The legislation that affords protection to the archaeology of Ireland has seen several amendments since the first National Monuments Act of 1930 and there is a legacy of several different registers and associated terminology. The following sections contain information relative to the Register of Historic Monuments (RHM), the Record of Monuments and Places (RMP) and the Archaeological Survey Database (ASD). Archaeological monuments are general registered by the National Monuments Service using a Sites and Monuments Record (SMR) number.

The **Register of Historic Monuments** was created in response to the 1987 amendment to the National Monuments Act. The Register consists of a list of archaeological monuments where, as part of the registration process, the owner of the monument must be notified in writing by registered post or by hand. There are no sites on the Register of Historic Monuments sites located within 1km of the project area. There are six sites located within 10km of the project area; the nearest is Brownsford Castle (MG1089, KK033-028001), located 3.14km to the northeast, near to the River Nore.

The **Record of Monuments and Places** was compiled in response to the 1994 amendment to the National Monuments Act. This inventory consists of nationwide set of 6" maps, broken down by County, with accompanying indexes, which show the location of archaeological monuments with associated Zones of Notification. When it is proposed to conduct work within the Zone of Notification indicated, notification must be given to the relevant Minister at least two months prior to the commencement of the proposed works.

As the inventory is a paper study, it has not been updated since each county was first published. The Record of Monuments and Places has been largely superseded by the Archaeological Survey Database, an online resource available at www.archaeology.ie, which is regularly updated.

It should be noted that archaeological monuments in the Record of Monuments and Places are protected by the National Monuments Act, but that the care and preservation of these features depends largely on the interest and respect of the individual landowners. County Development

Plans have policies asserting the protection and preservation of archaeological sites, which have been identified in the Record of Monuments and Places.

Scans of relevant Record of Monuments and Places maps were georeferenced in GIS and their Zones of Notification digitised. The reference system for archaeological monuments in the Record of Monuments and Places is the SMR Number, which is the same as that used for the Archaeological Survey Database (below). Therefore, all relevant details for the Record of Monuments and Places Zones of Notification have been derived from the Archaeological Survey Database.

The most up-to-date record of archaeological monuments, the Archaeological Survey Database (ASD), is available for viewing and download on the www.archaeology.ie website. This record is continually revised and indicates several additional sites that do not feature in the RMP. The National Monuments Service also makes available SMR Zones of Notification on the website.

There are 325 RMP records for archaeological monuments within 5km of the EIAR project area (discounting the TDR works areas). Five of these are 'redundant records' and two records are duplicates, so the total number of monument records for a 5km radius is 318 which are classified into 73 site types. Many of these records are components of the same site, for example, individual tombs within a religious complex.

Among the recorded sites are Neolithic stone monuments, Bronze Age fulachtaí fia and ring barrows, medieval enclosures and ringforts, churches and bullaun stones. The number and diversity of prehistoric, medieval and historic monuments in the area indicate its long-term importance for settlement, defence, commemoration and ritual activity. Prehistoric sites include five megalithic tombs, seven standing stones and a stone row, as well as three Neolithic houses and 16 fulachtaí fia. Medieval sites include 25 castles, 31 ringfort/raths and another 17 unclassified ringforts and four souterrains and many religious/ritual sites, including 26 churches and six holy wells.

At a closer scale, there are 28 monument records for sites within 1km of the project area. These fall into 17 site types. The most frequent are enclosures, moated sites and ringfort-raths, of which there are four each. Sites within 1km of the project area are detailed in Table 15-1.

Table 15-1:Recorded RMP monuments within 1km of the project area

RMP site classification	Number
Burnt mound	1
Church	2
Cist	1
Enclosure	4
Font	1
Fulacht fia	1
Graveyard	2
Megalithic tomb - passage tomb	1
Moated site	4
Mound	1
Ringfort - rath	4
Ringfort - unclassified	1

Ritual site - holy tree/bush	1
Ritual site - holy well	1
Standing stone	1
Stone row	1
Structure	1
TOTAL	**28**

Two recorded monuments are located within the wind farm area: a ringfort/rath (KK032-029) in the north of the area (Cappagh townland) and a structure (KK036-040) in the east of the area (Coolnahau townland). The record for the structure on the RMP gives the following description: 'This is a large, overhanging rock with space under walled around to make a rectangular room (max. dims 3.3m by 2m; H 1.7m). It is traditionally associated with St Moling'. This record gives a reference to Rev W. Carrigan's *History and Antiquities of the Diocese of Ossory* (1905, iv, 192) which contains the following description for the site:

'St Mulling's Cave, Tree and Well. – St Mulling removed from Listerlin to a lovely cave, or grotto, a couple of miles distant, towards the north, on the hill of Collnahaw, where he led for some time the life of a hermit. The cave opens to the south, it is formed by an overhanging ledge of rock, and is about 9 ft. square; in English it is called "St Mulling's cave", and in Irish *Tee-Mulleeng*, or St. Mulling's house […]'.

The GIS was consulted to assess the proximity of the two monuments in the project area in relation to the proposed location of wind turbines. The nearest turbine to the ringfort/rath (KK032-029----) is turbine no. 14, which is 240m to the south. The nearest turbine to the structure (KK036-040----) is turbine no. 6, which is 550m to the southwest.

As well as the cave structure and rath, there are records for two other monuments located within 200m of the project area: a ringfort-rath at Ballyvool, 70m from the eastern end of the grid connection cable route (KK032-033) and a moated site at Castlebanny (KK036-006), 194m from the wind farm's western boundary.

TDR works are planned for eight locations along or beside existing roads between the N29 and N25 in County Waterford and the M9 and R704 in County Kilkenny. Due to the localised nature of the works, these locations were assessed separately from the main project area by considering heritage sites in the near vicinity (first within 500m and then within 200m). One of the TDR works areas runs directly beside, and within the zone of notification, for a castle at Ballynoony West (KK040-003), whose primary grid coordinates are less than 20m from the proposed works area.

15.3.2.5 Topographic Files of the National Museum of Ireland

The Topographical Files of the National Museum of Ireland (NMI) identify all recorded finds held in the NMI archive that have been donated to the state in accordance with National Monuments legislation. The files sometimes include reports on excavations undertaken by NMI archaeologists in the early 20th century. Valuable information that can be gleaned might include the exact location, ground type, depth below ground level and condition when found, of each find. However, the amount and the usefulness of the information available on each find can vary considerably. A review of the NMI finds database on the Heritage Council's www.heritagemaps.ie website, noted no finds recorded within the project area. Two recorded findspots are located in the surroundings of the area: one is described as 'Cists Containing 'Small

Urns'', and is plotted just to the east of Mullinavat; the other is coded 1975:24 and labelled 'Heat Fractured Stone', and is plotted to the south of the project area.

15.3.2.6 Previous Archaeological Fieldwork

The Excavation Bulletin is a published annual directory and an online database that provides summary accounts of all archaeological excavations carried out in Ireland and Northern Ireland from 1969 onwards. The database gives access to thousands of reports and can be browsed or searched using multiple fields, including Year, County, Site Name, Site Type, Grid Reference, Licence No., Sites and Monuments Record No. and Author. In general, the database contains information on sites for which final excavation reports have been received.

A review of the excavations database on www.excavations.ie was undertaken based on the townlands in the project area and its vicinity (See Toponym Analysis below for a list of townlands). There are reports on six projects for this area. These include investigations of a burnt stone spread, a later medieval trackway and a prehistoric roundhouse. Several large scale projects have been conducted slightly further afield, notably those associated with the N9/N10 Waterford to Kilcullen Road Scheme which resulted in the identification and excavation of numerous sites, including significant prehistoric remains.

Table 15-2: Summary of reported archaeological fieldwork near the project area

Townland	Description	Licence No.	Author	ITM
Castlebanny	Burnt stone spread and charcoal pit. Date not determined.	13E0122	Patrick Walsh	E 655066, N 632594
Castlebanny	Testing in advance of constructing a storage shed; no archaeology found.	19E0242	Seán Shanahan and Marion Sutton	E 655644, N 632393
Ballymartin	Test excavation in advance of windfarm development; no archaeology found.	10E0077	Avril Purcell,	E 660767, N 626687
Ballymartin	Monitoring for a windfarm development; no archaeology found.	10E0427	Annette Quinn	E 660734, N 626458
Ballymartin	Excavations at the highest point of Ballymartin Hill (230m) in advance of wind turbine identified a trackway flanked by a shallow drainage ditch including late medieval finds.	11E0149	Cóilín Ó Drisceoil	E 661032, N 627490
Ballytarsna	Various prehistoric features excavated in advance of gas pipe. These include pits, ditches and post-holes, and remains of a roundhouse.	12E0445	Bruce Sutton	E 653623, N 635623

The summary reports for these projects are as follows:

2013:556 - Site 17-1, 2, 3 Castlebanny, Kilkenny

Author: Patrick Walsh **Licence no.**: 13E0122 **ITM**: E 655066, N 632594

Site 17-1, 2, 3 Castlebanny (255128 132545 to 255304 132087) was discovered during monitoring of topsoil stripping for the Bord Gáis Networks Gas to Great Island scheme (12E0356).

Three areas were investigated. Areas 17-1 and 17-3 proved to be non-archaeological but Area 17-2 contained a burnt stone spread. The spread, which continues outside the pipe corridor to the north, measured at least 6.9m by 3.6m and had a maximum thickness of 0.34m. An adjacent charcoal-filled pit was also identified. The site was badly disturbed by a commercial tree plantation and it was not possible to obtain a secure dating sample so the activity remains undated.

2019:189 - Castlebanny, Mullinavat, Kilkenny

Author: Seán Shanahan and Marion Sutton **Licence no.**: 19E0242 **ITM**: E 655644, N 632393

Test excavations were undertaken in respect of planning ref. P.18/827, an application to construct a machinery and straw storage shed at Castlebanny, Mullinavat, Co. Kilkenny. The proposed siting of the shed is within the zone of archaeological potential of a castle (unclassified) KK036-003.

Excavation of four test trenches was carried out on 24 April 2019. The trenches were excavated with a mechanical digger utilising a 1.5m-wide flat-bladed bucket. Trenches measured approximately 1.8m in width, and lengths of 20-23m were achieved. The presence of a drainage hollow and wet ground, and an existing farm roadway, constrained the lengthening of trenches to the north and south (respectively).

Excavated soil was generally sterile, and no finds were recovered during a visual examination of the spoil. A total of two finds were recovered during clearance by hand of a grey, brown silty clay topsoil immediately above and between a linear arrangement of stone exposed at the south end of Trench 1 and Trench 2. A metal L-head shaped nail or small spike was recovered in Trench 1, and a small sherd of white glazed modern pottery was recovered in Trench 2. Both finds are post-medieval in date.

2010:409 - Ballymartin, Kilkenny

Author: Avril Purcell **Licence no.**: 10E0077 **ITM**: E 660767, N 626687

Two test-trenches were mechanically excavated across an area identified as being of archaeological potential in an EIS in advance of a wind farm development. No features or finds of archaeological significance were revealed.

2010:410 - Ballymartin, Kilkenny

Author: Annette Quinn **Licence no.**: 10E0427 **ITM**: E 660734, N 626458

Monitoring of groundworks associated with the construction of a wind farm at Ballymartin, Co. Kilkenny was carried out in compliance with a condition of planning permission. Monitoring of site investigation trial-pits and topsoil removal in the area of the site compound was undertaken

in November and December 2010. No archaeological finds or features were uncovered. Further monitoring of topsoil removal associated with the construction of the wind farm took place under this licence in 2011.

2011:376 - BALLYMARTIN/SMITHSTOWN, Kilkenny

Author: Cóilín Ó Drisceoil **Licence no.**: 11E0149 **ITM**: E 661032, N 627490

Test excavations followed by full excavations were carried out in compliance with a condition of planning for a wind farm development and the recommendations of an Environmental Impact Study compiled by the author. The development involved the installation of an additional wind turbine, the relocation of a permitted turbine, and modifications to the internal site road networks. Seventeen test trenches were excavated in Smithstown and Ballymartin townlands. Nothing of significance was noted apart from in the area of Turbine 4, at the highest point of Ballymartin hill (230m), an isolated prominence that forms part of the uplands of 'Bishop's Mountain', overlooking the valley of the River Arrigle in south Kilkenny. This area is renowned for its wealth of prehistoric archaeology and includes the court tomb at Farnoge and the portal tomb at Newmarket. A wedge tomb occupies the eastern flank of Ballymartin hill, and in the immediate vicinity of the excavation site are two prehistoric standing stones and a stone row, all of which mark the locale out as part of the wider prehistoric landscape. A suite of ringforts in the surrounding lowlands attest to settlement in the area in the early historic period. Following the Anglo-Norman conquest, Smithstown formed the western part of the Miles fitz David, later de Frayne, manor of Listerlin in the cantred of Iverk.

The excavation area measured 64m east–west by 25m. Within this there was a 28m section of a north-west/south-east-running track that was flanked on either side by a shallow drainage ditch. A fine example of an iron and copper-alloy-plated rowel spur of 13th–14th-century date was recovered from the silted fill of the southern ditch. There were no other associated finds. In the western half of the excavation cutting a 26m-long section of a north–south field ditch of probable 18th–19th-century date was excavated.

2013:082 - Ballytarsna, Kilkenny

Author: Bruce Sutton **Licence no.**: 12E0445 **ITM**: E 653623, N 635623

Site 20-1, 2, Ballytarsna was discovered during monitoring of topsoil stripping for the Bord Gáis Networks Gas to Great Island scheme (12E0356). Two distinct and unrelated areas were investigated.

Area 20-1 consisted of two post-holes, seven pits and a possible cremation burial, some of which were partially enclosed by a curvilinear ditch. The ditch, which was not well defined, was over 9m long, approximately 1m wide up to 0.3m deep with a concave profile and stone-rich fills. The pits and post-holes tended to have soft charcoal-rich fills reminiscent of cremation burials, but little bone was recovered and none could be identified as human. A radiocarbon determination is pending for one of the pits.

Area 20-2 revealed the remains of a badly truncated prehistoric roundhouse. A semi-circular slot trench represented the surviving portion of a circular wall foundation trench and extrapolation suggests that the roundhouse originally had a diameter of approximately 9m. Internal roof support post-holes were identified and a 0.9m-wide door lay at the south-east. The interior of the house was bisected by a 4m-long line of stake-holes. External pits may have been related to the occupation of the house. A radiocarbon date is pending.

15.3.3 Architectural Heritage

Few recorded architectural sites are situated in the immediate locality of the project area, and none within the project area itself. The nearest sites to the project area listed on the Kilkenny County Council Record of Protected Structures (RPS) are a national school and railway station at Ballyhale, more than 1km distance. The area does not intersect with the grounds or demesne lands of any historic houses: the nearest named house is Glenpipe House whose grounds extend to an area 130m from the proposed wind farm.

15.3.3.1 Architectural Conservation Areas

The Planning and Development Act 2000, as amended, provides that all Development Plans must now include objectives for preserving the character of Architectural Conservation Areas (ACAs). An ACA is a place, area, group of structures or townscape of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest, or which contribute to the appreciation of protected structures. In these areas, the protection of the architectural heritage is best achieved by controlling and guiding change on a wider scale than the individual structure, in order to retain the overall architectural or historic character of an area.

There are no Architectural Conservation Areas in the vicinity of the project area. There are two ACAs listed within 10km of the project area: Inistioge (4.5km distance) and Thomastown (6.5km distance).

15.3.3.2 Record of Protected Structures

The importance of our built heritage is enshrined in the Planning and Development Act 2000 (Part II, Section 10) which places a statutory obligation on local authorities to include protection of structures, or parts of structures, which are of special interest in the objectives of their Development Plans. The principal mechanism for the protection of these structures is through their inclusion of a Record of Protected Structures (RPS). This list provides recognition of the structure's importance, protection from adverse impacts and potential access to grant aid for conservation works. The recording of Protected Structures is an ongoing process and can be reviewed and added to. In considering additions to the Record of Protected Structures local authorities have recourse to the National Inventory of Architectural Heritage (NIAH) (see below) which provides a source of guidance on the significance of buildings in their respective areas.

There are no protected structures within the project area or its near surroundings. There are 258 RPS sites within 10km of the project area. The closest of these are ten RPS sites at Ballyhale, between 1.3km and 2.2km from the project area.

15.3.3.3 National Inventory of Architectural Heritage

These county surveys, established on a statutory basis under the provisions of the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999, provide an index of structures deemed to be of architectural, historical, archaeological, artistic, cultural, social, scientific or technical interest.

The results of the NIAH surveys are available on the www.buildingsofireland.ie website. Each entry comprises a site description and appraisal providing a qualitative account of why the

building is an important part of Irish architectural heritage, justifying its inclusion. The inventory also rates the structures on a scale ranging from local, regional, national to international.

There are no NIAH sites within the project area or its near surroundings. There are 385 NIAH sites within 10km of the project area. The closest of these is a mid-19th century bridge in Inistioge townland, 1.4km from the area. Five of the NIAH sites within 5km of the project area are rated as having national significance. The closest of these is Knocktopher Abbey, 3.76km from the project area.

15.3.3.4 Designed landscapes, demesnes, historic gardens and country estates

As part of this study, OSI First Edition historic mapping (1842) was used to digitise the extent of demesne landscapes and historic gardens within the project area and its environs.

There are no demesne landscapes or historic gardens that intersect the project area. The closest such landscape to the project area is the garden associated with Glenpipe House (as shown on the 1842 map). This is located 500m east of the project area along its southeastern boundary.

Several demesne lands and country estates are in the surroundings of the project area. These include the estate of Fir Grove, 1.7km to the east of the wind farm; Kiltorcan House, 1.2km to the north and Earlsrath House 1.7km to the southwest. Woodstock Park, the large estate associated with Woodstock House by the River Nore, is 4km east of the wind farm area.

15.3.3.5 Vernacular heritage features

A number of built features that appear on historic maps and were recorded during field survey (described below) can be classed as vernacular heritage features. These include features such as farmsteads and other buildings, trackways, wells and roadside features. While most have no statutory protection as architectural monuments (through the RPS, for example), they are addressed in the Kilkenny County Development Plan 2014-2020 under the title 'Vernacular Built Heritage' (Section 8.3.10) which 'consists of buildings and settlements historically created by local people from local materials and resources to meet local needs following local traditions' (Kilkenny County Council 2014: 139).

A form of vernacular heritage particular to south Kilkenny is the farm village, which are specifically addressed in the Plan (Kilkenny County Council 2014: 136-138) and have been the subject of research focused on the surroundings of the present project area (Burtchaell 1988). These are characterised as 'a settlement type consisting of a unique clustering of houses, outbuildings and haggards, and often lacking public buildings like shops, church or post office'. They are often located in good farming land and represent 'an old and distinctive settlement pattern', which 'display a unique morphology having grown organically over time following the local topography'. There are no specific objectives for farm villages or other non-listed historic structures, however, 'development management standards' are stated, for example in relation to farm villages 'To seek the retention of the vernacular quality of the buildings and their associated outbuildings and boundary structures including walls, embankments and gates' (Kilkenny County Council 2014: 138).

15.3.4 Historic maps and aerial photographs

A review of cartographic sources and aerial photography was undertaken to identify previously unrecorded archaeological or architectural heritage sites, structures, monuments or features that may be affected by the proposed development. Sources included, Bing aerial photography

(reviewed February 2018), Google aerial photography (various dates reviewed in Google Earth), OSI (www.geohive.ie, various dates), OSI 6 Inch and 25 Inch historic maps.

The Ordnance Survey 6" First Edition maps for the area were published in 1842 following surveys in 1838. The 25" Third Edition maps were published in 1902 following surveys in 1901. Both of these maps show the landscape before it became state forestry land under control of the Forestry Department, which occurred in the 1930s.

Historic features shown on the historic maps include dispersed farmhouses and other buildings and several townland boundaries, some of which appear to exist today as ditches and hedgerows. A review of the 1842 First Edition map counted 24 buildings or building clusters within the project area. Comparison of these locations with modern aerial photography found that most of these structures are demolished or in ruins but that some are incorporated into still inhabited and operating farms.

One location where the proposed works intersect with historic vernacular buildings is at the south of Derrynahinch townland, in the vicinity of turbine T21 at the north of the area. This appears to be a small farmstead, as shown on historic maps, and some ruined structures and land divisions at this location appear on aerial photographs (Figure 15-1). The potential impact of the project on these vernacular buildings is assessed below.

Two other farmsteads were identified for further investigation during field survey. One is in Cappagh townland, towards the eastern edge of the area. The closest turbine (T14) is approximately 250m to the west. On the 1842 map, six buildings are shown in a north/south aligned row along a track. There are fewer buildings and their arrangement is different in the 1902 Third Edition map; modern aerial photographs show the presence of ruined buildings (Figure 15-2). The other farmstead is towards the west of Castlebanny townland and close to the top of the ridge, approximately 150m southwest of turbine T12. On the First Edition map there are two main buildings shown; on the 1902 map a third building has been added; a spring is marked 100m to the west of this farmstead (Figure 15-3).

Figure 15-1: Structures near turbine T21 at Derrynahinch townland, on the First Edition map (1842) and modern aerial photograph

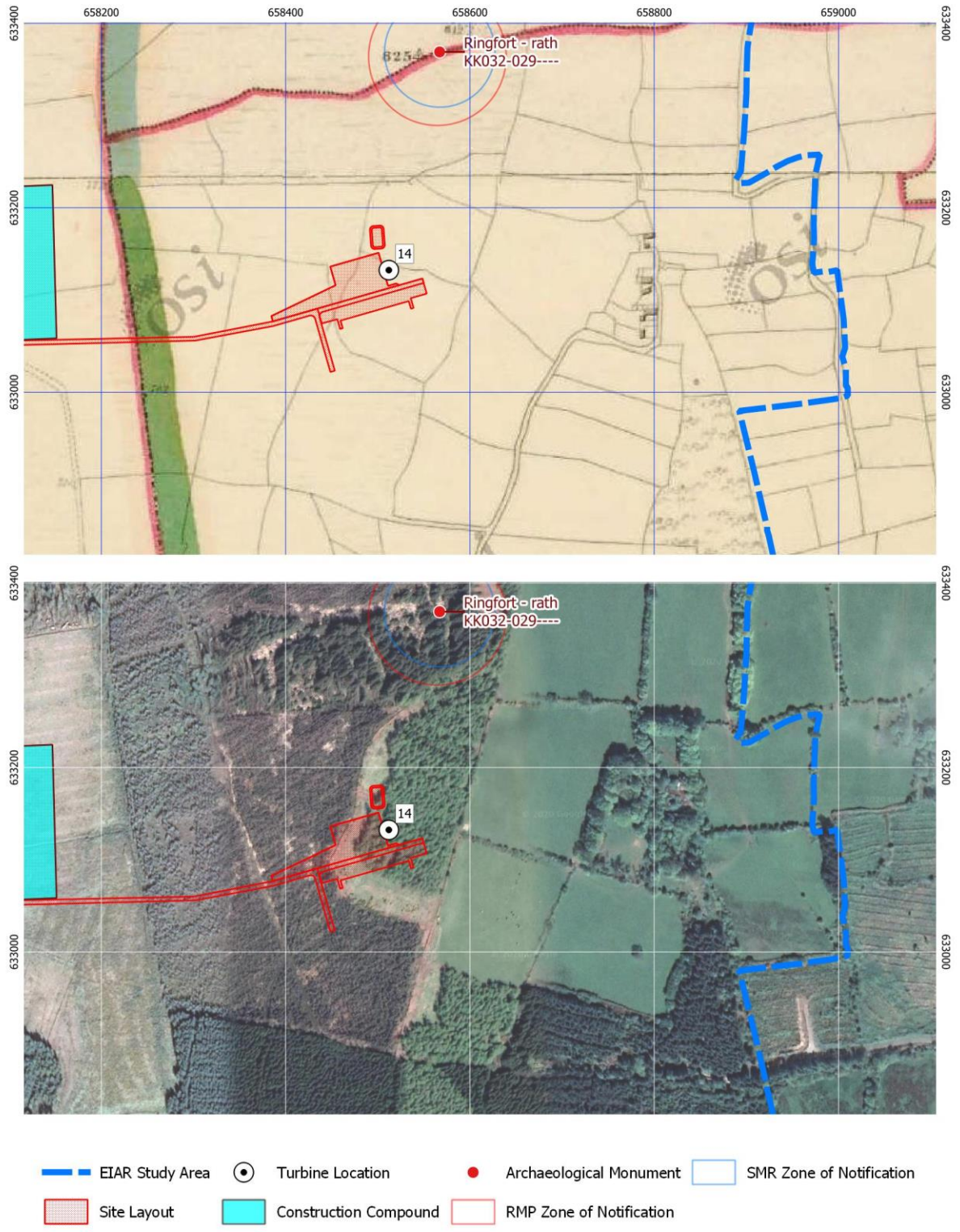

Figure 15-2: Deserted farmstead in Cappagh townland on First Edition map (1842) and modern aerial photograph

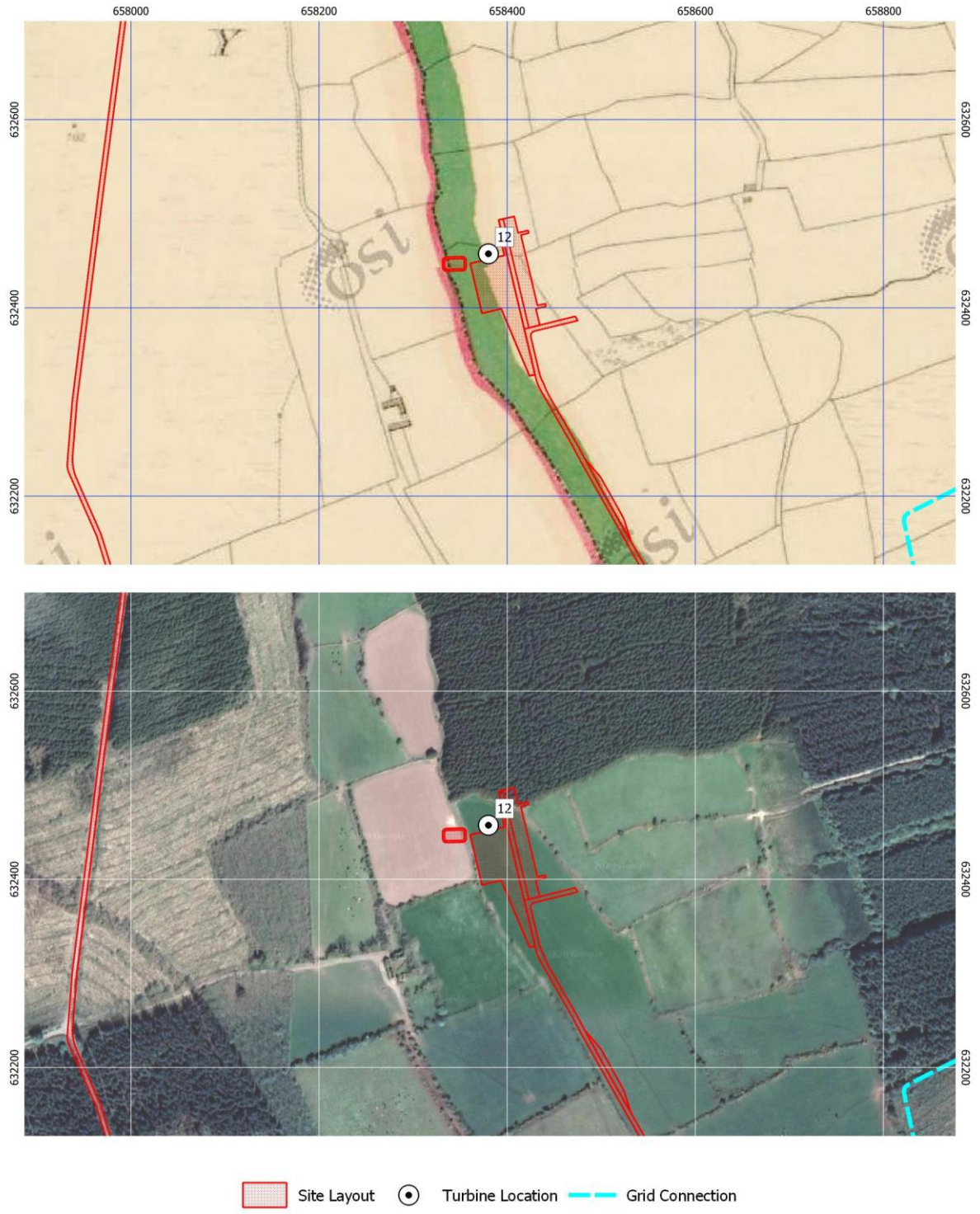

Figure 15-3: Deserted farmstead in Castlebanny townland on First Edition map (1842) and modern aerial photograph

15.3.5 Toponyms

Placenames, including townland names, are a rich source of information for the land use, history and folklore of an area and can provide information on families, topographical features, and historical events and figures. In terms of the built environment many names reference churches, fords, castles, raths, graveyards, roads and passes. The ridge where the Castlebanny wind farm is planned has its summit at Mullennakill Mountain, translated as 'mill of the church' but which might relate to St Mollin, to the north of Bishopsmountain whose name also presumably refers to St Mollin, the early Christian saint and bishop who is reported to have dwelt there.

The barony of Knocktopher can be translated as 'the hill of the causeway'. The names of townlands in the project area and their Irish translations are presented in Table 15-3. In compiling the following data, a number of resources were consulted including the Placenames Database of Ireland www.logainm.ie and Irish Names of Places by P.W. Joyce (Joyce 1913).

Table 15-3: Analysis of townland names in the project area

Townland	Genitive	Translation/Interpretation
Ballymackillagill	Baile Mhic Giolla Ghil	The bright homestead of Giolla's son
Ballymartin	Bhaile Mháirtín	Martin's town or homestead
Ballynoony East	Baile an Inneonaigh Thoir	Homestead of son of Eynon. Oliver Eynon recorded there in 1297
Ballytarsna	an Bhaile Tarsna	the town of the crossing
Cappagh	An Cheapaigh	plot of land, tillage plot
Castlebanny	Chaisleán an Bhainne	Milk castle
Castlecosker	Caisleán Coscair	Corker's castle
Coolanimod North	Chúil an Adhmaid Thuaidh	Corner or angle of the multitude
Coolnahau	Chúil na hÁithe	The high corner
Coolroebeg	na Cúile Rua Bige	Beag (also: big) small cúil corner, nook rua(also: ruadh) red; red place
Crowbally	an Chruabhaile or Cro Baile	Hut town
Derrylacky	An Doire Leacach	the stony (oak-) wood
Derrynahinch	Doire na hInse	Wood of the island meadow. Inis is often applied to a holm or a low, flat meadow or meadow land, lying along a river or a lake.
Kilvinoge	Chill Mhíonóg	Cill: church. St Winoc's church
Glenpipe	Gleann an Phíopa	Piper's Glen
Manselscourt	Cúirt an Mhoinséalaigh	Monsill's Court, named after Matthew Maunsell local landowner in 1349
Mullennakill	Muileann na Cille	Mill of the church
Smithstown (E.d. Jerpoint West)	Baile Uí Ghabhann	Smith's town

15.3.6 Field survey

The project area was inspected on 27 June 2019 by Declan Moore and on 23-24 June and 9 November 2020 by William Anderson. The survey method involved navigating to the location of proposed works using a portable device loaded with the GIS that included the project design and recording conditions with a digital camera, written notes and a handheld GPS. The topography, views and ground conditions at each location of works were assessed and recorded. Some areas of proposed development within the wind farm were not accessible due to thick forest and impassable ground. The two previously recorded archaeological sites within the wind farm were both visited and assessed in relation to the development. The site access track, grid connection cable route and turbine delivery route works areas were also inspected, focusing on locations where these pass beside recorded archaeological monuments. Selected monuments and locations in the wider surroundings of the wind farm were inspected to assess the potential impact on the setting of these sites.

15.3.6.1 Wind Farm

Survey of the wind farm area assessed the locations of developments indicated on the designs including the turbines and associated construction areas, access tracks and compounds. The site was traversed along existing roads and tracks, which provide access to approximately half of the turbine locations. Several of the planned turbine locations are in standing plantation forest and are not accessible by track but the near vicinity of all sites was inspected; turbines T19 and T21 are on farmland at the northwest of the project area, and these sites were inspected on foot. Five of the turbine locations that could not be accessed by track were inspected on foot (T10, T12, T14, T16 and T20), as these were considered potentially sensitive locations for archaeology and/or their visual impact.

Proposed locations for the wind farm development span the upper and middle slopes of the north/south aligned ridge of Mullennakill Mountain, spanning elevations between approximately 145-265m above sea level. Most of the area is currently a pine plantation forest, with some areas of unforested pasture. Within the forest runs a network of gravel tracks which provide vehicle access, as well as some tracks that either pre-date the plantation forest or have been previously used for forestry but are now heavily overgrown. Land where there is current or former forest has been extensively damaged due to mechanical ripping and harvesting of trees. However, there are pockets of land with less ground disturbance, particularly those which are pasture for livestock grazing where there have not been trees previously planted.

The following sections detail the results of survey at the turbine locations, connecting tracks and areas where other construction and ground disturbing works are proposed. A summary assessment of the turbine locations – including their topography, current ground conditions and an estimate of the level of prior ground disturbance – is given in Figure 15-4. Prior ground disturbance is rated as high for land where there has been mechanically planted and harvested forest.

Turbine T1 is accessed along an already existing track at the south of the project area. A short section of access track will be built close to the turbine. The turbine location is on the upper southwest-facing slope with wide views to the west and south. The land is currently pasture, though aerial photographs indicate that it was planted forest in recent years. Prior ground disturbance at this location is estimated to be high.

Turbine T2 is located at the southeast of the project area, within an area of planted forest, on the upper, east-facing side of the ridge. The turbine will be connected with a newly built track

running north/south which also connects with turbines T4 and T6. The location was not accessed during field survey. Prior ground disturbance at this location is estimated to be high.

Figure 15-4: Location of T1, view facing west

Figure 15-5: Location of T1, view facing south

Turbine T3 is at the south of the project area on the upper west-facing slope of the ridge. The land is flat to gently sloping with a west-facing aspect. Planted trees in the area have been recently harvested. An area marked for development to the south of T3 is currently in thick forest. T3 is accessed along existing track. Prior ground disturbance at this location is estimated to be high.

Turbine T4 is located at the southeast of the project area, within an area of planted forest, on the upper, east-facing side of the ridge. The turbine will be connected with a newly built track running north/south which also connects with turbines T2 and T6. The location was not accessed during field survey. Prior ground disturbance at this location is estimated to be high.

Turbine T5 is at the southwest of the project area on the upper west-facing slope of the ridge. The land is a gentle northwest facing slope with wide views to the north, west and southwest. From this position, recorded RPS sites – National School C989 and Catholic Church C281 – are clearly visible on the opposite side of the valley directly to the west, a distance of 3.12km from the proposed turbine location. The turbine is planned for a location at the corner of a field (currently arable) at the edge of the planted forest. Prior ground disturbance at this location is estimated to be low to moderate, though on land surrounding the turbine which is former forest the disturbance is estimated to be high.

Figure 15-6: Location of T5 at the corner of a grassy field, facing southeast

Figure 15-7: Catholic Church RPS C281, seen from the location of T5

Turbine T6 is located near to the summit of the ridge at the western side of the project area, though on its western side with a west-facing aspect. Exposed ground in the vicinity of T6 has exposed outcrops of bedded stone, showing the thin soil on the ridge-top. The proposed location of T6 is currently thickly forested; an development area to the north of T6 is also planted forest. The turbine will be connected with a newly built track running north/south which also connects with turbines T2 and T4, through planted forest. Prior ground disturbance at this location is estimated to be high.

Turbine T7 is located at the centre-west of the project area, on gently sloping ground on the upper west-facing slope of the ridge, within an area of cleared forest. The location is accessed along an existing track. Prior ground disturbance at this location is estimated to be high.

Turbine T8 is located at the centre-east of the project area, on gently sloping ground on the upper east-facing slope of the ridge close to the summit, on a promontory that projects to the northeast. The area is planted forest. Prior ground disturbance at this location is estimated to be high.

Turbine T9 is located at the centre-west of the project area, on gently sloping, west-facing ground. The area is planted forest, though close to a thin section of pasture field which has not been forested. The location was not accessed during field survey. Prior ground disturbance at this location is estimated to be high.

Turbine T10 is located in the centre of the project area, close to the highest point of the ridge. From this location there are wide views across the Arrigle River valley to the east. The land is open pasture field, next to areas of planted forest. The turbine location will be accessed along a newly built track which crosses both planted forest and pasture field. The location of the turbine was viewed from the north during field survey; a deserted farmstead (detailed below) is 450m to the northwest; at the time of survey a met mast stood 350m to the northwest of the proposed turbine location, which has since been removed. Prior ground disturbance at this location is estimated to be low to moderate, as this area does not appear to have had forest planted in the past.

Figure 15-8: View into forest towards the location of T6

Figure 15-9: Bedded shale near the location of T6

Figure 15-10: Location of T10, view facing northwest

Figure 15-11: Location of T10, view facing south

Turbine T11 is located at the centre-west of the project area, on a gentle, west-facing slope. The area is thickly forested. The location was not accessed during field survey. Prior ground disturbance at this location is estimated to be high.

Turbine T12 is located at the centre-east of the project area, on the spine of the ridge. The ground at this part of the ridge-top is generally flat. The location is directly beside the townland boundary between Cappagh and Castlebanny, just within Cappagh; a deserted farmstead (detailed below) is 180m to the southwest. The land is pasture field. Prior ground disturbance at this location is estimated to be low to moderate, as this area does not appear to have had forest planted in the past.

Figure 15-12: Location of T12, facing northeast

Figure 15-13: Townland boundary between Castlebanny and Cappagh near T12, facing south

Turbine T13 is located at the centre-west of the project area, on a gentle, west-facing slope. The area is thickly forested. The location was not accessed during field survey. Prior ground disturbance at this location is estimated to be high.

Turbine T14 is located at the east of the project area, above the steep, upper middle slope. The area is currently planted forest. This is the closest turbine location to a recorded archaeological site – the ringfort-rath (KK032-029), which is 240m to the north (detailed below). The location was not accessed during field survey, though it was viewed from nearby from the east. Prior ground disturbance at this location is estimated to be high.

Figure 15-14: View facing southwest towards T14

Figure 15-15: The Arrigle River valley facing northeast from near T14

Turbine T15 is at the centre-west of the project area, on the gently inclined middle slope of the ridge from which there are wide views to the west. The area is harvested planted forest. Prior ground disturbance at this location is estimated to be high.

Turbine T16 is at the northeast of the project area, on the middle slope at the east side of the ridge, in Kilvinoge townland. The location is in the centre of a pasture field which has a moderate gradient, north-facing slope and which affords views to the north and northeast. To the north of the planned turbine is a historic track shown on the 1842 map, which led between a complex of buildings downhill to the east and two buildings further uphill to the west. The sunken trackway, bordered by a wall where the stones are set into an earthen embankment, is in good condition. Prior ground disturbance at this location is estimated to be low to moderate, as this area does not appear to have had forest planted in the past.

Turbine T17 is at the northwest of the project area, on the upper middle slope of the ridge. The area is at the edge of the planted forest, next to an existing farmyard. Prior ground disturbance at this location is estimated to be high.

Turbine T18 is at the northeast of the project area, on the upper east-facing spine of the ridge. The area is harvested and still standing forest. Prior ground disturbance at this location is estimated to be high.

Turbine T19 is at the northwest of the project area, on the lower slopes of the ridge. The location is in the middle of open pasture fields. The proposed turbine location is in the centre of a pasture field with a gentle to moderate, northwest-facing aspect on the middle slopes at the north of the ridge. From this position there are wide views to the north, west and southwest. There is a prominent embanked hedgerow to the west, which appears to have been formed partly by accumulated stone and which appears on the 19th-century historic maps. Prior ground disturbance at this location is estimated to be low to moderate, as this area does not appear to have had forest planted in the past.

Turbine T20 is at the north of the project area, on the upper north-facing end of the ridge. The location offers wide views to the north and northwest. The turbine will be connected with a newly built track running north/south which also connects with turbines T18 to the east and T21, through planted forest at its north and east but open pasture at the west. The area is harvested forest. Prior ground disturbance at this location is estimated to be high.

Turbine T21 is at the northwest of the project area, at the foot of the ridge. The planned turbine location is on a sloping field to the east of an operating farmstead and directly south of ruined buildings and tracks which are the remains of a deserted farmstead (detailed above, in Section 15.3.4 and shown in Figure 15-1). The turbine is proposed for a moderate gradient, west-facing slope where there are recently planted saplings but which aerial photographs show to have been used as pasture in recent years. Prior ground disturbance at the turbine location is estimated to be low, as this area does not appear to have had forest planted in the past, though historic farming and settlement may have affected ground conditions.

The location is accessed along an overgrown trackway to the east of the main track running to the farmstead which is still in use as agricultural buildings. The overgrown trackway curves above some low, boggy ground, and reaches a gateway which was the entrance to a small group of buildings shown on the First Edition map. Ruins of one building are still extant – a north/south aligned drystone structure of two rooms with a fireplace in the centre; there are traces of mortar on the external south gable wall. The building is intact to a height of approximately 3m with stone lintels over the windows in place, but no roof and heavily overgrown. None of the other buildings that stood at this location could be discerned among the vegetation, though a track runs through an embanked hollow perpendicular to the west of the building, connecting with another former track where there is a stone gatepost.

Figure 15-16: Location of T16 facing northeast

Figure 15-17: Embanked trackway north of T16

Figure 15-18: East-facing view from location of T18

Figure 15-19: North-facing view from location of T20

Figure 15-20: Northwest-facing view of location of T19

Figure 15-21: Hedgerow to the west of T19, facing north

Figure 15-22: West-facing view of location of T21

Figure 15-23: Southeast-facing view of location of T21

Figure 15-24: Views of ruined building directly north of T21 location

Table 15-4: Field assessment of turbine locations

Turbine	Location inspected	Slope	Aspect	Ground cover	Prior ground disturbance estimate
T1	Y	Upper, flat to gentle	Southwest	Pasture field, former planted forest	High
T2	N	Upper, gentle	South	Planted forest	High
T3	Y	Middle, gentle	West	Felled planted forest	High
T4	N	Upper, gentle	West	Planted forest	High
T5	Y	Middle, gentle	West	Pasture field	Low-moderate
T6	Y	Upper, flat to gentle	Northwest	Planted forest	High
T7	Y	Middle, moderate	West	Felled planted forest	High
T8	Y	Upper, flat to gentle	North	Planted forest	High
T9	N	Middle, gentle	Southwest	Planted forest	High
T10	Y	Summit, gentle	East	Pasture field	Low-moderate
T11	N	Middle, gentle	Southwest	Planted forest	High
T12	Y	Summit, gentle	East	Pasture field	Low-moderate
T13	N	Middle, gentle	Southwest	Planted forest	High
T14	Y	Upper, gentle	East	Planted forest	High
T15	Y	Middle, gently	West	Felled planted forest	High
T16	Y	Upper, gentle	Northeast	Pasture field	Low-moderate
T17	Y	Middle, gentle	West	Felled planted forest	Moderate
T18	Y	Upper, gentle	East	Planted forest	High
T19	Y	Middle, gentle	West	Pasture field	Low-moderate
T20	Y	Upper, moderate	North	Felled planted forest	High
T21	Y	Lower, gentle	Northwest	Pasture field	Low-moderate

The proposed site access track runs between the southeast of the wind farm and the R704 in Ballymartin townland east of Glenville Road (L7451). From the wind farm area, the route runs east for approximately 500m before connecting with an existing track which it follows south for approximately 1.4km to its junction with the R704. There are no previously recorded archaeological monuments along the track route and no historic features were noted during the inspection. The route crosses one townland boundary, between Glenpipe and Ballymartin, though there is no physical boundary existing apart from a break in the treeline. Most of the route follows an existing track that runs through the planted forest, and this is flanked on both sides by ditches and embankments such that the land is already substantially disturbed. Land crossed by the northern end of the route is also likely to have been disturbed from mechanical planting and harvesting of trees as well as frequent drainage channels. Due to this disturbance there is little or no potential for previously unrecorded archaeological features to be located along the route.

Figure 15-25: Southern end of site access track route, along the R704

Figure 15-26: Central section of the site access track route in Ballymartin townland

Recorded monuments in the wind farm study area

The locations of the two previously recorded archaeological monuments were visited. Both are located along the eastern side of the project area, and neither are accessible by road or track.

Ringfort-rath **KK032-029**, labelled Cappagh Ringfort on a modern map, is recorded as being close to the edge of the plantation forest, next to pasture fields on the upper western slopes of the Arrigle River valley. The location is difficult to access. It is reached from a forestry track branching east from Glenville/L7451 at Cappagh, through the forest and across open fields, uphill to the northwest of a deserted farmstead. The available grid coordinates plot the location as being within the thickly overgrown forest, along the townland boundary between Kilvinoge and Cappagh and close to a concrete trig point column. No evidence of a ringfort could be seen at the coordinates provided. However, slightly to the northeast, along the crest of the slope and adjoining pasture fields, is a roughly subcircular area which is bounded by a low, curving earthen bank. The interior is thickly overgrown with ferns. This is likely to be the location of the supposed rath.

The location commands fine views over the Arrigle River valley and towards the Blackstairs Mountains far to the northeast. The closest proposed turbine to the rath is T14, which is approximately 240m to the south and on the same elevation. Because of its position below the crest of the ridge, the ringfort might not be intervisible with this turbine, nor with the next

closest turbine, T16, 350m to the north-northwest; the nearest other infrastructure, an access track approximately 240m northwest of the rath will also not be visible from the monument.

Figure 15-27: Trig point close to reported location of ringfort KK032-029

Figure 15-28: Possible ringfort KK032-029

Figure 15-29: Curvilinear earth bank of possible ringfort KK032-029

Figure 15-30: View overlooking the Arrigle River valley from ringfort KK032-029

Structure **KK036-040**, known as St Moling's Cave, is at the eastern edge of the project area. It is in the upper part of a sharp east-facing slope and is accessed by following a farm track branching from Glenville Road/L7451 at Coolnahau, and then crossing fields and into the edge of the pine forest. The site has been well documented (the ASD entry for the site is detailed above), and there appears to be some occasional visitors, although probably infrequent. The structure is formed by a rock overhang which is enclosed with a drystone wall with a narrow opening. Inside is a rectangular space with a possible bench and hearth along the south and the natural stone forming the western side. The available grid coordinates conform with the location of the structure. Just uphill from the structure, a wooden cross has been erected to mark its position, along a gap in the trees.

The nearest proposed development for the wind farm – a borrow pit – is more than 400m to the west of the monument. The potential visual impact of the nearest turbine to the monument, T6, which is 550m to the southwest of the monument, was assessed, but it was considered to be unlikely to impinge on the view from the approach to the monument, as it is somewhat to the south of this line of sight.

Figure 15-31: West-facing view of hillside location of structure KK036-040

Figure 15-32: West-facing view towards structure KK036-040

Figure 15-33: Entrance to structure KK036-040

Figure 15-34: Interior south wall of structure KK036-040

Unrecorded cultural features in the wind farm project area

Vernacular heritage features (defined above, in Section 15.3.3.5) were identified from remote sensing and visited as part of the field survey.

In Cappagh townland, a series of deserted farm buildings, field boundaries, tracks and a well were inspected. This was a relatively large farmstead and the presence of mature trees growing out of drystone walls indicates that this was established for some time, probably long before the survey for the 1842 map, in which the farmstead appears (Figure 15-2). The location is not near

to any of the proposed development, which is 250m to the west, though it will be intervisible with turbines T14 and T16. To the north of here, in Kilvinoge townland, another deserted settlement was viewed whilst accessing turbine T16, and though outside the project area, these are likely visible from the nearest turbine, 400m uphill to the west.

On the ridge-top, in Castlebanny townland, a deserted farmstead was inspected, consisting of several buildings around a central courtyard. These are well built stone structures and consist of a barn along the west side, what is presumed to be the home farm building on the north and ancillary buildings to the south. There is also a row of small cottages on the east and southeast of the complex, and these are not shown in either the 1842 or 1902 map (Figure 15-3) and may indicate that this farmstead supported a larger settlement in earlier times. The nearest proposed development to this location is 100m to the east, though the site will be intervisible with turbines T10 and T12.

Inspection of the deserted structures north of T21 is detailed above (Section 15.3.6.1).

As well as the farmsteads at Cappagh and Castlebanny and their associated structures and features, other vernacular features were noted during the survey, including drystone walls and tracks that pre-date the use of the area for plantation forest. GPS points were taken on these locations, which were then cross-referenced with historic maps.

Figure 15-35: Gable of farm building at Cappagh deserted farmstead

Figure 15-36: Mature trees growing from wall at Cappagh deserted farmstead

Figure 15-37: Barn at west of Castlebanny deserted farmstead

Figure 15-38: Interior of barn at west of Castlebanny deserted farmstead

Figure 15-39: Building at Castlebanny deserted farmstead

Figure 15-40: Arched entranceway at Castlebanny deserted farmstead

15.3.6.2 Grid Connection Cable Route

The proposed route for the grid connection cable runs east from the main windfarm area, crossing the Arrigle River valley and terminating at Ballyvool townland. The route diverts east from the windfarm area at Cappagh townland and runs through plantation forest to the east of Glenville Road (L7451). Downhill, the route crosses pasture fields bounded by hedgerows, crossing into the northern tip of Coolnahau townland and then passing under a track and the Arrigle River before climbing the gentle, lower, west-facing slope on the eastern side of the valley through Garrandarragh townland and veering north where it runs along a field boundary then a local road for approximately 300m before turning to the northeast and crossing open fields and a local road to its termination in Ballyvool.

One recorded archaeological monument – a rath-ringfort (KK032-033) – is at the eastern end of the cable route. It is a thickly vegetated area in the southern corner of a large field with a gently west-sloping aspect. The proposed cable route avoids the zone of notification for this site: the route runs approximately 70m to the north at its closest point. The route intersects three

townland boundaries and close to the edge of others, but does not cross any other cultural features shown on the historic maps. Most of the route crosses pasture fields and a small area of planted forest; there is moderate potential for previously unrecorded archaeological features along the route.

Figure 15-41: Western point of the grid connection cable route

Figure 15-42: Grid connection cable route close to its crossing of the Arrigle River

Figure 15-43: Ringfort KK032-033 near the grid connection cable route in Ballyvool

Figure 15-44: Eastern end of the grid connection cable route in Ballyvool

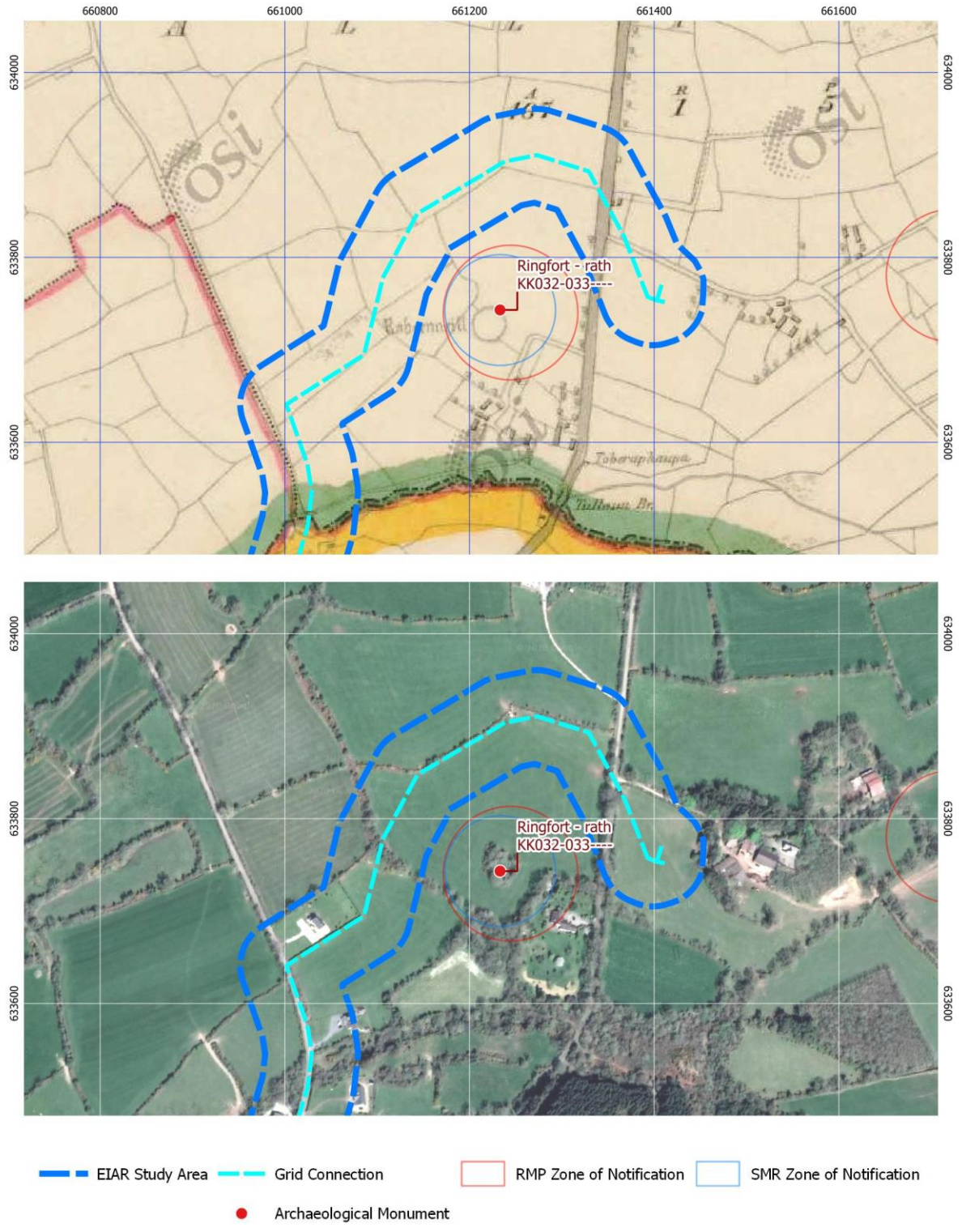

Figure 15-45: Maps showing Ballyvool rath (KK032-033) along the grid connection route on First Edition map (1842) and modern aerial photograph

15.3.6.3 Turbine Delivery Route

Eight areas where roadside modifications are planned for the TDR are part of the project area. These are located on already built up roadways and roundabouts between the N29 and N25 in County Waterford and the M9 and R704 in County Kilkenny. Six of the locations are on already existing roadways and roundabouts: there are no archaeological constraints associated with these sites, although the Luffany roundabout in Rathpatrick townland is close to the historic grounds of a named house – Frazer's Hall; and at Ballyduff East (Co. Waterford) there are two excavations associated with the location, but neither have zones of notification. The two locations nearest to the windfarm area are beside the R704, in Ballynoony West townland. These sites were inspected on foot for their potential impact on recorded and unrecorded archaeological and architectural heritage.

The western of the two TDR areas in Ballynoony West covers land within the R704 road reserve and just to the west, where the road bends from a north/south to northeast/southwest alignment. Here, a local access road branches to the west, leading to a farm complex indicated on historic maps as Ballynoony South; directly east of the road is a small historic farmstead. A portion of land west of the road is a TDR works area. This TDR area is within the RMP/SMR zone of notification for a recorded castle (KK040-003) which is situated within the garden of a modern house. No remains of the castle are visible on the surface at this point. Historic maps label the castle as 'Site of Ballynoony Castle': The First Edition (1842) map shows a circular earthwork. On the opposite, eastern side of the road, the farmstead, including a large stone barn, is bounded from the road by a wall. The inspection found that any works at this location would be within the zone associated with the castle.

To the northeast, another TDR area along the R704 covers a stretch of road which bends from a southwest/northeast to almost directly west/east alignment. The southwest of this area is alongside the garden of a modern house to the north. As the road veers to the east, it goes down a fairly steep hill, and is bordered to the south by a hedgerow and to the north by a hedge and mature trees. There are no recorded archaeological monuments in the immediate vicinity of this area: the closest is a ringfort-rath (KK040-004), 250m to the southwest. The inspection found no historic vernacular heritage features in this area.

Figure 15-46: Western TDR area at Ballynoony West, facing southwest

Figure 15-47: Western TDR area at Ballynoony West, facing south

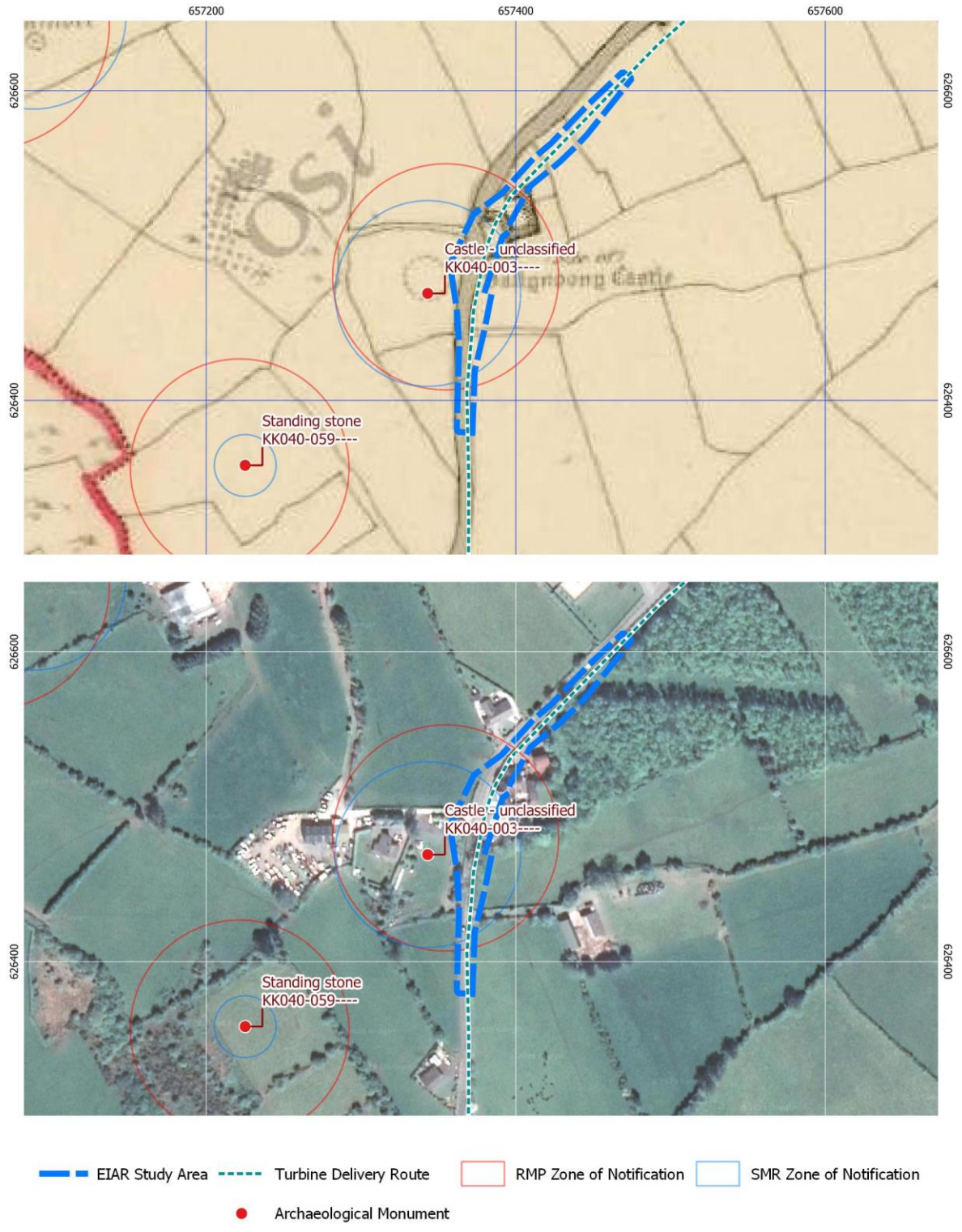

Figure 15-48: Maps showing Ballynoony Castle (KK040-003) beside TDR words area on First Edition map (1842) and modern aerial photograph

Figure 15-49: Eastern TDR area at Ballynoony West, facing northeast

Figure 15-50: Eastern TDR area at Ballynoony West, facing east

15.3.6.4 Recorded monuments near the project area

Several recorded archaeological monuments and heritage sites in the surroundings and locality of the project area were inspected. The purpose was to assess the potential indirect (visual) impact of the development upon these places. Inspected locations were chosen on the basis of their proximity to the development as well as the presence of upstanding features and the higher significance of the sites.

One of the most prominent sites near to the project area is St Molin's Well (KK036-012). This roadside well, on the east side of Glenville Road (L7451), is accessed down some stairs which lead to a landscaped area that includes the well, a statue, font and other features. The area is still venerated, particularly on the feast day or pattern day on July 25th, when large numbers of devotees attend the site. The road above the site is benched into the hillside and the well is on a steep slope. Due to the steepness of the slope, the well is shielded from the road and the hillside above, so it appears there will be no impact on the setting of the site except perhaps at the road level. The visibility of the proposed development is addressed in the landscape and visual impact assessment (Chapter 13)

Figure 15-51: West-facing view over St Molin's Well (KK036-012)

Figure 15-52: Font beside St Molin's Well – KK036-012002

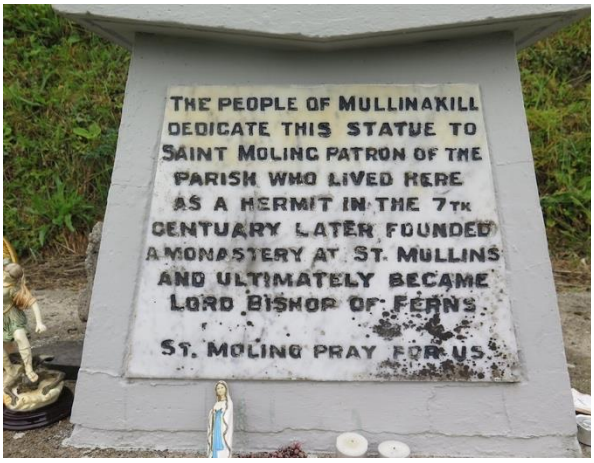

Figure 15-53: Inscription on the statue of St Molin

Figure 15-54: View over the Arrigle River valley from St Molin's Well

Other locations visited to assess the potential visual impact of the development are Jerpoint Abbey (NM 80), the church and graveyard in Kilvinoge townland (KK032-030), the church, graveyard and standing stone in Castlegannon townland (KK036-007) and the castle in Castlebanny townland which gives the townland its name (KK036003). Castlebanny Castle is intervisible with the development, but the other visited locations were found to be screened by ridges and hills. The visibility of the proposed development is detailed in the landscape and visual impact assessment (Chapter 13). The draft chapter indicates that the view of the proposed development from Jerpoint Abbey is restricted with the development having a 'very low degree of visual impact' on Jerpoint Abbey.

15.4 POTENTIAL EFFECTS

15.4.1 Potential construction phase impacts

Construction phase impacts consist of direct, physical impacts which may occur where sites of archaeological, architectural and cultural heritage significance are located within the footprint of the proposed development, and could potentially be impacted upon by ground disturbances or works to site structures or feature of archaeological or architectural heritage interest.

In relation to the proposed wind farm and associated works, direct, physical impacts on the archaeological, architectural and cultural heritage can manifest themselves in the following ways:

- Where an archaeological, architectural or cultural heritage site, structure, monument or feature is located within an area where works takes place and the works either intentionally or unintentionally entail the alteration or removal of all or part of the site, structure, monument or feature;
- In gaining access to the site - where archaeological, architectural or cultural heritage sites, structures, monuments or features are intentionally or unintentionally removed or altered when transporting and/or facilitating access for machinery, equipment and/or materials to or from site; and
- The same impacts in the above two points can occur where previously unrecorded archaeological and architectural sites, structures, monuments or features are affected.

If these impacts cannot be remediated, for example if archaeological deposits are destroyed during excavations, then the impacts will be permanent.

15.4.1.1 Potential direct physical impacts on archaeological heritage

Figure 15-5 details the potential direct physical impacts on archaeological heritage (recorded and unrecorded) of the construction of the wind farm and associated works. The table uses a three level rating of low, moderate and high to assess the archaeological potential of the particular works areas and the potential impact on archaeology.

There are no recorded archaeological monuments at the proposed location of works within the wind farm site. Two previously recorded monuments within the area of the wind farm are located more than 200m distance from any proposed areas of development and will not be impacted.

There is low potential for previously unrecorded archaeology to be present in areas of planted forest where there has been previous ground disturbance from mechanical ripping, planting and harvesting, as well as previously established tracks. Prior disturbance of topsoil and subsoil on previously planted and harvested forest was observed across much of the proposed wind farm. However, where works occur in areas of pasture which have not had planted forest, prior ground disturbance is rated as low to moderate and the archaeological potential is raised to moderate.

Works outside the main wind farm area – the grid connection cable and TDR works areas – cross locations where there is potentially minimal ground disturbance and at two locations, are near previously recorded monuments. The location of the TDR works at Ballynoony West is directly beside the site of a castle and within its RMP zone of notification (KK040-003); the grid connection cable's eastern end passes within 100m of a ringfort but outside its RMP zone of notification (KK032-033).

Table 15-5: Potential direct physical impacts on archaeological heritage

Works planned	Archaeological heritage present	Archaeological potential	Potential direct impact of works
Wind farm – turbines and mast	None recorded	Low-Moderate	High
Wind farm – tracks and hard stands	None recorded	Low-Moderate	High
Wind farm – substation	None recorded	Low-Moderate	High
Wind farm – compound	None recorded	Low-Moderate	High
Wind farm – borrow pits	None recorded	Low-Moderate	High
Wind farm – cable within site	None recorded	Low-Moderate	High
Grid connection cable	Near to recorded ringfort-rath at Ballyvool	Moderate	High
TDR works areas	One area is next to recorded castle	Moderate	Moderate

	at Ballynoony West		

Forestry clearfelling and onsite replanting works are described in Chapter 2 (Description of the Proposed Development) and Appendix 2-4 and 2-5 to this EIAR. As forested land has been previously disturbed and is considered as having low archaeological potential, these activities are anticipated to have slight or no impact. Felling and replanting will be carried out in accordance with Coillte's policies for harvesting and establishing with regards to cultural heritage (Tiernan 2017: 49-52).

15.4.1.2 Potential direct physical impacts on architectural heritage

Figure 15-6 details the potential direct physical impacts on architectural heritage (recorded and unrecorded) of the construction of the wind farm and associated works. The table uses a three level rating of low, moderate and high to assess the architectural potential of the particular works areas and the potential impact on architecture. There are no recorded architectural sites within the wind farm site and of structures observed during survey none are likely to qualify for listing on the County Council's Record of Protected Structures (RPS). However, there are previously unrecorded vernacular heritage features present, which include farm buildings dating from the mid-19th century and earlier. This includes ruined buildings directly north of the location of turbine T21, though the route of the track has been designed to avoid directly impacting the one standing structure. There are no recorded architectural (RPS) sites within the alignment of the grid connection cable or next to the TDR works areas, though vernacular heritage buildings are beside one of the TDR areas in Ballynoony West.

Table 15-6: Potential direct physical impacts on architectural heritage

Works planned	Architectural heritage present	Architectural potential	Potential direct impact of works
Wind farm – turbines and mast	None recorded	Low	Low
Wind farm – tracks and hard stands	None recorded	Low	Low
Wind farm – substation	None recorded	Low	Low
Wind farm – compound	None recorded	Low	Low
Wind farm – cable within site	None recorded	Low	Low
Grid connection cable	None recorded	Low	Low
TDR works areas	None recorded	Moderate	Moderate

15.4.2 Potential operation phase impacts

Operation Phase Impacts associated with the wind farm will predominantly consist of impacts of the setting of archaeological and architectural features as a result of the turbines. These impacts will be predominantly visual.

15.4.2.1 Potential impacts on setting of archaeological sites

There is a large number of archaeological monuments in the surroundings of the project area, including nine National Monuments within a 10km radius. There are 318 RMP records for recorded archaeological monuments within 5km of the project area, 28 of which are within 1km of the project area.

The potential impact on the setting of these sites was assessed using remote sensing and by ground-truthing the potential intervisibility of sites with the proposed development.

The wind farm will not be visible from one of the most prominent archaeological sites in the vicinity of the project area – Jerpoint Abbey (NM80). The development is described as having a 'very low degree of visual impact' on Jerpoint Abbey (see Chapter 13, Section 13.8.3). Other National Monuments in the region are also unlikely to be intervisible with the wind farm due to intervening topography.

There is potential that the wind farm will be visible from archaeological sites close to the project area. However, the visibility of proposed wind turbines from the two sites within the project area – ringfort-rath KK032-029 and structure KK036-040 – is likely to be minimal or none. Some sites located along the valleys on either side of the ridge which the project area crosses are likely to have visibility with the wind turbines.

15.4.2.2 Potential impacts on setting of architectural sites

There are few sites of architectural significance in the near surroundings of the project area, though survey found several previously unrecorded vernacular buildings within and beside the project area, mainly farmsteads which are both deserted and currently operating. These have no statutory protection and would likely not qualify as RPS sites; direct impacts to these sites have been avoided through the project design; impacts on their settings remains possible. There may be a visual impact on sites further away from the area. RPS sites identified as being visible from the wind farm include the National School (C989) and Catholic Church (C281) which can be clearly seen to the west of the location of turbine T5 at more than 3km distance.

15.4.2.3 Cumulative impacts

Cumulative impacts of the development on cultural heritage were assessed by considering other projects in the proposed development site and its surroundings as described in Section 4.6 of this EIAR. These projects included existing neighbouring wind farms in the locality of the development (Ballymartin and Rahora wind farms). There will be a slight cumulative impact of the proposed Castlebanny wind farm on cultural heritage due to the visibility of the wind farm from the west.

Forestry replanting is planned as part of the development, however, the areas for replanting are at a significant distance (>50km) from the proposed development, and these are expected to cause no cumulative impacts.

15.4.2.4 Decommissioning phase impacts

There are not anticipated to be any direct or indirect impacts on cultural heritage as part of the decommissioning phase. All mitigation measures relating to archaeology will have been completed as part of the construction phase.

15.4.2.5 Do Nothing Scenario

In this instance there would be no impact on any recorded archaeological monuments or architectural sites or potential unrecorded sub-surface archaeological deposits.

15.4.2.6 Worst Case Scenario

A worst-case scenario could arise if the proposed work were undertaken in the absence of archaeological and architectural mitigation. If this were to happen construction work could potentially negatively impact recorded and previously unknown sites, structure, features, artefacts or deposits resulting in the loss or damage of the cultural heritage resource.

15.5 MITIGATION MEASURES

The best form of archaeological mitigation – preservation in situ – is achieved by avoiding direct physical impacts upon archaeological, architectural and cultural heritage site, structures, monuments and features. All designated archaeological, architectural and cultural heritage sites, structures, monuments or features have been avoided by the design team as far as was practicably possible, taking into account all the environmental constraints and requirement of the project brief. For example, the design of the grid connection cable was amended so as to avoid the zone of notification for a nearby recorded archaeological monument. The following sections detail mitigation measures to avoid or minimise impacts on archaeological and architectural heritage.

Mitigations take into account Coillte's standard mitigation measures regarding archaeology and cultural heritage (Figure 15-7 and Figure 15-8, from Tiernan 2017: 49-52 – see also Appendix 2-4), though these relate to harvesting and establishment of forests rather than developments such as the proposed wind farm.

Table 15-7: Coillte standard mitigations for harvesting

Archaeology and Cultural Heritage		
Category	No	Mitigation
Unlisted monuments	60	Report all unlisted archaeological sites discovered during operations to Coillte manager
Unlisted monuments	61	Suspend all work in the vicinity of the discovery; create minimum 20 metre exclusion zone and do not disturb monument.
Cultural Features	63	Do not damage cultural features
Cultural Features	64	Fell trees away from cultural features
Cultural Features	65	Do not stack timber on cultural features
Cultural Features	66	Where linear features (including townland boundaries) have to be crossed, minimise the number of crossing points and use existing crossing points where available
Cultural Features	67	Buffer crossing points with brash, and remove brash before forwarder leaves the site
Cultural Features	68	Report new cultural features to Coillte site manager

Table 15-8: Coillte standard mitigations for establishing

Category	No	Mitigation
Archaeology, cultural features	73	Do not enter the exclusion zone around monuments and structures
Archaeology, cultural features	75	Do not plant within 20m of the edge of monument or protected structure
Archaeology, cultural features	76	Leave 4m unplanted corridor for access to archaeological monuments

15.5.1 Construction phase

15.5.1.1 Archaeological heritage mitigation

The National Monuments Act, as amended requires that, in the event of the discovery of archaeological finds or remains that the relevant authorities, the National Monuments Service of the Department of Culture, Heritage and the Gaeltacht (DoCHG) and the National Museum of Ireland, should be notified immediately. Allowance will be made for full archaeological excavation, in consultation with the National Monuments Service of the DoCHG, in the event that archaeological remains are found during the construction phase.

In areas where there is the potential that archaeological, architectural or cultural heritage site, structures, monuments or features could be impacted on during the construction phase, one or both of the following mitigations measures have been recommended:

Archaeological testing – best practice in areas of moderate archaeological potential demands caution, to ensure that archaeological deposits are identified as early as possible, thereby ensuring that any loss from the archaeological record is minimised. During archaeological testing, a licensed eligible archaeologist supervises excavations of pre-determined trenches undertaken with a toothless grading bucket, under licence to the National Monuments Service of the DoCHG. Undertaking this confirmatory surveying will ensure that sufficient time can be allowed within the construction schedule for the excavation of any archaeological deposits discovered.

Archaeological monitoring –– in areas of moderate archaeological potential, excavations associated with construction works, namely topsoil stripping, will be monitored by a suitably qualified archaeologist. In the event that archaeological deposits are discovered, work in the area will cease immediately and the archaeologist will liaise with the National Monuments Service of the DoCHG and the National Museum of Ireland.

A suitably qualified cultural heritage consultancy / consultant will be appointed to oversee the effective implementation of the archaeological mitigation measures recommended in this chapter for the construction phase of the proposed development. The consultancy / consultant will maintain continuing liaison with the National Monuments Service of the DoCHG and Kilkenny County Council's Executive Archaeologist throughout the construction phase of the development.

All archaeological mitigation is to be undertaken under licence to the National Monuments Service of the DoCHG and the National Museum of Ireland.

Due to differences in the nature of aspects of the development as well as variable ground conditions – particularly where there has been planted forest which is considered to have

caused prior ground disturbance – mitigation measures to ensure the recording and management of any unrecorded archaeological sites are tailored to the specific conditions at each proposed development area. Ground conditions, including prior ground disturbance, at the location of all proposed turbines is assessed above, summarised in Figure 15-4.

Archaeological mitigation measures for different components and locations of the wind farm project are detailed below and summarised in Figure 15-8.

Table 15-9: Summary of recommended archaeological mitigation measures

Works planned	Archaeological mitigation
Wind farm – developments in areas of previously or currently planted forest	Inspection of topsoil stripping at the development locations to determine level of ground disturbance; archaeological monitoring if minimal ground disturbance is identified; licenced excavation if required
Wind farm – tracks and hard stands along existing tracks	No archaeological mitigation required
Wind farm – developments in areas with no previous or current planted forest	Archaeological testing in advance of ground works at the location of the development for turbines T5, T10, T12, T16, T19 and T21 and for the tracks between turbines T10-T12 and T19-T21-T20 followed by archaeological monitoring of all topsoil stripping at these locations; licenced excavation if required
Grid connection cable	Archaeological monitoring of topsoil stripping in advance of trenching along the route
TDR works areas	Archaeological testing in advance of ground works within the zone of notification for the recorded castle at the Ballynoony West (KK040-003)

Wind farm – turbines, compounds, borrow pits and other developments

Archaeological testing will be carried out across the footprint of the wind turbines and other development areas where these occur on land which has not previously been planted forest. Six turbines are planned for areas of unplanted pasture: T5, T10, T12, T16, T19 and T21. Following testing, full-time monitoring of topsoil stripping at the six locations of unforested pasture will take place.

The testing and monitoring will be conducted by a suitably qualified archaeologist licenced by the DoCHG. Should archaeological material be uncovered during this testing, the feature will be trowelled back to determine its form, age, nature and extent then photographed and recorded to best professional standards (MoLAS 1994) and adhering to the Department's *Policy and Guidelines on Archaeological Excavation* (1999). Based on information gathered from archaeological testing and monitoring, and in consultation with the National Museum and the National Monuments Section of the DoCHG, further mitigation such as excavation may be required.

In areas of the development where there is or has been planted forest, archaeological inspections of topsoil stripping by a suitably qualified archaeologist will take place to determine the level of ground disturbance and to assess the presence of any archaeological features. If the ground disturbance is found to be minimal at these locations then full-time archaeological monitoring will occur.

Wind farm – tracks and hard stands

In two areas of the development where tracks are being newly built on previously unforested pasture, archaeological testing will be carried out along the route of proposed tracks and across hard stand areas. The two identified locations are the track between T10-T12 in the centre of the area and the track between T19-T21-T20 in the northwest of the area. The testing will be conducted by a suitably qualified archaeologist licenced by the DCHG. Should archaeological material be uncovered during this testing, the feature will be trowelled back to determine its form, age, nature and extent then photographed and recorded to best professional standards. Based on this information and in consultation with the National Museum and the National Monuments Section of the DoCHG, further mitigation such as excavation may be required. Where existing tracks are being used or upgraded, no archaeological mitigation measures are required.

Grid connection cable

Where the grid connection crosses unforested pasture, archaeological monitoring of topsoil removal along the route will be carried out. The archaeological monitoring will occur prior to the main excavation of the trench to ensure that if any archaeological features are exposed that these can be investigated as required. The testing will be conducted by a suitably qualified archaeologist licenced by the DoCHG. Should archaeological material be uncovered during this testing, the feature will be trowelled back to determine its form, age, nature and extent then photographed and recorded to best professional standards (MoLAS 1994). Based on this information and in consultation with the National Museum and the National Monuments Section of the DoCHG, further mitigation such as excavation may be required..

TDR works areas

Two of the TDR works areas, in Ballynoony West, have archaeological potential and one crosses a zone of notification for a recorded monument. The remaining areas are in heavily built up land such as highways and roundabouts. In advance of construction, archaeological testing will be carried out at the location of the recorded castle and its zone of notification at Ballynoony West (KK040-003). The testing will be conducted by a suitably qualified archaeologist licenced by the DoCHG. Should archaeological material be uncovered during this testing, the feature will be trowelled back to determine its form, age, nature and extent then photographed and recorded to best professional standards. Based on this information and in consultation with the National Museum and the National Monuments Section of the DoCHG, further mitigation such as excavation may be required.

15.5.1.2 Architectural heritage mitigation

There are no architectural heritage sites (RPS) located within the wind farm project area or beside the grid connection cable route or TDR works areas.

Impacts to vernacular heritage buildings within the project area have been avoided through the project design. One location where the potential direct impact of the development on above-ground vernacular historical feature, in the vicinity of turbine T21 (Figure 15-1), was avoided by routing the track next to the building. Construction of the track north of T21 will avoid the standing stone structure: the design shows this track as running directly to the west of the structure.

15.5.2 Operation phase

There are not anticipated to be any impacts on cultural heritage as part of maintenance works during the wind farm's operational phase.

15.5.2.1 Decommissioning phase

There are not anticipated to be any direct or indirect impacts on cultural heritage as part of the decommissioning phase. All mitigation measures relating to architecture will have been completed as part of the construction phase.

15.6 RESIDUAL EFFECTS

15.6.1 Construction phase

As a result of archaeological testing and monitoring and, where necessary, excavation, the residual effects of the proposed development on cultural heritage will be slight. If archaeological sites are identified and cannot be avoided, excavation and recording will create a comprehensive record prior to the construction stage of the development. If features are to be preserved in situ, detailed plans will be required as to the location, layout and extent of these features/sites. Before and after photographs will be required as well as a full report on the preservation of the site and how this was achieved, by the National Monuments Service. Once mitigation measures at the construction stage have been applied, there will be slight or no residual effects.

15.6.2 Operation phase

Slight residual impacts in relation to the setting of archaeological monuments and architectural sites in terms of visibility to and from monuments and sites are envisaged.

15.6.2.1 Decommissioning phase

There are not anticipated to be any direct or indirect impacts on cultural heritage as part of the decommissioning phase. All mitigation measures relating to architecture will have been completed as part of the construction phase.

15.7 CONCLUSION

Mullennakill Mountain and the ridge where the wind farm development is proposed is a prominent landform that divides the broad valley of the River Arrigle to the east and the valley of the Little Arrigle River south of Knocktopher to the west. There is a high number of archaeological monuments and sites in this region, including prehistoric tombs and medieval religious and fortified sites. These are concentrated on the middle and lower slopes of the valleys, though excavations have also identified sites on the ridges and hills at an equivalent elevation to the proposed wind farm.

Much of the land where development is proposed has been disturbed as a result of the forestry plantation which has been established there since the mid-20th century. Mechanical ripping, planting and harvesting of trees, as well as introduction of drainage ditches and tracks, has caused both localised and extensive ground disturbance. However, some parts of the development, including six of the proposed turbines (T5, T10, T12, T16, T19 and T21), two sections of tracks within the wind farm area and stretches of the grid connection cable, cross

pasture which has not been planted with forest. These areas are likely to have undergone minimal ground disturbance and so have higher archaeological potential.

There are two recorded archaeological monuments within the wind farm project area – a ringfort-rath (KK032-029) and a structure which is an enclosed overhang of a rock outcrop known as St Molin's Cave (KK036-040). Both are located more than 200m distance from any of the planned development works. At the eastern end of the grid connection cable, in Ballyvool townland, is a ringfort-rath (KK032-033), 70m from the cable route and outside the zone of notification for this monument. One of the TDR works areas is immediately beside a recorded castle, in Ballynoony West (KK040-003). Ground survey found several vernacular heritage features within the project area, mostly deserted farmsteads, townland boundaries and drystone walls.

The design of the proposed wind farm development avoids direct or indirect impacts on recorded archaeological or architectural sites following earlier cultural heritage constraints studies. Field survey found that areas of previously planted forest have undergone significant prior ground disturbance which is likely to have erased any previously existing archaeological deposits or features. However, where there has been limited ground disturbance, there is moderate potential for previously unrecorded archaeological features to be located within the project area, which may be impacted by the development. Consequently, mitigation measures including archaeological testing and monitoring are focused on areas of the development which occur on less disturbed land. The development will have no impact on recorded architectural sites and impacts on upstanding vernacular heritage buildings have been avoided through the design. Once the proposed mitigation measures are implemented the direct and indirect impacts of the development on the cultural heritage of the project area will be slight.

15.8 REFERENCES

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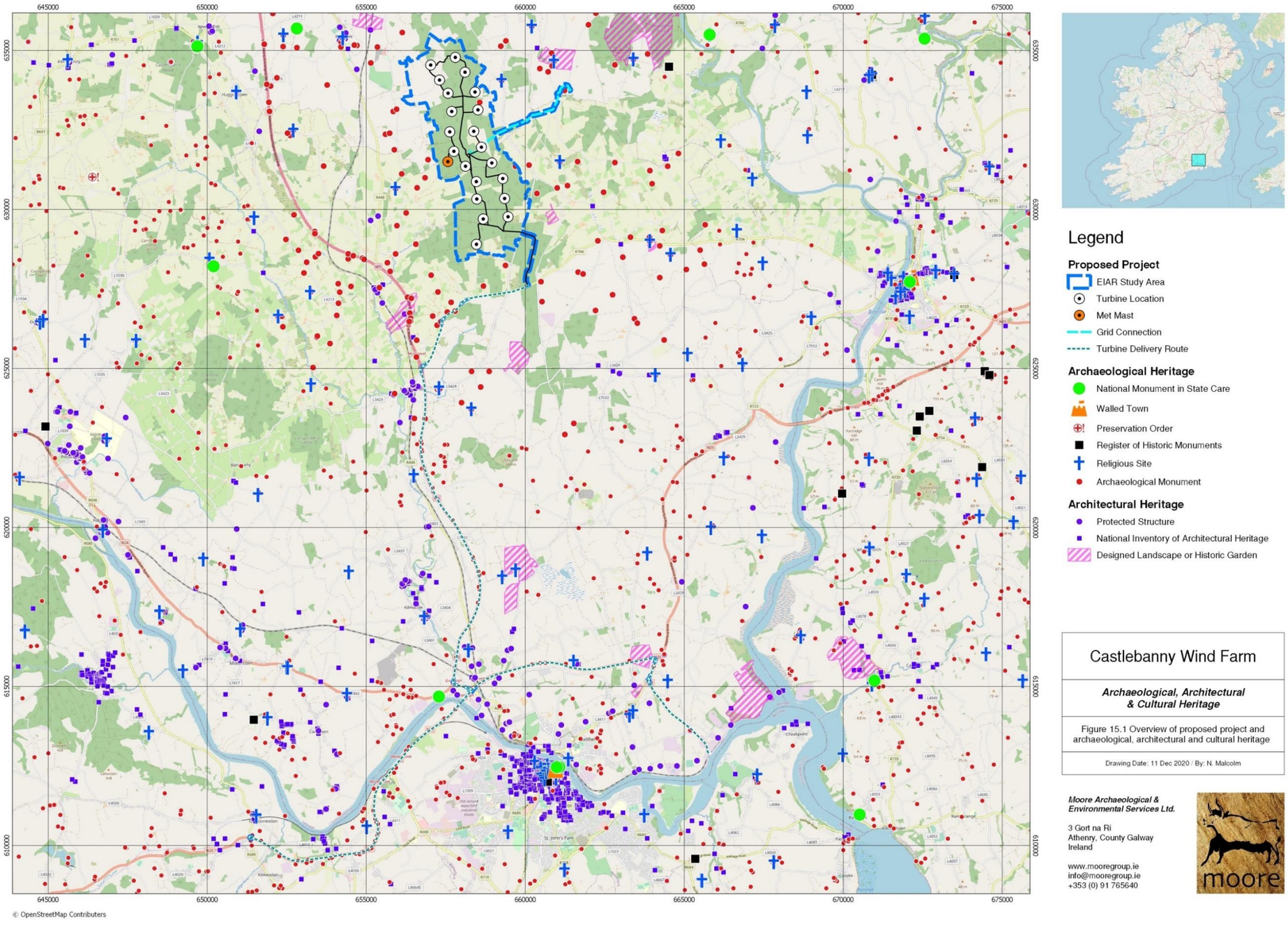


Figure 15-55: Map of project region with recorded cultural heritage

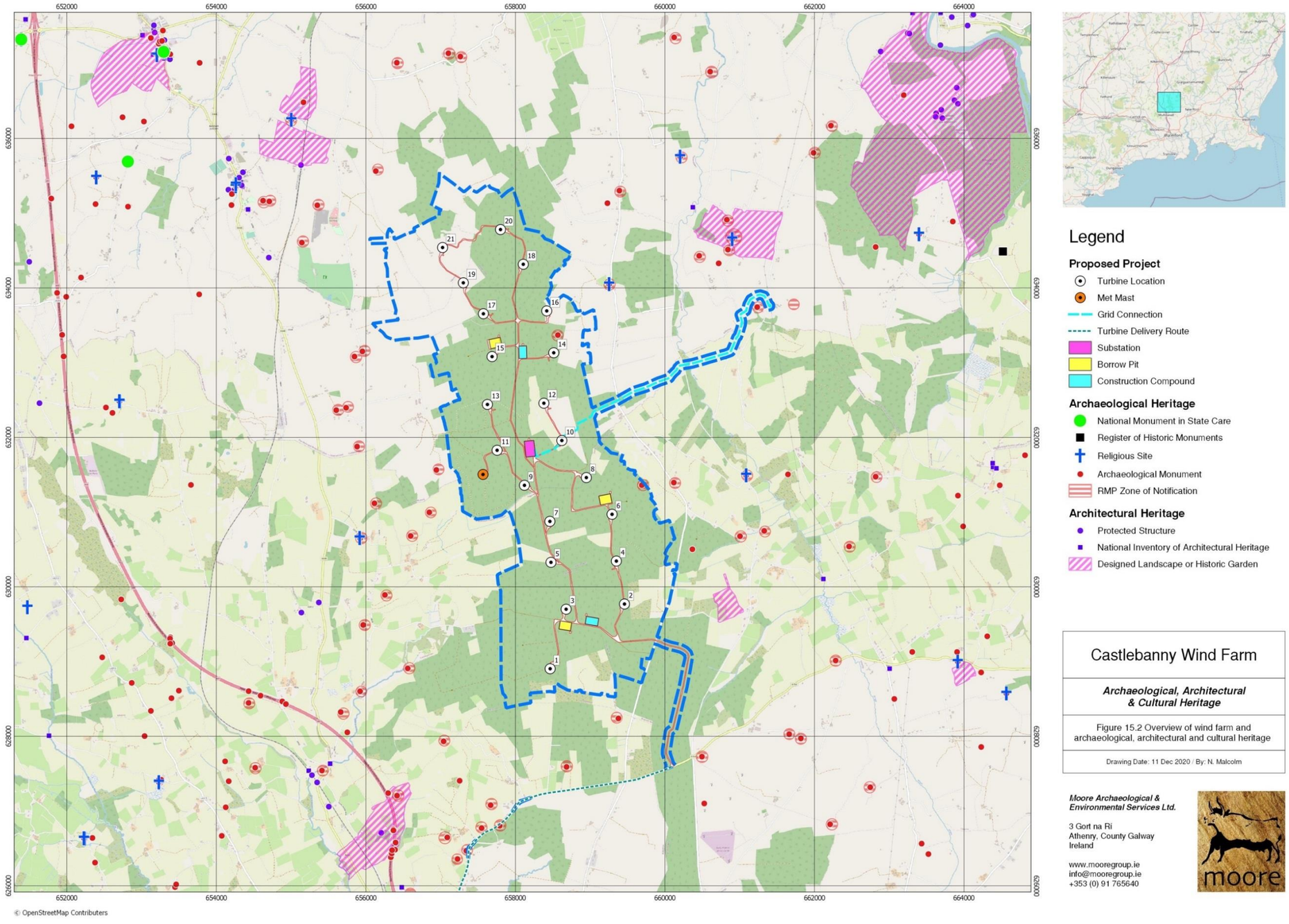
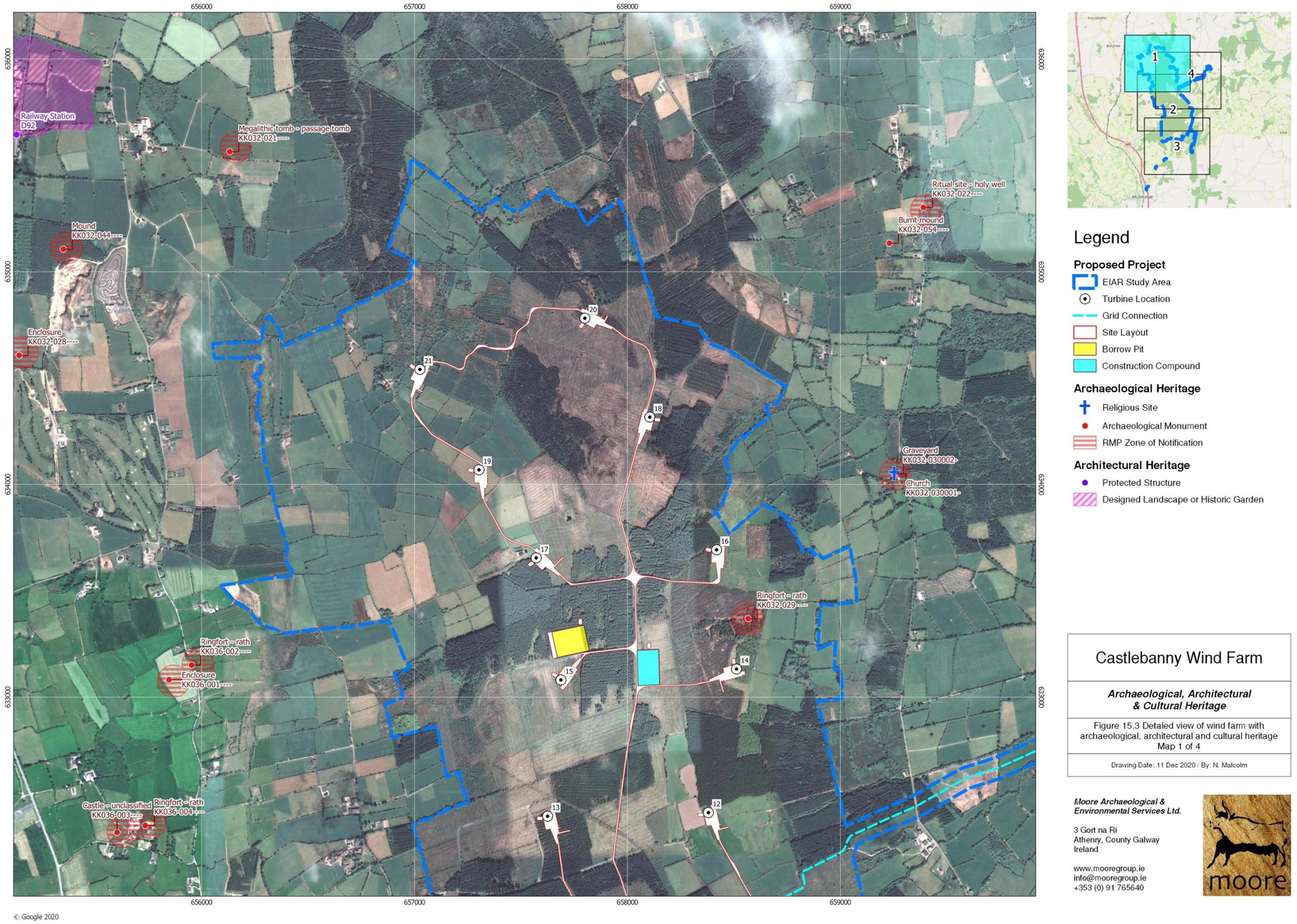


Figure 15-56: Map of project area with recorded cultural heritage



Legend

Proposed Project
- EIAR Study Area
- Turbine Location
- Grid Connection
- Site Layout
- Borrow Pit
- Construction Compound

Archaeological Heritage
- Religious Site
- Archaeological Monument
- RMP Zone of Notification

Architectural Heritage
- Protected Structure
- Designed Landscape or Historic Garden

Castlebanny Wind Farm

Archaeological, Architectural & Cultural Heritage

Figure 15.3 Detaled view of wind farm with archaeological, architectural and cultural heritage Map 1 of 4

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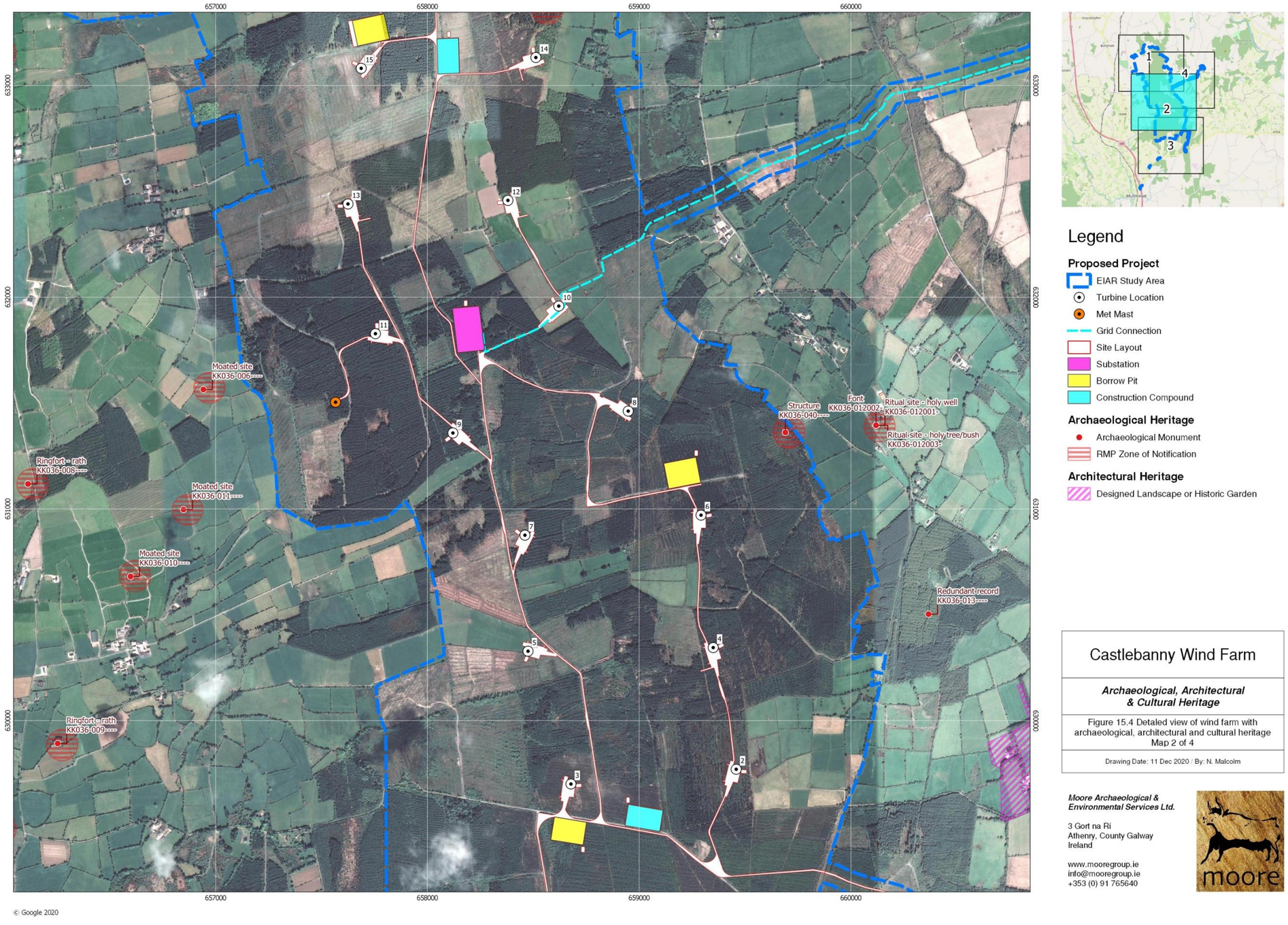
Figure 15-57: Map showing north of wind farm area with recorded cultural heritage



Legend

Proposed Project

- EIAR Study Area
- Turbine Location
- Met Mast
- Grid Connection
- Site Layout
- Substation
- Borrow Pit
- Construction Compound

Archaeological Heritage

- Archaeological Monument
- RMP Zone of Notification

Architectural Heritage

- Designed Landscape or Historic Garden

Castlebanny Wind Farm

Archaeological, Architectural & Cultural Heritage

Figure 15.4 Detaled view of wind farm with archaeological, architectural and cultural heritage Map 2 of 4

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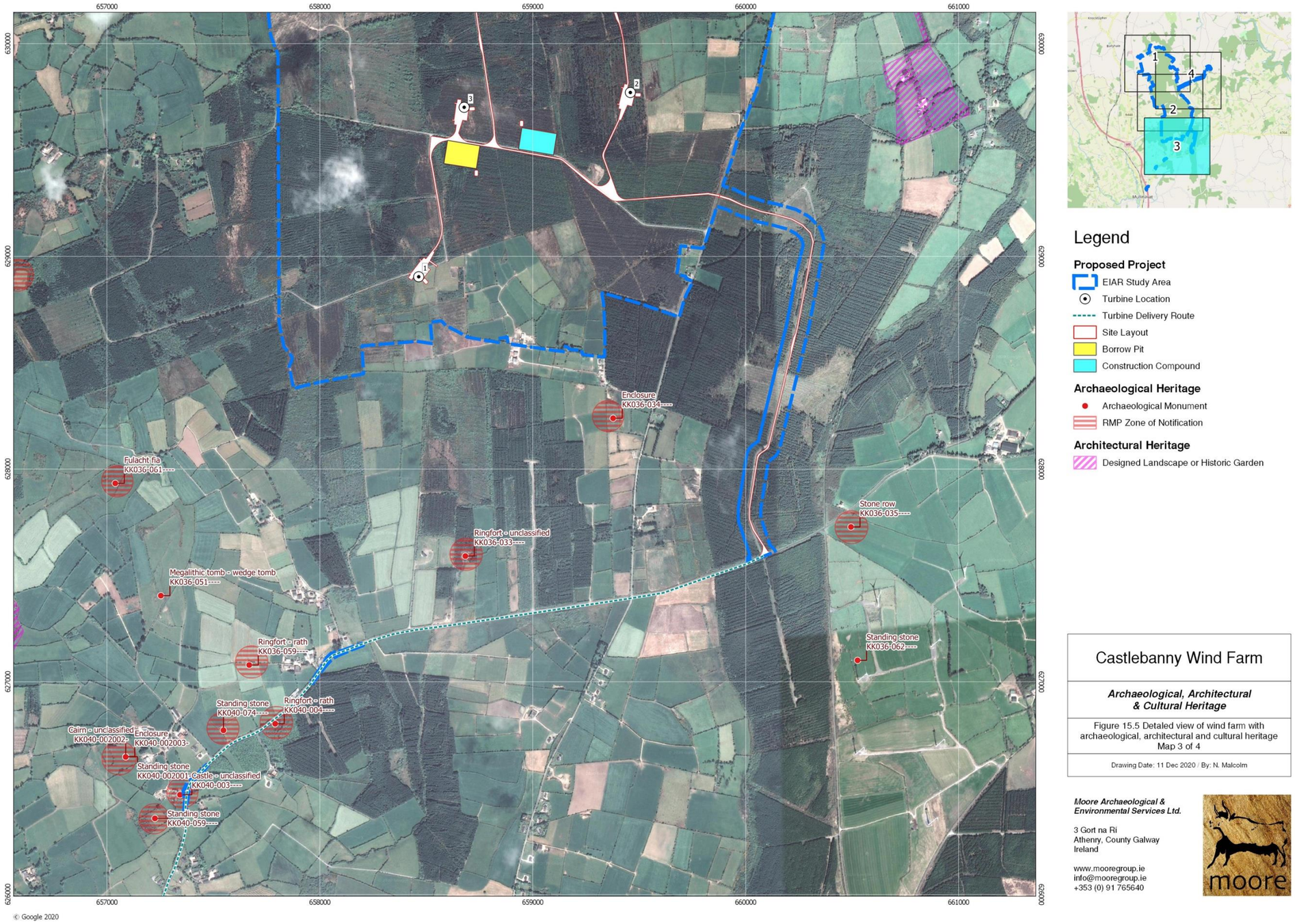
Figure 15-58: Map showing centre of wind farm area with recorded cultural heritage



Legend

Proposed Project
- EIAR Study Area
- Turbine Location
- Turbine Delivery Route
- Site Layout
- Borrow Pit
- Construction Compound

Archaeological Heritage
- Archaeological Monument
- RMP Zone of Notification

Architectural Heritage
- Designed Landscape or Historic Garden

Castlebanny Wind Farm

Archaeological, Architectural & Cultural Heritage

Figure 15.5 Detaled view of wind farm with archaeological, architectural and cultural heritage Map 3 of 4

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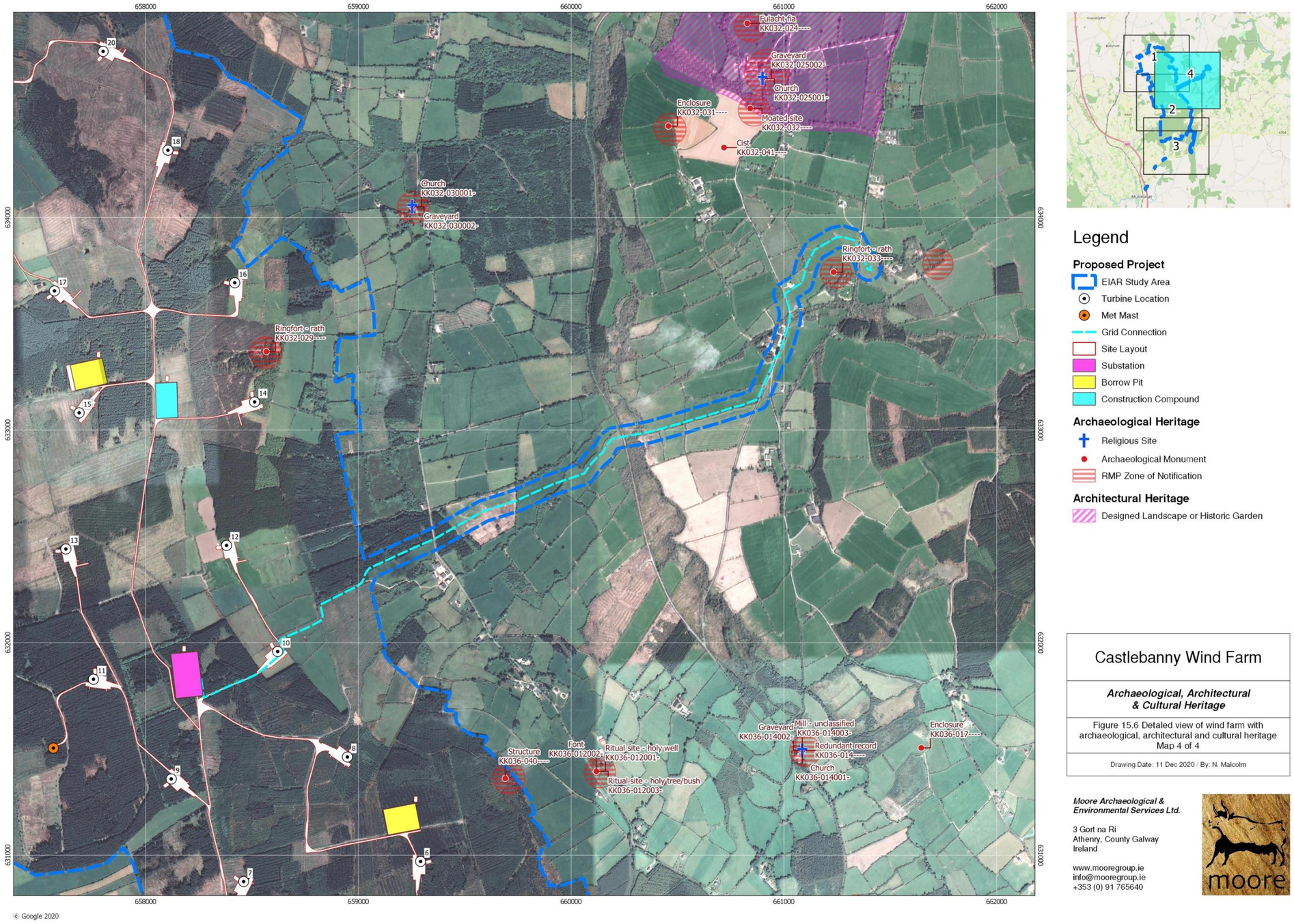
Figure 15-59: Map showing south of wind farm area with recorded cultural heritage



Legend

Proposed Project
- EIAR Study Area
- Turbine Location
- Met Mast
- Grid Connection
- Site Layout
- Substation
- Borrow Pit
- Construction Compound

Archaeological Heritage
- Religious Site
- Archaeological Monument
- RMP Zone of Notification

Architectural Heritage
- Designed Landscape or Historic Garden

Castlebanny Wind Farm

Archaeological, Architectural & Cultural Heritage

Figure 15.6 Detaled view of wind farm with archaeological, architectural and cultural heritage Map 4 of 4

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Figure 15-60: Map showing grid connection cable route with recorded cultural heritage