

Proposed Derrygreenagh Power Project Environmental Impact Assessment Report

Chapter 8: Cultural Heritage and Archaeology

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8.0 CULTURAL HERITAGE AND ARCHAEOLOGY

8.1 Introduction

8.1.1 This chapter of the Environmental Impact Assessment Report (EIAR) describes the likely significant effects from the Proposed Development and Overall Project upon Cultural Heritage, including archaeological and architectural heritage. It also reports on the resultant residual effects in accordance with the requirements of the relevant EIA legislation and guidance as outlined in section 8.2 below.

8.1.2 The chapter aims to:

- Assess the likely significant effects that the Proposed Development and Overall Project may have on cultural heritage features and to determine whether any further assessment / mitigation is required;
- Ensure that the Cultural Heritage assessment is tailored to the characteristics of the Proposed Development and Overall Project and carried out to the appropriate level of detail; and
- Identify, describe, and assess the environmental advantages, disadvantages and constraints associated with the Proposed Development and Overall Project under consideration.

8.1.3 A full description of the Overall Project Site is presented in Chapter 4 of this EIAR, and details of the Proposed Development and Overall Project are presented in Chapter 5 of this EIAR. The Proposed Development area predominantly comprises a brownfield site which was previously a commercially harvested raised peat bog.

Statement of Authority

8.1.4 This chapter has been prepared by David Kilner, Principal Heritage Consultant with AECOM. David has over 20 years' experience in the heritage sector within the island of Ireland. Prior to joining AECOM, David was Senior Archaeologist with a commercial archaeological company based in Belfast which involved working all over Ireland. His experience covers a range of projects, from planning advice to archaeological baseline research and EIA to procuring and managing archaeological specialists and sub-contractors undertaking field survey.

8.2 Methodology

Sources

8.2.1 The preparation of the baseline was informed by material gathered and collated from various sources, including:

- National Monuments Service (NMS) and Archaeological Survey of Ireland (ASI);
- National Inventory of Architectural Heritage (NIAH);
- Offaly County Development Plan 2021-2027, Record of Protected Structures;
- Westmeath County Development Plan 2021-2027, Record of Protected Structures;
- Historic England's Historic Environment Good Practice Advice in Planning: Note 3 (Second Edition) – The Setting of Heritage Assets;
- Ordnance Survey Ireland historic mapping (www.osi.ie);
- online aerial photography (www.earth.google.co.uk);
- toponym information (logainm.ie);
- Heritage Council of Ireland mapping (www.heritagemaps.ie);
- Reference was also made to Bord na Móna reports 'Peatland Survey 2005, Allen, Kilberry & Coolnamóna Bogs' (2005) and 'Archaeological Investigations in Toberdaly and Clonin Townlands, Ballybeg Bog' (2014).

8.2.2 In addition to the gathering of comprehensive baseline information, a site visit was conducted on the 30 and 31 March 2023. This was undertaken to identify any readily visible previously unidentified cultural heritage assets that might exist within the Site, and to assess the current ground conditions and the extent of any previous ground disturbance. The visit also assessed the potential impact of the Proposed Development on the setting of selected cultural heritage assets in the settings assessment study area (refer to Figure 8.1).

8.2.3 Furthermore, 83 site investigation trial pits were monitored under excavation licence 23E0352 from the National Monuments Service (per National Monuments Act as amended) within the brownfield site of Derrygreenagh Works (Power Plant Area), cut over bog in Derryarkin and Ballybeg Bogs (Electricity Grid Connection) and agricultural lands (400kV substation). A report of the archaeological survey is included in Appendix 8A EIAR Volume II. This was followed up by archaeological walkover of proposed Peat Deposition Areas in August 2023. A report of the archaeological walkover is included in Appendix 8B EIAR Volume II.

Study Area and Scope of the Assessment

8.2.4 The assessment of effects on archaeology and cultural heritage considers a study area appropriate to each element of the Overall Project. The extent of this study area was determined by the nature and characteristics of each element of the Overall Project.

8.2.5 For the Power Plant Area, 220kV substation 220kV overhead line and 400kV substation at entry point to the transmission network, a study area that extends 1km from the red line planning boundary/ Proposed Development Site boundary was adopted. The extent of this study area was determined by the nature of the Project Elements which consist of a limited surface areas and therefore, are unlikely to physically impact upon Cultural Heritage assets located beyond this distance.

8.2.6 For the 220kV underground cable connection from the undergrounding compound to the 400kV substation a study area that extends 0.5km from the boundary was adopted. This

extent was determined by the limited surface area of the cable connection which is unlikely to impact upon Cultural Heritage assets located beyond this distance.

- 8.2.7 For the Gas Connection Corridor, a 1km study area was adopted for the length of the corridor. The Gas Connection Corridor does not form part of this planning application but is considered by this EIAR as it is integral to the project. Consent for the Gas Connection Corridor will be applied for by Gas Networks Ireland (GNI) subject to detailed design and supported by specific assessments. Given the uncertainty over the final route and development footprint of the Gas Connection Corridor, the examination of the associated effects on cultural heritage and archaeology is considered in so far as practicable within this EIAR chapter. A cumulative assessment of the interaction of the predicted effects between the Gas Connection Corridor and the Proposed Development is provided in Section 8.8.
- 8.2.8 Additionally, an assessment of visual setting was made for designated heritage assets only (National Monuments, Protected Structures as recorded on the Offaly County Development Plan 2021-2027 and Westmeath County Development Plan 2021-2027 and Architectural Conservation Areas) within an outer study area around the Proposed Development and Overall Project. No significant effects were anticipated in regard to the settings of non-designated sites. Therefore, the settings of designated heritage assets, up to 3km from the Proposed Development with reference to significant sites further afield where applicable, were assessed for the Power Plant Area and the 220kV Overhead Line. Both have tall infrastructure which may be visible at a distance from outside the Proposed Development footprint.
- 8.2.9 Designated heritage assets up to 1km from the 220kV substation and 400kV substation and 0.5km from each boundary of the 220kV underground Cable connection and Gas Connection Corridor were also assessed. The infrastructure associated with these will largely be buried and, therefore, not visible from the designated heritage assets once constructed. No significant effects were anticipated in regard to the setting of non-designated sites.

Assessment of Heritage Asset Importance

- 8.2.10 A Cultural Heritage asset is defined as a monument, building, group of buildings and sites which are the combined works of nature and man constituting the historic or built environment (World Heritage Convention 1972). A heritage asset's value is not solely expressed through any designated status but can also be exhibited through a series of values or special interests. These include architectural, historical, artistic, archaeological, cultural, scientific, social or technical interests. There is the potential for non-designated assets to display special interests equivalent to a designated asset. Therefore a "designated" status does not necessarily confer a set level of importance on an asset, rather professional judgment and an assessment of the special interest displayed by that asset are examined and a level of importance is assigned.
- 8.2.11 Section 2 of the 1930 National Monuments Act defines a 'national monument' as "*a monument or the remains of a monument the preservation of which is a matter of national importance by reason of the historical, architectural, traditional, artistic, or archaeological interest attaching thereto*". National Monuments are considered nationally important.
- 8.2.12 A primary cartographic source and base-line data for the assessment is the consultation of the Sites and Monuments Record (SMR) and Record of Monuments and Places (RMP) for Counties Offaly and Westmeath as maintained by the National Monuments Service. All known recorded archaeological monuments are indicated on 6-inch Ordnance Survey (OS) maps and are listed in these records. The SMR/RMP is not a complete record of all monuments as newly discovered sites may not appear in the list

or accompanying maps. A review of all National Monuments in state care was undertaken as part of the assessment in order to ascertain any potential impacts on their setting as a result of the Proposed Development. National Monuments and Record of Monuments and Places (RMP) sites/ Register of Historic Monuments (RHM) sites are not clearly differentiated in the National Monuments Act 1930 – 2004. However, not all RMP and RHM sites and associated constraint areas demonstrate the same level or degree of heritage special interest as can be found in National Monuments. Therefore, they can be of either national or regional importance. An assessment of the special interest of the asset and professional judgment is used to identify the appropriate level of importance. The ‘*zone of notification*’ (formerly known as zones of archaeological potential) is the area around each SMR that is intended to be used for the purposes of notification under Section 12 of the National Monuments Acts 1930 to 2004 and is also considered in defining importance.

- 8.2.13 Under the Heritage Act (1995) architectural heritage is defined to include “*all structures, buildings, traditional and designed, and groups of buildings including street-scapes and urban vistas, which are of historical, archaeological, artistic, engineering, scientific, social or technical interest, together with their setting, attendant grounds, fixtures, fittings and contents...*”. A heritage building is also defined to include “*any building, or part thereof, which is of significance because of its intrinsic architectural or artistic quality or its setting or because of its association with the commercial, cultural, economic, industrial, military, political, social or religious history of the place where it is situated or of the country or generally*”.
- 8.2.14 The National Inventory of Architectural Heritage (NIAH) is a state initiative under the administration of the Department of Housing, Local Government and Heritage and established on a statutory basis under the provisions of the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999. The purpose of the NIAH is to identify, record, and evaluate the post-1700 architectural heritage of Ireland, uniformly and consistently as an aid in the protection and conservation of the built heritage. NIAH surveys provide the basis for the recommendations of the Minister for Housing, Local Government and Heritage to the planning authorities for the inclusion of particular structures in their Record of Protected Structures (RPS). The published surveys are a source of information on the selected structures for relevant planning authorities. They are also a research and educational resource. Some archaeological and architectural heritage assets are also included on the Record of Protected Structures (RPS) of each county or city development plan, under Section 51(1) of the Planning and Development Act, 2000 (as amended). These protected structures are included in the RPS due to their special architectural, archaeological, artistic, cultural, historical, scientific, social or technical interest. Protected structures are considered to be of international, national or regional importance.

Assessment Methodology

- 8.2.15 The assessment of baseline conditions was carried out in accordance with the following guidance:
- Environmental Protection Agency (EPA), 2022, *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports*;
 - EirGrid, 2015, *Cultural Heritage Guidelines for Electricity Transmission Projects, A Standard Approach to Archaeological, Architectural and Cultural Heritage Impact Assessment of High Voltage Transmission Projects*;

- EPA, 2003, *Advice Notes on Current Practice in the Preparation of Environmental Impact Statements*;
- Department of Housing, Local Government and Heritage, 2018 *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment*;
- Department of Arts, Heritage and the Gaeltacht, 1999a, *Frameworks and Principles for the Protection of the Archaeological Heritage*;
- Department of Arts, Heritage and the Gaeltacht, 2004 (revised 2011), *Architectural Heritage Guidelines*;
- NMS , 2009, *Code of Practice between the Minister of the Environment, Heritage and Local Government and EirGrid in relation to Archaeological Heritage*;
- National Roads Authority (NRA a), 2005, *Guidelines for the Assessment of Archaeological Heritage Impacts of National Road Schemes*;
- National Roads Authority (NRA b), 2005, *Guidelines for the Assessment of Architectural Heritage Impacts of National Road Schemes*; and
- National Roads Authority (NRA c), 2005, *Guidelines for the Testing and Mitigation of the Wetland Archaeological Heritage for National Road Schemes*.

Setting Assessment Methodology

- 8.2.16 This assessment has been guided by Historic England’s Historic Environment Good Practice Advice in Planning: Note 3 (Second Edition) – The Setting of Heritage Assets (HE, 2017). The Setting of Heritage Assets provides guidance on setting and development management, including assessing the implications of development proposals, a counterpart to which has not yet been produced in the Republic of Ireland.
- 8.2.17 A staged approach is recommended by Historic England for settings assessments, the first step of which is to identify the settings of the cultural heritage assets that may be affected. The second step is to assess whether, how and to what degree these settings make a positive contribution to the importance of the heritage asset(s), i.e., “*what matters and why*”. This includes a description of the key attributes of the cultural heritage asset itself, then considers the physical surroundings of the asset, including its relationship with other heritage assets; the way the cultural heritage asset is appreciated; and the asset’s associations and patterns of use. The third step (where appropriate) is to assess the effect of the proposed development on the significance of assets through the consideration of the key attributes of the proposed development in terms of its location and siting; form and appearance; additional effects; and permanence.
- 8.2.18 The assessment methodology has also been guided by the Department of the Environment, Heritage and Local Government’s Architectural Heritage Protection, Guidelines for Planning Authorities which was published in 2004 and revised in 2011 (DAHG, 2011). This contains the relevant guidance which is detailed below. It is important to note that paragraph 13.8.1 of the guidance states that proposed development outside the curtilage or grounds of a protected structure or Architectural Conservation Areas (ACA) should be given similar consideration as for proposed development within the attendant grounds. This methodology has been combined with the Historic England methodology (Historic England, 2017), in order to conduct a similar and more robust assessment of the impacts of the proposed development on recorded archaeological monuments, in addition to architectural heritage.

- 8.2.19 Paragraph 13.7.1 from the Department of the Environment, Heritage and Local Government's Architectural Heritage Protection, Guidelines for Planning Authorities (DAHG, 2011) states:

"Development Within the Attendant Grounds

13.7.1 It is essential to understand the character of a site before development proposals can be considered. Where attendant grounds of particular significance are proposed for development, a conservation plan could be prepared in advance of any planning application which would identify the significance of the site and locate areas within the designed landscape, if any, which could accept change and development and those areas which could not without damaging the architectural heritage of the place.

13.7.2 When dealing with applications for works within the attendant grounds of a protected structure, a visit to the site should be considered an essential part of the assessment. The planning authority should consider:

- a) Would the development affect the character of the protected structure?*
- b) Would the proposed works affect the relationship of the protected structure to its surroundings and attendant grounds?*
- c) Would the protected structure remain the focus of its setting? For example, a new building erected between a structure and a feature within the attendant grounds will alter the character of both;*
- d) Do the proposed works require an alteration of the profile of the landscape, for example, the creation of a golf course? How would this affect the character of the protected structure and its attendant grounds?*
- e) Do the proposals respect important woodland and parkland? Do they conserve significant built features and landscape features?*
- f) Are there important views of or from the structure that could be damaged by the proposed development? Would important vistas be obstructed by new development?*
- g) Would distant views of important architectural or natural landmarks be blocked or changed? Would a significant skyline be altered?*
- h) Even where the proposed development is at a distance from the protected structure, could it still have an impact? This could include tall or bulky buildings interrupting views of or from the protected structure and other features of the designed landscape;*
- i) Where the new works would not be directly visible from the protected structure, would they be visible from the approaches to the structure or from other important sites or features within the attendant grounds? If so, would this be acceptable?*
- j) What effect would the scale, height, massing, alignment or materials of a proposed construction have on the protected structure and its attendant grounds?*

Other Development Affecting the Setting of a Protected Structure or an Architectural Conservation Area (ACA)

13.8.1 When dealing with applications for works outside the curtilage and attendant grounds of a protected structure or outside an ACA which have the potential to impact upon their character, similar consideration should be given as for proposed

development within the attendant grounds. A visit to the site should be considered an essential part of the assessment.

13.8.2 New development both adjacent to, and at a distance from, a protected structure can affect its character and special interest and impact on it in a variety of ways. The proposed development may directly affect the protected structure, as with buildings in a terrace. Alternatively, it may take the form of a new structure within the attendant grounds of the protected structure. A new development could also have an impact even when it is detached from the protected structure outside the curtilage and attendant grounds but is visible in an important view of or from the protected structure.

13.8.3 The extent of the potential impact of proposals will depend on the location of the new works, the character and quality of the protected structure, its designed landscape and its setting, and the character and quality of the ACA. Large buildings, sometimes at a considerable distance, can alter views to or from the protected structure or ACA and thus affect their character. Proposals should not have an adverse effect on the special interest of the protected structure or the character of an ACA.”

8.2.20 In addition to the documents listed above, the setting assessment methodology has also utilised the guidance contained within Cork County Council, 2006, *Guidance Notes for the Appraisal of Historic Gardens, Demesnes, Estates and their Settings* (Cork County Council, 2006). This document was prepared by Cork County Council in response to increasing adaptation and redevelopment of planned landscapes within the county and also has relevance to development beyond Cork. The guidance notes advise the following stepped approach:

- Identification and description of development, history, features and boundaries of the designed landscape using scoping, archival research and fieldwork;
- Evaluation and assessment of significance including Historical Landscape description, archaeological and horticultural aspects;
- Assessing development proposals through an assessment of the heritage impact; and
- Recommendations for mitigation and management including future research.

Consultations

8.2.21 In preparing the Environmental Impact Assessment Report, Consultee agencies were contacted. Details of these are presented in Chapter 6 Consultations.

Assumptions and Limitations

8.2.22 As regards limitations and assumptions, where dense vegetation or flooding was present, this limited the ability to inspect the field surface for any potential features that may exist. The monitoring of the site investigation trial pits did however provide an opportunity to assess many areas within the bog for the presence of any sub-surface features. Inspection of all drains was carried where accessible, with the exception of drains which were significantly flooded or overgrown. To alleviate potential impacts and to address the limitations with the assessment (due to vegetation, overgrowth and flooding) detailed mitigation measures are presented in Section 8.6. This limitation is dealt with by the implementation of appropriate mitigation measures (Pre-construction and construction stage).

8.2.23 The Gas Connection Corridor does not form part of this planning application but is considered by this EIAR as it is integral to the project. Consent for the Gas Connection

Corridor will be applied for by Gas Networks Ireland (GNI) subject to detailed design and supported by specific assessments. Given the uncertainty over the final route and development footprint of the Gas Connection Corridor, the examination of the associated effects on cultural heritage and archaeology is considered in so far as practicable within this EIAR chapter. A cumulative assessment of the interaction of the predicted effects between the Gas Connection Corridor and the Proposed Development is provided in Section 8.8.

8.3 Policy, Regulatory and Guidance Framework

Policy and Regulatory Framework

8.3.1 This EIAR chapter has been undertaken in accordance with all relevant legislation and policies. The documents utilised in the preparation of this study include:

- DAHRRG (2017) *Code of Practice for Archaeology agreed between the Minister for Arts, Heritage, Regional, Rural and Gaeltacht Affairs and Transport Infrastructure Ireland*. Transport Infrastructure Ireland / Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs <http://www.tii.ie/news/archaeology/code-of-practice>;
- Department of Arts, Heritage, Gaeltacht and the Islands, (1999b). *Policy and Guidelines on Archaeological Excavation*. Dublin. Government Publications Office;
- DAHG (2002) *National Heritage Plan 2002-2007*. Government of Ireland, Dublin. <https://www.clarelibrary.ie/eolas/coclare/heritage/pdfs/national%20heritage%20plan.pdf>;
- National Monuments Acts (1930 – 2004);
- The Heritage Act 1995 (as amended);
- National Heritage Plan (2002);
- Planning and Development Acts 2000 – 2020;
- Offaly County Development Plan 2021-2027; and
- Westmeath County Development Plan 2021-2027.
- The Historic and Archaeological Heritage Bill 2023 was published in January 2023 and is currently at Dáil Third Stage. The Bill will repeal the National Monuments Acts 1930 to 2014 and replace those Acts with new provisions for heritage protection. It will modernise historic and archaeological heritage legislation, providing for a single integrated licensing system and statutory codes of practice. It will confer legal protections on new finds of archaeological sites and set out a civil enforcement system to be used as an alternative to, or to supplement criminal proceedings. It will also provide for the State to ratify some key international conventions in the area of heritage protection.

Local Policy Framework

8.3.2 The Proposed Development spans two county boundaries and is subject to the County Development Plans of both Counties Offaly and Westmeath. Policies relating to Built Heritage are covered within Chapter 10 of the Offaly County Development Plan 2021-2027.

8.3.3 Chapter 10 recognises that “*Offaly’s historic environment, comprising its built form, landscape, heritage and archaeology, provides a depth of character that benefits the county’s economy, culture and quality of life of our citizens. Built heritage assets are a non-renewable resource that contributes to our understanding of the past. It is important that our components of our built heritage such as our historic planned towns, heritage towns, protected structures, Geashill Architectural Conservation Area, sites and monuments, country houses and demesnes, industrial architecture, vernacular structures and monastic sites are valued and protected for future generations*”.

8.3.4 The following policies are applicable to Protected Structures within the study area of the Proposed Development and Overall Project:

- **BHP-01** *“It is Council policy to ensure the protection, sympathetic and sensitive modification, alteration, extension or reuse of protected structures or parts of protected structures, and the immediate surrounds included and proposed for inclusion in the Record of Protected Structures that are of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest, together with the integrity of their character and setting.”*
- **BHP-02** *“It is Council policy to ensure the protection of the curtilage of protected structures or proposed protected structures and to prohibit inappropriate development within the curtilage or attendant grounds of a protected structure which would adversely impact on the special character of the protected structure including cause loss of or damage to the special character of the protected structure and loss of or damage to, any structures of architectural heritage value within the curtilage of the protected structure.”*

8.3.5 The following policies are applicable to Industrial Heritage within the study area of the Proposed Development and Overall Project:

- **BHP-22** *“It is Council policy to protect the industrial heritage of Offaly, including mills, historic industrial buildings, canals and historic bridges.”*
- **BHP-24** *“It is Council policy to protect and enhance the built and natural heritage of the Grand Canal and ensure that development within its vicinity is sensitively designed and does not have a detrimental effect on the character of the canal, its built elements and its natural heritage values and that it adheres to the Waterways Ireland’s Heritage Plan 2016-2020.”*
- **BHP-27** *“It is Council policy to restrict vehicular access onto public roads that were formerly towpaths and any development permitted with access off a towpath must be screened effectively with trees and hedging. In relation to planning applications for housing in the open countryside with access proposed off towpaths, applicants must demonstrate compliance with Policy SSP-27 as towpaths are located within Natural Heritage Areas and Areas of High Amenity.”*

8.3.6 The following policies are applicable to Country Houses, Gardens and Demesnes within the study area of the Proposed Development and Overall Project:

- **BHP-28** *“It is Council policy to encourage the protection, conservation, promotion and enhancement of Country Houses, Gardens and Demesnes in the county and support public awareness, enjoyment of and access to these sites where appropriate.”*
- **BHP-29** *“It is Council policy to encourage the conservation, preservation, restoration and protection in their original setting of mausoleums and monuments: follies, grottoes; garden buildings and other structures of particular beauty or historic, environmental, architectural or industrial significance.”*
- **BHP-30** *“It is Council policy to discourage development that would lead to a loss of, or cause damage to, the character, the principle components of, or the setting of Country Houses, Gardens and Demesnes.”*
- **BHP-31** *“It is Council policy to consider the Guidance Notes for the Appraisal of Historic Gardens, Demesnes, Estates and their Settings published by Cork County Council 2006 in the appraisal and description of the impacts of proposed developments in County Offaly within or in close proximity to country houses and demesnes on historic designed landscapes, demesnes and gardens.”*

8.3.7 The following policies are applicable to Archaeological Heritage within the study area of the Proposed Development and Overall Project:

- **BHP-33** *“It is Council policy to support and promote the protection and appropriate management and sympathetic enhancement of the county’s archaeological heritage within the Plan area, in particular by implementing the Planning and Development Act 2000 (as amended) and the National Monuments Act 1930 (as amended).”*
- **BHP-35** *“It is Council policy to consult with the National Monuments Service of the Department of Culture, Heritage and the Gaeltacht (DCHG) in relation to archaeological sites within and/or adjoining a proposed development.”*
- **BHP-36** *“It is Council policy to facilitate the identification of important archaeological landscapes in the county.”*
- **BHP-37** *“It is Council policy that any development that may, due to its size, location or nature, have implications for archaeological heritage (including both sites and areas of archaeological potential / significance) shall be subject to an archaeological assessment. When dealing with proposals for development that would impact upon archaeological sites and/or features, there will be presumption in favor of the ‘preservation in situ’ of archaeological remains and settings, in accordance with Government policy. Where permission for such proposals is granted, the Planning Authority will require the developer to have the site works supervised by a licenced archaeologist.”*
- **BHP-38** *“It is Council policy to ensure that archaeological excavation is carried out according to best practice as outlined by the National Monuments Service, Department of Culture, Heritage and the Gaeltacht, the National Museum of Ireland and the Institute of Archaeologists of Ireland and to protect previously unknown archaeological sites and features, where they are discovered during development works.”*
- **BHP-39** *“It is Council policy to ensure the protection and preservation of underwater and terrestrial archaeological sites, both known and potential in riverine or lacustrine locations including wrecks such as the remains of bridges.”*
- **BHP-40** *“It is Council policy to require archaeological assessment, including underwater archaeological assessment where relevant, for such developments that due to their location, size or nature may have implications for archaeological heritage. Such developments include those that are located at or close to an archaeological monument or site, those that are extensive in terms of area (0.5 hectares or more) or length (1 kilometer or more and developments that require an Environmental Impact Statement).”*

8.3.8 Policies relating to Built Heritage are covered within Chapter 14 of the Westmeath County Development Plan. Chapter 14 notes that *“cultural heritage is the legacy of past generations; it is part of our identity, and the distinctive character of where we come from. Tangible aspects of this cultural heritage include archaeological sites and monuments, vernacular structures, and historic buildings – the landscape indicators of our past. Intangible aspects of our cultural heritage include mythology associated with the County such as the story of the Children of Lír, An Táin Bó Cúailgne (the Cattle Raid of Cooley), links to historic figures and events, as well as language, folklore and place names. The vast array of archaeological, built, cultural and natural assets in the County are the cornerstone of our tourism product. In this regard, Cultural Heritage plays a significant role in attracting visitors to the County”*.

8.3.9 Regarding archaeological heritage, it is a policy of Westmeath County Council to:

- **CPO 14.5** *“Seek to ensure the protection and sympathetic enhancement of archaeological heritage, and in this regard, applications will be referred to the National Monuments Service, Department of Culture, Heritage & the Gaeltacht for comment.”*
- **CPO 14.6** *“Seek to ensure the protection of archaeological sites and monuments and their settings and archaeological objects that are listed in the Record of Monuments and Places, in the ownership/guardianship of the State, or that are the subject of Preservation Orders or have been registered in the Register of Historic Monuments. Seek to ensure the protection and preservation of archaeological sites, which have been identified subsequent to the publication of the Record of Monuments and Places.”*
- **CPO 14.7** *“Ensure that any development adjacent to an archaeological monument or site shall not be detrimental to the character of the archaeological site, or its setting and shall be sited in a manner which minimises the impact on the monument and its setting. Development which is likely to detract from the setting of such a monument or site will not be permitted.”*
- **CPO 14.8** *“Seek to ensure the protection and preservation of underwater archaeological sites in riverine or lacustrine locations.”*
- **CPO 14.11** *“Consult with the National Monuments Service in relation to proposed developments adjoining archaeological sites.”*
- **CPO 14.12** *“Ensure that archaeological excavation is carried out according to best practice as outlined by the National Monuments Service, Department of Culture, Heritage, and Westmeath County Development Plan 2021-2027.”*
- **CPO 14.15** *“Ensure that all proposed development affecting disturbance to peatlands is subject to archaeological monitoring, in consultation with the Department of Culture, Heritage and the Gaeltacht, unless otherwise agreed with the Planning Authority.”*

8.3.10 Regarding architectural heritage and Protected Structures, it is a policy of Westmeath County Council to:

- **CPO 14.27** *“Protect and conserve buildings, structures and sites contained in the Record of Protected Structures and to encourage the sympathetic re-use and long-term viability of such structures without detracting from their special interest and character.”*
- **CPO 14.28** *“Protect the architectural heritage of Westmeath through the identification of Protected Structures, the designation of Architectural Conservation Areas (ACAs), the safeguarding of designed landscapes and historic gardens, and the recognition of structures and elements that contribute positively to the vernacular and industrial heritage of the County.”*
- **CPO 14.30** *“Seek that the form and structural integrity of Protected Structures is retained as part of any redevelopment proposal and that the relationship between the Protected Structure and any complex of adjoining buildings, designed landscape features, or designed views or vistas from or to the structure is considered.”*

8.3.11 Regarding architectural conservation areas, it is a policy of Westmeath County Council to:

- **CPO 14.39** *“Promote development that positively contributes to the character and appearance of the Architectural Conservation Area. New development or alterations to existing building(s) in an ACA shall respect the special character of the ACA and*

reflect the historic architecture in terms of scale, design and materials used. Regard shall be had to any guidance contained in the Statement of Characters prepared for ACAs.”

- **CPO 14.42** *“Ensure that Architectural Conservation Areas (ACAs), including any associated public realm area, are protected and ensure that any new development or alteration of a building within or adjoining an ACA positively enhances the character of the area and is appropriate in terms of the plot size, proposed design, including: scale, mass, height, proportions, density, layout, materials, plot ratio, and building lines.”*
- **CPO 14.43** *“Avoid the removal of structures and distinctive elements (such as boundary treatments, street furniture, paving and landscaping) that positively contribute to the character of Architectural Conservation Areas.”*

8.3.12 Regarding Historic Parks, Gardens and Demesnes, it is a policy of Westmeath County Council to:

- **CPO 14.52** *“Require a masterplan to be prepared for development proposals within historic designed and demesne landscapes. Such a plan should include an appraisal of the designed landscape together with an architectural appraisal, in order to inform design proposals, which must be sensitive to and respect the built heritage elements and green space values of the site.”*

8.3.13 Regarding Industrial Heritage, it is a policy of Westmeath County Council to:

- **CPO 14.54** *“Protect, where appropriate, industrial heritage structures or elements of significance identified in the Inventory of Industrial Heritage and any subsequent surveys by adding them to the Record of Protected Structures.”*
- **CPO 14.55** *“Utilise the information provided within the Inventory of Industrial Heritage Sites in Westmeath, and any subsequent surveys when assessing development proposals for industrial heritage sites.”*
- **CPO 14.56** *“Support the retention and appropriate repair/maintenance of historic bridges and other significant industrial heritage features in the County.”*
- **CPO 14.57** *“Encourage the conservation of industrial heritage, in particular the equipment, machinery and techniques developed by Bord na Móna and support the development of an industrial heritage museum, interpretative centre or education centre at a suitable location in the County.”*

Guidance

8.3.14 This EIAR chapter has been undertaken in accordance with all relevant guidelines. The guidelines utilised in the preparation of this study comprise the following:

- Environmental Protection Agency (EPA), 2022, *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports*;
- EirGrid, 2015, *Cultural Heritage Guidelines for Electricity Transmission Projects, A Standard Approach to Archaeological, Architectural and Cultural Heritage Impact Assessment of High Voltage Transmission Projects*;
- EPA, 2003, *Advice Notes on Current Practice in the Preparation of Environmental Impact Statements*;
- Department of Housing, Local Government and Heritage, 2018 *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment*;

- Department of Arts, Heritage and the Gaeltacht, 1999a, *Frameworks and Principles for the Protection of the Archaeological Heritage*;
- Department of Arts, Heritage and the Gaeltacht, 2004 (revised 2011), *Architectural Heritage Guidelines*;
- NMS, 2009, *Code of Practice between the Minister of the Environment, Heritage and Local Government and EirGrid in relation to Archaeological Heritage*;
- National Roads Authority (NRA a), 2005, *Guidelines for the Assessment of Archaeological Heritage Impacts of National Road Schemes*;
- National Roads Authority (NRA b), 2005, *Guidelines for the Assessment of Architectural Heritage Impacts of National Road Schemes*; and
- National Roads Authority (NRA c), 2005, *Guidelines for the Testing and Mitigation of the Wetland Archaeological Heritage for National Road Schemes*.

Determination of Sensitive Receptors

8.3.15 A heritage asset’s value is not solely expressed through any designated status but can also be exhibited through a series of values or special interests. These include architectural, historical, artistic, archaeological, cultural, scientific, social or technical interests. In order to assess the potential effects of a development upon a heritage asset, it must first be assigned a level of importance. This can be done in accordance with a four-point scale (Table 8 1). This table has been derived from the following guidance, with reference to the legislation and policy, and using professional judgment:

- Department of Arts Heritage and the Gaeltacht, *National Inventory of Architectural Heritage (NIAH) Handbook* (2013);
- Environmental Protection Agency (EPA) *Guidelines on Information to be Contained in Environmental Impact Assessment Reports* (2022);
- NRA *Guidelines for the Assessment of Archaeological Heritage Impacts* (particularly Appendix 2, Significance Criteria) (2005a); and
- NRA *Guidelines for the Assessment of Architectural Heritage Impacts* (particularly Table 8) (2005b).

Table 8.1: Factors determining the heritage significance of heritage assets

IMPORTANCE	CRITERIA
National/ High	National Monuments; Recorded Monuments deemed to be of high importance using legislation, EPA guidance, NRA Significance Criteria and professional judgment; Protected structures deemed to be of high importance using legislation, EPA guidance, NIAH rating criteria and professional judgment; Structures recorded by the NIAH Building Survey with a National Rating or deemed to be of high importance using legislation, EPA guidance, NIAH rating criteria and professional judgment; Designed landscapes recorded by the NIAH Garden Survey with main features substantially present and deemed to be of high importance using legislation, EPA guidance, NIAH rating criteria and professional judgment; ACAs containing structures and/ or designed landscapes of predominantly national importance; Undesignated archaeological remains which are rare or complex in nature, and deemed to be of high importance using legislation, EPA guidance, NRA Significance Criteria and professional judgment.

IMPORTANCE	CRITERIA
Regional/ Medium	<p>Recorded Monuments deemed to be of medium importance using legislation, EPA guidance, NRA Significance Criteria and professional judgment;</p> <p>Protected structures deemed to be of medium importance using legislation, EPA guidance, NIAH rating criteria and professional judgment;</p> <p>Structures recorded by the NIAH Building Survey with a Regional Rating or deemed to be of medium importance using legislation, EPA guidance, NIAH rating criteria and professional judgment;</p> <p>Designed landscapes recorded by the NIAH Garden Survey with main features substantially present and deemed to be of medium importance using legislation, EPA guidance, NIAH rating criteria and professional judgment;</p> <p>ACAs containing structures and/ or designed landscapes of predominantly regional importance;</p> <p>Undesignated architectural heritage assets which are deemed to be of medium importance using legislation, EPA guidance, NIAH rating criteria and professional judgment;</p> <p>Undesignated archaeological remains which are neither particularly common nor uncommon, and/ or of moderate complexity, and deemed to be of medium importance using legislation, EPA guidance, NRA Significance Criteria and professional judgment.</p>
Local/ Low	<p>Structures recorded by the NIAH Building Survey with a Local or Record Only Rating or deemed to be of low importance using legislation, EPA guidance, NIAH rating criteria and professional judgment;</p> <p>Designed landscapes recorded by the NIAH Garden Survey with only peripheral features surviving, and deemed to be of low importance using legislation, EPA guidance, NIAH rating criteria and professional judgment;</p> <p>Undesignated architectural heritage assets which are deemed to be of low importance using legislation, EPA guidance, NIAH rating criteria and professional judgment;</p> <p>Undesignated archaeological features which are particularly common or in poor condition, and deemed to be of low importance using legislation, EPA guidance, NRA Significance Criteria and professional judgment;</p> <p>Parks/ Gardens/ Demesnes recorded by the NIAH Garden Survey which have poor historic legibility.</p>
Negligible	<p>Locations/ original locations of heritage assets marked on OS maps such as architectural fragments, boundary stones but no longer extant or moved to other locations (museum etc).</p> <p>19th-20th century civic locations such as police stations, schools, reservoirs, churches marked on OS maps in areas now redeveloped.</p> <p>Single findspots of medieval / post medieval coins as very limited potential for further archaeological discoveries in these locations.</p>

Describing Potential Effects

8.3.16 Having identified the value of the heritage asset, the magnitude of the effect from the Proposed Development and Overall Project is assessed. Potential effects are defined as a change resulting from the Proposed Development and Overall Project which affects a heritage asset. These effects are considered using the following broad categories – quality, extent and context, probability, significance and duration (EPA, 2022). The quality can be reported on a three-point scale:

- Positive – a change which improves the quality or the special interests of the asset, for example the removal of an element of the surrounding setting which detracts from the appreciation of an asset;
- Neutral – a change which does not affect the quality or special interests of the asset; and
- Negative/ adverse – a change which reduces the quality or special interest of the asset, for example the removal of a below ground archaeological deposit through construction.

8.3.17 The extent and context can be assessed by the following two descriptions:

- Extent – the description of the size of the area and number of assets affected; and
- Context – the description whether the extent, duration, or frequency will conform or contrast with established baseline conditions relating to an asset.

8.3.18 The probability can be described by the following:

- Likely – these are effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented; and
- Unlikely – these are effects that can reasonably be not expected to occur because of the planned project if all mitigation measures are properly implemented.

8.3.19 The duration can be defined by the following criteria:

- Momentary – lasting from seconds to minutes;
- Brief – lasting for a day or less;
- Temporary – lasting for one year or less;
- Short-term – lasting one to seven years;
- Medium-term – lasting seven to fifteen years; and
- Long-term – lasting fifteen to sixty years.

8.3.20 Effects can also be identified as permanent, i.e. lasting over sixty years and reversible, i.e. can be reversed through remediation or restoration. Another consideration is the frequency, i.e., how often the effect will occur once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually.

8.3.21 These descriptions of effects have been derived from the EPA’s ‘Guidelines for the Information to be Contained in an Environmental Impact Assessment Reports’ (EPA, 2022) and as outlined in EIAR Chapter 1: Introduction. The effect upon the setting of an asset is also taken into account.

8.3.22 An overall magnitude of effect is then arrived at without reference to the value of the asset. Table 8.2 provides the magnitude of effect criteria used. The magnitude of effect takes into account control measures which have been embedded within the Proposed Development as part of the design process.

Table 8.2: Criteria for determining the magnitude of effect on heritage assets (EPA 2022)

MAGNITUDE	DESCRIPTION
High	Change such that the special interests or qualities of the asset are totally altered or destroyed. Comprehensive change to setting affecting importance of asset, resulting in a serious loss in our ability to understand and appreciate the asset.

Medium	Change such that the special interests or qualities of the asset are affected. Noticeably different change to setting affecting importance, resulting in erosion in our ability to understand and appreciate the asset.
Low	Change such that the special interests or qualities of the asset are slightly affected. Slight change to setting affecting significance resulting in a change in our ability to understand and appreciate the asset.
Negligible	Minimal change to the asset that has little effect on its special interests or qualities. Does not affect our ability to understand and appreciate the asset.

Significance of Impact

8.3.23 Once the magnitude of the effect has been identified, this can be cross-referenced with the importance of the asset to derive the overall significance of impact, or the consequence of the change resulting from the Proposed Development (Table 8.3). The significance can be judged on a seven-point scale:

- Imperceptible – a change capable of measurements but without significant consequences;
- Not significant – an impact which causes noticeable changes in the character of the asset but without significant consequences;
- Slight impact – an impact which causes a noticeable change without affecting the special interests or qualities of the asset to any particular degree;
- Moderate impact – a change which alters the character or special qualities of an asset in a manner that is consistent with existing and emerging baseline trends;
- Significant impact – an impact, which by its character, magnitude, duration or intensity, alters the special interests or qualities of an asset;
- Very significant – an impact which by its character, magnitude, duration or intensity significantly changed the special interests or qualities of an asset; and
- Profound impact – an impact which obliterates the special interest or qualities of an asset.

Table 8.3: Significance of Impact Matrix (EPA 2022)

MAGNITUDE OF EFFECT	SIGNIFICANCE OF CULTURAL HERITAGE ASSET			
	LOCAL	REGIONAL	NATIONAL	INTERNATIONAL
High	Significant	Significant	Profound	Profound
Medium	Moderate	Significant	Significant	Profound
Low	Slight	Moderate	Significant	Significant
Negligible	Imperceptible	Slight	Slight	Moderate

8.3.24 This chapter considers that moderate to profound impacts are classed as significant. Once a significant impact has been identified, additional mitigation can be put forward to offset, reduce or compensate for any significant adverse effects, or to enhance positive effects. Reassessing the significance after applying additional mitigation measures reflects the success rating of the mitigation and allows the level of residual effect and impact to be assessed.

Construction Phase

- 8.3.25 This assesses the effects resulting from the construction of the Proposed Development and Overall Project up to commencement of operation and includes temporary impacts from construction activities and permanent impacts from the Proposed Development and Overall Project. The construction works, comprising excavations and earthworks and including temporary works such as construction compounds and storage areas have the likelihood to significantly affect heritage assets during the construction period. Permanent effects can occur either as a result of physical impacts on heritage assets or through changes to the setting of heritage assets through the presence of the Proposed Development.
- 8.3.26 The assessment of likely significant effects during operation is assessed under the criteria outlined in sections 8.3.28 – 8.3.30.

Operational Phase

- 8.3.27 This assesses the likely significant effects which could result from the operation of the Proposed Development and Overall Project. Such impacts could include increased noise and lighting.
- 8.3.28 The assessment considers the Proposed Development and Overall Project once operational, and all effects are considered to be long-term. During the operation of the Proposed Development and Overall Project, no further ground works are anticipated, and as such there would be no further physical impacts on any heritage assets.
- 8.3.29 Impacts on heritage assets due to changes in their settings arising from the presence of the Proposed Development and Overall Project are considered permanent construction effects. These are reported under the construction assessment and are not repeated as operational effects, although they would continue throughout the operation of the Proposed Development and Overall Project.
- 8.3.30 The assessment of potential effects during decommissioning is assessed under the criteria outlined in sections 8.3.32.

Decommissioning Phase

- 8.3.31 Effects arising from the process of decommissioning of the Power Plant Area are considered to be of a similar nature and duration to those arising from the construction process and therefore have not been considered separately in this chapter.
- 8.3.32 The Electricity Grid Connection will be managed by the transmission asset operators (TAO) and transmission service operators (TSO) (ESBNI and EirGrid for electricity) as part of the national grid electricity. Upon decommissioning of the Power Plant Area, the 220kV substation and 400kV substation and associated transmission infrastructure will remain in-situ and form part of the national grid infrastructure. Effects of the decommissioning of the Electricity Grid Connection therefore have not been considered as this is not envisaged.
- 8.3.33 The gas connection will be managed by the transmission asset operators (TAO) and transmission service operators (TSO) (GNI for gas) as part of the national gas networks. At the end of its design life, it is expected that the gas connection pipeline may have residual life remaining and the operational life may be extended if appropriate and/or the asset refurbished and retained as part of the national transmission network. Effects of the decommissioning of the Gas Connection Corridor therefore have not been considered as this is not envisaged.

8.4 Baseline Environmental Conditions and Constraints

Power Plant Area

Geology

- 8.4.1 The majority of the Power Plant Area is located on a 'dry bog island' (Derrygreenagh Hill), within the existing Derrygreenagh Works located to the west of Drumman Bog with smaller areas on the extremity of the Power Plant Area located within areas of predominantly cutover bog. The Power Plant Area includes Made/Built land within the existing Derrygreenagh Works and parts of the adjacent bog. This overlies Dark limestone & shale ("Calp") of the Lucan Formation. The surrounding terrain comprises Basin Peats and some Blanket Peats which have been cutover/cutaway, and these overlie dark limestone & shale ("Calp") of the Lucan Formation.

Archaeological Sites and Monuments within the 1km Study Area

- 8.4.2 While there are no recorded archaeological assets within the boundaries of the Power Plant Area, 19 are recorded within the 1km study area. These are all located within the surrounding commercially cut peat bogs and were uncovered during field surveys conducted by the Irish Archaeological Wetland Unit in 2001 and 2002.
- 8.4.3 A concentration of 16 assets (OF003-036-050) are located to the southeast within Drumman Bog. These comprise the remains of toghers (trackways), post rows and structures. The toghers are generally composed of light brushwood overlain by round woods with some posts and pegs. There is evidence for a network of trackways crossing the bog in different directions, including southwest to northeast, west-northwest to east-southeast, north-northwest to south-southeast, northwest to southeast and north to south. These may extend into the proposed peat and spoil deposition area within the Power Plant Area.
- 8.4.4 The post rows appear to be orientated northwest to southeast and comprise posts with well-preserved points. The structures comprise pieces of worked wood that have been disturbed. These may represent the remains of post rows or other structures, but their original purpose and form can no longer be discerned.
- 8.4.5 The concentration of archaeological assets within the area shows definite activity, although the relationship of these assets to one another is unknown. Radiocarbon dating of the togher (OF003-038) returned a date of 1683-1409 calibrated (cal.) BC while togher (OF003-045) dates to 1187-830 cal. BC. This places the activity to the mid-/late Bronze Age, with the orientation of the toghers all showing connection with the dry bog island of Derrygreenagh Hill where settlement activity could have been located.
- 8.4.6 The remaining three recorded archaeological assets within the 1km study area are located in Derryarkin Bog to the west of the Power Plant Area and comprise two structures (OF003-032 and 034) and the remains of a togher (OF003-033). The orientations of these assets appear to be north-south which may suggest a relationship between them, although this is not proven and no dating evidence has been obtained from these assets to confirm if they are contemporary. Their orientation takes them away from Derrygreenagh Hill and it is unclear if they were linked to settlement on the dry bog island.

Protected Structures within the 1km study area

- 8.4.7 There are no Protected Structures within the 1km study area.

National Inventory of Architectural Heritage

- 8.4.8 There are no assets recorded on the National Inventory of Architectural Heritage within the 1km study area.

Previous Archaeological Investigations

- 8.4.9 The 1km study area incorporates two townlands- Knockdrin and Derrygreenagh. Two previous archaeological investigations are recorded for the townland of Knockdrin. The earlier of these took place in 2001 and related to the field surveys conducted by the Irish Archaeological Wetland Unit in 2001 (McDermott, 2002). The results of this survey are outlined in paragraphs 8.4.3 to 8.4.5 above.
- 8.4.10 The second archaeological investigation took place in 2017 and related to the archaeological monitoring of geotechnical site investigations associated with the development of a wind farm in the townlands of Derryarkin, Derryiron, Coolcor, Coolville, Ballyburly, Greenhills, Bunsallagh, Derrygreenagh, Knockdrin, Wood, Killowen, Corbetstown, Carrick, Garr and Dunville, just north of Rhode (Fitzpatrick, 2017).
- 8.4.11 The excavation of 54 trenches was monitored with the trenches generally measured 3-5m in length x 1m in width and were excavated to varying depths up to 4m in depth. Nothing of archaeological significance was uncovered.
- 8.4.12 The archaeological investigations associated with the Irish Archaeological Wetland Unit in 2001, and the 2017 archaeological monitoring of geotechnical site investigations associated with the development of a wind farm, also extended into the townland of Derrygreenagh. The assets described in paragraph 8.4.6 above were uncovered during the Irish Archaeological Wetland Unit survey in 2001.

Historic Cartographic Evidence

- 8.4.13 The 1st edition Ordnance Survey (OS) Map (1838) shows the layout of the location of the Power Plant Area Site during the 1830s (map not reproduced). This shows the location of the Power Plant Area as occupying the northern extent of Derrygreenagh Hill. Derrygreenagh Hill is an oval area of ground completely surrounded by bog with the road crossing its western extent northwest to southeast.
- 8.4.14 A complex comprising five buildings is shown within the location of the Power Plant Area. A lane links these buildings to the main road while the hill is shown as subdivided into four fields. No other features of note are shown. There are no indications of possible archaeological sites.
- 8.4.15 The 2nd edition OS map (1912) shows the location of the Power Plant Area at the beginning of the 20th century (map not reproduced). This still shows Derrygreenagh Hill as dryland surrounded by bog and subdivided into fields. The number of fields has increased to eight with the southwestern field shown as marginal ground. A quarry is shown to the immediate southwest of the main road. The buildings are no longer shown, although their former location is still apparent.
- 8.4.16 The 3rd edition OS map (1922) shows the location of the Power Plant Area during the 1920s (map not reproduced). The location of the Power Plant Area and Derrygreenagh Hill are unchanged from the previous map sheet. There are no indications of possible archaeological sites within the Power Plant Area.

Archaeological Monitoring of Site Investigation Works

- 8.4.17 Site Investigation Works including trial pits were carried out to inform the design of this project. These trial pits were mechanically excavated under archaeological supervision (licence No. 23E0352) and were generally 1m in width and 2-3m in length (Rooney, 2023 and Appendix 8a). A total of 20 trial pits (TP 201-220) were excavated within the existing Derrygreenagh Works on Derrygreenagh Hill with a further six trial pits (TP SS01-06) excavated within the proposed footprint of the 220kv substation, ten trial pits excavated within milled peat (TP301-310) and three trial pits (TP311-313) excavated within the proposed line of the outflow pipe.

- 8.4.18 The trial pits located around the peripheries of the existing Derrygreenagh Works uncovered evidence of peat to a depth of 4.5m overlying grey, gravelly clay. Trial pits towards the centre of the existing Derrygreenagh Works uncovered sod and topsoil overlying orangey brown clayey silt at a depth of 0.3m while other trial pits revealed evidence of disturbance associated with the Derrygreenagh Works including redeposited clay, fill material and drainage features. A linear feature was uncovered in TP 206 measuring 3.1m long (where exposed), 0.7m wide and 0.7m deep. This feature has been interpreted as associated with settlement indicated on the historic OS mapping dating to the 19th century. The linear feature was covered in plastic with the pit backfilled.
- 8.4.19 The six trial pits TP SS01-06 excavated within the footprint of the proposed 220kn substation on milled peat. These trial pits uncovered peat to a maximum depth of 3.15m overlying blue clay. Nothing of archaeological significance was uncovered within these trial pits.
- 8.4.20 TP01-10 were excavated within an area of milled peat with TP302-304 located adjacent to the townland boundary with Derryarkin. Trial pits 307 and 308 were in the vicinity of the recorded monuments recorded monuments OF003-032 (Peatland structure), OF003-033 (Togher) and OF003-034 (Peatland structure). TP307 contained a possible archaeological feature comprising a worked plank element. One fragment measured 1.1m by 0.19m while the other measured 0.56m by 0.16m. A second trial pit was excavated 10m to the north and this also contained a plank. Both plank elements were contained within disturbed ground and are, therefore, unsecure contexts for these planks. It is likely that the planks come from an archaeological feature which had been previously disturbed by peat harvesting activity.
- 8.4.21 TP311-313 were excavated along the proposed line of the outflow pipe to the north of the existing Derrygreenagh Works. This area showed evidence of disturbance from milling activities although undisturbed peat was recorded to a maximum depth of 3.8m overlying wet clay gravel. Nothing of archaeological significance was uncovered within these trial pits.
- 8.4.22 Further archaeological fieldwork was carried out in August 2023 when two areas were subject to walkover survey (ThruTime, 2023 and Appendix 8b). Both related to proposed peat deposition areas (PDA) associated with various elements of the scheme with only Site 2 located within the Power Plant Area. Site 2 is associated with the proposed PDA for material excavated during the construction of the Power Plant Area and is located to the east of Derrygreenagh Hill. The area is orientated northwest to southeast and is defined by a raised bank/accessways in the west and south.
- 8.4.23 The terrain comprises milled peat fields bounded by west to east running drainage ditches while some of the fields are completely or partially overgrown showing that no peat extraction has taken place recently. The accessible fields were walked, and a number of unworked timbers were noted exposed on the ground surface. One partially buried timber was traced for a length of 15m. No archaeological remains were noted during the archaeological walkover.

Site Visit

- 8.4.24 The site was visited on the 30 March 2023. The weather was overcast with some heavy showers. The Power Plant Area is located largely to the east of the R400 road on Derrygreenagh Hill and includes a large portion of the current Bord na Móna Derrygreenagh Works. The western side comprises grassed areas around the Reception / Site Offices (Plate 8.1). The grass is landscaped and well maintained as lawns planted with occasional shrubs.

8.4.25 The Power Plant Area comprises large sheds surrounded by open gravelled, tarmac and cement surfaces (Plate 8.2). These surfaces show signs of subsurface services and drainage (Plate 8.3). The northern and eastern extents of the Derrygreenagh Works are under grass (Plate 8.4), although these areas are rough underfoot and therefore may have been previously disturbed. A rail track extends around the outer edge of the Derrygreenagh Works and the area beyond comprises peat bog (Plate 8.5). This is a commercially worked peat extraction area where peat is still present, although the remaining depth of this is unknown. There may therefore be the potential for archaeological remains to be present. Similarly, the area to the north where the discharge pipe will run to the Mongagh River also comprises the track of the disused railway line where peat is still present (Plate 8.6). Site investigation works found undisturbed peat present to a depth of 3.8m and there is the potential for sub-surface archaeological remains to be present.

Settings Impact Assessment

8.4.26 Designated Heritage assets (National Monuments and Protected Structures) within 3km of the Site were assessed. Non-designated heritage assets including recorded monuments, structures and designed landscapes recorded by the NIAH within 1km of the Site were also assessed.

8.4.27 Three Protected Structures and 20 recorded monuments were assessed using Google Streetview, aerial / satellite imagery and mapping. Sites which were evidently screened by intervening modern development or dense vegetation during this review were scoped out of further assessment, as their settings were not considered to include the Site. Other sites, which by their nature would not be impacted upon by development some distance away, such as archaeological sites discovered through archaeological excavation or screened by intervening topography and vegetation, were also scoped out.

8.4.28 Following the review outlined above, it was determined that all the 20 recorded monuments were uncovered through archaeological survey and their settings will not be impacted by the Proposed Development and Overall Project. The three Protected Structures were considered to be potentially sensitive to change from the Proposed Development and Overall Project and are discussed in the following paragraphs.

Designated Assets within the wider 3km Study Area

- 8.4.29 Three Protected Structures are located within the wider 3km study area around the Main Development Site. These are all located c.2.5km to the northwest and are associated with a single property – Sidebrook House (RPS 33-017) which is a country house dating to 1815. Associated structures are a complex of single and two-storey outbuildings built c.1815 and c.1850 (RPS 33-018), a field gate (RPS 33-018), entrance gates (RPS 33-018) and a house dating to 1800 (RPS 33-016).
- 8.4.30 These assets are considered regionally important as designated Protected Structures. Examination of Google Streetview showed views of the locations of these assets to be screened from the Main Development Site by mature vegetation, topography, distance and intervening structures such as the M8 motorway. There are no views between these assets and the Main Development Site does not form part of their settings and does not contribute to the importance of these assets.

Electricity Grid Connection*Geology*

- 8.4.31 The majority of the Electricity Grid Connection (as Defined in Chapter 1 of this EIAR) is located within Derryarkin Bog and Ballybeg Bog comprising Basin Peats and some Blanket Peats which have been cutover/cutaway and these overlie dark limestone & shale ("Calp") of the Lucan Formation. The 400kV substation is located at the southwest extent of the Electricity Grid Connection on agricultural lands. This terrain comprises till, formed from limestone, overlying dark limestone & shale ("Calp") of the Lucan Formation.

Archaeological Sites and Monuments within the 1km Study Area

- 8.4.32 There are no recorded archaeological assets within the footprint of the Electricity Grid Connection, with 108 assets recorded within the 1km study area. The majority of these assets are located within the surrounding commercially cut peat bogs and were uncovered during field surveys conducted by the Irish Archaeological Wetland Unit in 2001 and 2002.
- 8.4.33 16 of these assets are located c. 680m from the 220kV substation which will be located at the northern end of the Electricity Grid Connection (west of the R400 road). These assets are located within Drumman Bog and have already been discussed within paragraphs 8.4.3-8.4.5 above.
- 8.4.34 Three assets (OF003-032 to 034) are located c.570m to the southeast of the 220kV substation and to the immediate south of the Process Water Discharge Pipe route. These assets have already been discussed in paragraph 8.4.6 above comprising two structures (OF003-032 and 034) and the remains of a togher (OF003-033). The orientation of the togher (OF003-033) appears to be north-south which suggests that it could extend under the Process Water Discharge Pipe route.
- 8.4.35 A concentration of 86 assets is located within Ballybeg Bog, to the east of the route of the 220kV buried cable and north of the L1010 Toghher Road. This concentration was uncovered during fieldwork by the Irish Archaeological Wetland Unit in 2001 with the majority of assets comprising structures which were poorly preserved or had been disturbed by peat milling activities. These structures generally consisted of wood with worked ends, although an artefact was recovered from the structure (OF010-433) in the form of a fragment of a yoke. It comprised a finely carved composite object of wood and leather. The main body consists of the curved terminal end of the yoke with the remains of a perforated shaft. This is attached to a semi-circular wooden toggle by a leather strap looped through a perforation at the end of the main body. Artefacts recovered from other structures included flint arrowheads.

- 8.4.36 The remains of toghers were also uncovered with the lines of the trackways traceable within the exposed sections of drainage ditches. These toghers appear to follow the line of a possible paleo-channel orientated in a north direction across the bog towards the location of Lough Nashade. None of the toghers are substantial structures which cross the entire bog, with most appearing to have facilitated access to areas within the bog rather than through it.
- 8.4.37 Evidence for settlement (OF011-059) and stone enclosure (OF011-060) was uncovered c.594m to the east of the route of the 220kV buried cable, close to what may have been an earlier lakeshore. The settlement site (OF011-059) comprised a layer of stone which had been disturbed by peat milling. Possible hearths were also uncovered as well as worked flint. Subsequent archaeological investigation took place in 2002 (O'Carroll, 2002) and further investigation in 2008 when Bord na Móna decided to determine the full extent of the site (Whitaker, 2014). Five trenches were excavated across the archaeological site, with an activity area identified, measuring 45m long by 35m wide, and comprising charcoal spreads and charcoal and stone features. 17 pieces of worked flint were also recovered. Radiocarbon dates from the site, as a whole, dated it to between 4220 and 2300 BC or the Neolithic to Early Bronze Age.
- 8.4.38 The stone enclosure (OF011-060) was located 35m to the southeast, appearing in 2001 as a circular stone bank enclosing a flat interior. There is no evidence for an entrance feature, internal ditch or funerary deposit; however, it has been substantially disturbed by peat milling activity. The least disturbed sections, to the east and west, were cleared revealing a bank up to 1.64m wide which was constructed of stone in a haphazard, irregular manner, with various stone types and sizes used. Artefacts recovered comprised a flint flake, a possible hone stone and a possible quartzite hammer stone while an arrowhead, recovered further away, may also derive from this site.
- 8.4.39 Subsequent investigation in 2008 included radiocarbon dating which dated the site to between 4220 and 2300 BC (Whitaker, 2014). The settlement site (OF011-059) and funerary activity were further investigated in 2009 when it was determined that there were three phases of activity at the site (Rohan, 2009). The earliest phase was indicated by lithics recovered from several stone hearths. This was followed by multiple episodes of burning which were recorded throughout the site, as a whole, on the open wet woodland peat during the Late Neolithic. The final phase of activity involved the construction of the stone enclosure and the burning associated with the charcoal spread recorded within it during the Early Bronze Age. The majority of the charcoal spreads were not composed of clearly defined charcoal lenses, as such, but were shallow and ephemeral. This suggests that they were the result of single or short-term burning episodes and the site was utilised and revisited from the Late Neolithic to the Early Bronze Age period. (Rohan, 2009).
- 8.4.40 It should also be noted that Croghan Hill is clearly visible to the southwest when crossing the bog. The ritual and symbolic importance of Croghan Hill, historically known as *Brí Éile*, as a liminal location in the landscape, a sacred hill and portal to the otherworld in Irish mythology is noted. The associations of the hill with Saint Patrick and Saint Brigid are also noted. However, Croghan Hill, the túath boundary (Kelly, 2006) and the findspot of the bog body Old Croghan Man (OF010-487) are located over 4km from the Electricity Grid Connection. The location, its setting and the ability to understand the character and associations of the landscape will not be impacted by the development.
- 8.4.41 Further to the south, the route of the 220kV buried cable undercrosses the L1010 Togher Road by utilising an existing Bord na Móna underpass. The name of this road suggests that it appears to run on the line of 'togher of Croghan' (OF010-018) as indicated on the 1st edition OS map (1838). The current road crosses a low-lying boggy area with no

visible evidence of ancient roadway. The 1st edition OS map (1838) also marks the site of Lady Mary Warren's Castle (OF010-019), directly to the south of the road, on flat ground 321m from the route of the 220kV buried cable. There are no visible remains of this castle which may have been confused with a tower house at Toberdaly to the east which was occupied by Lady Mary Warren.

- 8.4.42 A hilltop enclosure (OF010-017) is located 500m to the west of the route of the 220kv buried cable as it crosses the L1010 Togher Road. This enclosure is located on the highest point of an isolated hill ridge and has a diameter of 45m, although it has been badly degraded being only defined by a bank. The enclosure, measuring c.45m in diameter, is situated on the highest point of the hill, defined by a bank to the west and a scarp to the south and east with the north side levelled. It originally had a bank with exterior ditch all the way round but it is now much degraded.

Protected Structures

- 8.4.43 There are no Protected Structures within the 1km or 0.5km study areas.

National Inventory of Architectural Heritage

- 8.4.44 There are no assets recorded on the National Inventory of Architectural Heritage within the 1km or 0.5km study areas.

Previous Archaeological Investigations

- 8.4.45 The study area incorporates the townlands of Knockdrin, Derrygreenagh, Derryarkin, Derryiron, Ballybeg, Coolcor, Barrysbrook, Clonin, Togher and Coole. Surveys conducted by the Irish Archaeological Wetland Unit in 2001 took place within Derrygreenagh, Togher and Ballybeg have been described in relation to the archaeological assets above in paragraphs 8.4.3-8.4.5 (McDermott, 2002, Murray, 2002, Whitaker, 2014, Rohan 2009).
- 8.4.46 An archaeological investigation took place in 2017 related to the archaeological monitoring of geotechnical site investigations associated with the development of a wind farm. The monitoring took place in the townlands of Derryarkin, Derryiron, Coolcor, Coolville, Ballyburly, Greenhills, Bunsallagh, Derrygreenagh, Knockdrin, Wood, Killowen, Corbetstown, Carrick, Garr and Dunville, just north of Rhode (Fitzpatrick, 2017).
- 8.4.47 The excavation of 54 trenches was monitored with the trenches generally measured 3-5m in length x 1m in width and were excavated to varying depths up to 4m in depth. Nothing of archaeological significance was uncovered.
- 8.4.48 Further archaeological work has been conducted within the peat bog in Derryarkin with nothing of archaeological significance uncovered (Corcoran, 2006; Morahan, 2013; Whitaker, 2006).
- 8.4.49 Further archaeological wetland survey work took place within the townland of Barrysbrook during 2002 (O'Carroll, 2002a). This work uncovered several sites, including a scatter of brushwood and roundwood on the surface of a field. These did not have any form and were thought to be stray pieces from a larger togher located to the east. A small oval platform measuring 6m x 10m was also uncovered within the bog at the end of a paleochannel. This was constructed with an upper layer of parallel roundwoods and a lower layer of irregularly laid brushwood and was thought to be a hunting platform.
- 8.4.50 The final excavation in 2002 within Barrysbrook also extended into the townland of Togher following the line of the Paleochannel (O'Carroll, 2002b). A series of wooden structures were uncovered which appeared to lead to a wooden platform measuring 13m by 10m with a maximum depth of 0.4m. The wooden structures measured up to 2.5m

wide by 0.3m deep and could be traced, with gaps, up to 250m in length. The wooden platform was approximately 200m from the nearest dry land and is believed to have been a hunting platform providing access to animals and plants not readily available on the dryland fringes. Radiocarbon dating revealed the wooden structures to be dated to 1365–919 BC and 1108–800 BC while the platform was older dating to 2282–1952 BC.

- 8.4.51 Further archaeological wetland survey work within the townland of Togher comprised the excavation of a hurdle panel at the southern end of the paleochannel (O’Carroll, 2002c). This hurdle, composed of wooden rods woven around wooden sails to form a panel, measured 2.6m long, 1.6m wide and 0.11m deep. It was likely used to cross over the paleochannel.
- 8.4.52 An archaeological investigation took place within the townland of Togher in 2019 when test trenching was carried out in advance of the construction of a single dwelling and associated works (Duffy, 2019). Four trenches were excavated across the proposed development site with nothing of archaeological significance uncovered.
- 8.4.53 Site Investigation Works including trial pits were carried out to inform the design of this project with the trial pits mechanically excavated under archaeological supervision (licence No. 23E0352). The trial pits were generally 1m in width and 2-3m in length (Rooney, 2023 and Appendix 8a). These trial pits were associated with the tower locations for the overhead line (TPT 1-18), the underground cable (TPC01-18), the southern 440kv substation (TP SS01-07) and a borrow pit (TPBP1-TPBP7).
- 8.4.54 The trial pits associated with the tower locations for the overhead line (TPT 1-18) were located within the worked bog in areas of milled peat. The trial pits revealed various depths of undisturbed peat with a maximum depth of 4.5m. The peat overlies grey sandy clay. Nothing of archaeological significance was uncovered within these trial pits.
- 8.4.55 The trial pits associated with the underground cable (TPC01-18) were located within areas of milled peat and also pasture although the route of the scheme through the pasture is no longer within the Proposed Development with TPC10-18 no longer relevant. With the exception of TPC05, TPC01-09 revealed natural layers with varying depths of peat overlying silty gley and sandy silty clay. TPC05 contained peat to a depth of 4.6m with underlying clay not reached. The upper layer of this trial pit comprised made ground and this contained two plank fragments. The first measured 0.7m x 0.14m x 0.5m and had a rectangular mortice measuring 0.2m x 0.4m. The second fragment measured 0.24m x 0.11m x 0.4m and had a possible remnant peg hole at one end. They represent the remains of archaeological features disturbed elsewhere and redeposited at this location. No further archaeological finds were uncovered within the other trial pits associated with the cable trench.
- 8.4.56 The trial pits TPSS01-07 were located in a field of pasture and an overgrown area at the southern end of the Electricity Grid Connection where the proposed location of the 44kv substation will be located. Sod and topsoil were between 0.25m and 0.4m above grey sandy silty clay. Nothing of archaeological significance was uncovered within these trial pits.
- 8.4.57 The last trial pits (BP1-7) were excavated within the townland of Cloonin within milled peat and flooded quarry pits in an area proposed for a borrow pit. Peat was uncovered within all the trial pits with depths between 0.2m and 1.45m. overlying sandy gravel, BP1 showed evidence for a former pool. Nothing of archaeological significance was uncovered within these trial pits.
- 8.4.58 Further archaeological fieldwork was carried out in August 2023 when two areas were subject to walkover survey (ThruTime, 2023 and Appendix B). Both related to proposed peat deposition areas (PDA) associated with various elements of the scheme with only

Site 1 located within the area of the Electricity Grid Connection. The proposed location of the PDA is at the northern end of the area of the Electricity Grid Connection, southeast of the railway track.

- 8.4.59 This area was defined by an embankment to the immediate east of the track. The area is under thick vegetation to northeast and southwest while a large area within the centre is under water. A second area of water was noted at the southeast. No archaeological remains were noted during the walkover.

Historic Cartographic Evidence

- 8.4.60 The 1st edition Ordnance Survey (OS) Map (1838) shows the layout of the location of the Electricity Grid Connection during the 1830s (map not reproduced). The majority of the grid connection, including the 220kV substation, are located within the expanse of peat bog which is featureless apart for Lough Nashade which is shown as a sub-oval body of water within the bog.
- 8.4.61 Dry land surrounds the bog closing under it at the townland of Togher where the road to Croghan is apparent. This road is thought to be built over a togher (OF010-018) which led east from Croghan Hill. The site of Lady Mary Warren's Castle (OF010-019) is marked to the south of the road, within a rectangular field, and the hilltop enclosure (OF010-017) is shown as a banked structure. The bog restarts to the south of this series of fields and the location of the route of the 220kV buried cable follows the western edge of the bog as it curves around to the south. Small fields are shown at the edge of the bog with scattered buildings within them.
- 8.4.62 The location of the 400kV substation is shown as a sub-square field with some planting along the southern boundary. A small farm complex is shown in the fields to the south of the 400kV substation. All the field boundaries within the area are straight and show no signs of curving or deviating around possible upstanding archaeological features. A major built feature within the area is the Grand Canal which is very evident as a straight body of water. Its tow path is apparent on the northern side of the canal but no other features, such as bridges or locks are shown.
- 8.4.63 The 2nd edition OS map (1909) shows the location of the route of the electricity connection at the beginning of the 20th century (map not reproduced). The majority of the route is still located within featureless bog. Lough Nashade is marked but has reduced in size and appears to be drying up. At the townland of Togher, the road is now labelled as *The Togher of Croghan* (OF010-018) while the site of Lady Mary Warren's Castle (OF010-019) is now marked in the field to east of the location shown on the previous map sheet. The hilltop enclosure (OF010-017) is shown as badly degraded with its northern extent removed by field boundaries.
- 8.4.64 The road forks to the west of the marked site of Lady Mary Warren's Castle (OF010-019) and a group of buildings are shown at the fork. These appear to be farm buildings. The route of the 220kV buried cable follows the edge of the bog where the previous smaller fields have been amalgamated into larger units and most of the buildings are now gone. The location of the 400kV substation has been subdivided into two fields by a drain. The buildings are unchanged to the south, although a track is now shown leading to them from the northwest. The canal remains a major feature to the south.
- 8.4.65 The 3rd edition OS map (1922) shows the location of the route of the electricity connection during the 1920s (map not reproduced). It remains largely unchanged from the previous map editions, comprising of a bog with drains shown crossing it. Lough Nashade is still marked, and this has shrunk to the size of a large pond, although its former outline is indicated as marginal ground.

8.4.66 The buildings previously shown at the fork in the road at Togher are no longer shown. The Togher of Croghan (OF010-018) is still evident while the site of Lady Mary Warren's Castle (OF010-019) is still marked as is the denuded outline of the hilltop enclosure (OF010-017). The buildings previously identified on earlier maps, along the route of the 220kV buried cable, have now been removed and the bog is criss-crossed by drainage ditches. The location of the 400kV substation remains subdivided by a drain. The canal is still a major feature to the south.

Site Visit

8.4.67 The site was visited on the 30 March 2023. The weather was generally dry with some heavy showers. The 220kV substation will be located within an area at the north of the Electricity Grid Connection route, to the immediate west of the R400 road on Derrygreenagh Hill (Plate 8.7) from the Power Plant Area. This area is under gravel to the east adjoining the R400 road changing to disturbed peat to the west. The peat is overgrown.

8.4.68 The proposed overhead power line will cross the Derryarkin Bog and Ballybeg Bog (c. 5km) via double circuit pylons. This area comprises cut away peat, which had flooded in places at the time of the site visit, while other areas are overgrown (Plate 8.8). The process water discharge route will follow the line of the rail track that runs around the edge of the bog while site access will use the existing bog road. The PDA will also be located within this area.

8.4.69 The Bogs have been worked commercially and shows signs of cutaway and other disturbances, including a gravelled area (borrow pit) towards the centre (Plate 8.9). Continuing towards the south, the worked Ballybeg bog is level with drainage ditches at regular interval. The northeast facing slopes of Croghan Hill are evident in the background and can clearly be seen (Plate 8.10). Archaeological assets are present on these slopes, in particular a bowl barrow (OF010-004001) on the summit of the hill which can be clearly seen from the proposed location of the development, although the other archaeological assets cannot be discerned at this distance.

8.4.70 Similarly, the high ground of Clonin Hill is visible to the southeast (Plate 8.11). The National Monument - ring barrows and mass stone (NM.232) are located on this hill but cannot be discerned at this distance. The overhead line changes to a 220kV buried cable further to the south of Ballybeg Bog via an interface or undergrounding compound (Grid Reference 650596 733367). The route of the buried cable follows the existing machine pass track and rail line (Plate 8.12). This machine pass track and rail line skirts Ballybeg Bog at Togher where extensive Neolithic and Early Bronze Age remains were uncovered in association with the paleochannel and former lake edge (Plate 8.13).

8.4.71 The route of the buried cable follows the existing machine pass track and rail line towards the L1010 Togher Road (Plate 8.14). The machine pass track has been formalised on this section with a gravel surface added. This surface continues for the remainder of the machine pass track which crosses under the bridge carrying the L1010 Togher Road over it. The L1010 Togher Road is marked as following the line of The Togher of Croghan (OF010-018) on historic OS mapping while the site of Lady Mary Warren's Castle (OF010-019) is marked adjacent to the south. There are no visible signs of these assets (Plate 8.15).

8.4.72 The formalised machine pass track and rail line continues to the south passing under overhead power lines (Plate 8.16) before reaching a drawbridge that provides access over the Grand Canal (Plate 8.17). The proposed location for the 400kV substation is a pasture field located under the existing 400kV transmission infrastructure power lines (Plate 8.18). The field is level and bounded by hedges to the east and north and a farm lane to the west and south. Farm buildings are located to the south.

8.4.73 Associated works for the 400kV substation will be a works compound and an access road which will loop in from the south. The proposed location of the works compound currently comprises a level field to the immediate north of the proposed location for the 400kV substation (Plate 8.19). The proposed access road comprises the option of an oval which will loop into the substation from the south crossing two parcels of land (Plates 8.20 and 8.21). These parcels of land comprise narrow rectangular fields which are level and separated by a mature hedge. The western field is situated inside a farm and the eastern field bounds the existing machine pass track and rail line through the commercial bog.

Impact Assessment

8.4.74 Designated Heritage assets (National Monuments and Protected Structures) within 3km of the overhead power line and 1km of the 220kV buried cable and the substations were assessed. Non-designated heritage assets including recorded monuments, structures and designed landscapes recorded by the NIAH within 1km of the Electricity Grid Connection route were also assessed.

8.4.75 Eight Protected Structures, one National Monument and 114 recorded monuments were assessed using Google Streetview, aerial / satellite imagery and mapping. Sites which were evidently screened by intervening modern development or dense vegetation during this review were scoped out of further assessment, as their settings were not considered to include the Site. Other assets, which by their nature would not be impacted upon by development, such as archaeological sites discovered through archaeological excavation or screened by intervening vegetation, were also scoped out.

8.4.76 Following the review outlined above, it was determined that the eight Protected Structures, one National Monument and one recorded monument were considered to be potentially sensitive to change from the Proposed Development and Overall Project and are discussed in the following paragraph.

Assets within the wider 3km Study Area

8.4.77 The National Monument NM. 532, comprising a ring barrow (OF011-001002) and a ring barrow and mass stone (OF011-001001), is located on the summit of Clonin Hill, 2km to the east of the Site (Plate 8.11). The ring barrow (OF011-001001) has good views of the burial mound (OF010-004001) on top of Croghan Hill 4.5km to the west suggesting that these sites are intervisible (Plate 8.22).

8.4.78 While the scheme will introduce pylons and overhead power lines which will be visible in views between the archaeological assets, the power lines will be lower than the line of sight and will not obstruct views (Plate 8.23).

8.4.79 A cluster of four Protected Structures is located c.1km to the east of the 220kV buried cable at Toberdaly. These are all connected and relate to Toberdaly House which is a multi-period property first dating to the 15th century, when the O'Connors constructed a low, squat-shaped tower house (OF011-013), with attached bawn (OF011-013001), on Toberdaly Hill. A demesne (NIAH 48) was formed around the tower house and buildings were added to support the upkeep of the estate. These buildings comprised ranges of two-storey terraced cottages and outbuildings, built c.1650 (RPS 16-11).

8.4.80 The site was taken over by the Nesbitt Family, who added a Georgian country house whilst also converting the bawn into a walled garden and the tower house forming a corner tower of the garden (Plate 8.24). A Gothic style octagonal gazebo (RPS 16-17) was added to the top of the tower house in 1780. Later additions in 1830 to the estate were a complex of multiple-bay single and two-storey farmyard buildings (RPS 15-08) and a pair of detached three-bay single-storey cottages (RPS 15-07).

- 8.4.81 The Toberdaly Demesne is still visible within the landscape with its stone boundary walls apparent on the L1010 outside the village of Rhode. The demesne is now greatly denuded with Toberdaly House merely existing as one upstanding gable end and modern housing built around the older buildings. Views from the Protected Structures are screened by mature vegetation and the modern housing. There are no views of the Proposed Development and Overall Project.
- 8.4.82 Three further Protected Structures are located along the L1010, 2.6km to the east of the overhead power line as it enters the village of Rhode from the west. These are Killure Lodge (RPS 15-08) (Plate 8.25), Presbytery (RPS-07) (Plate 8.26) and Saint Peter's Roman Catholic Church (RPS 16-05) (Plate 8.27). Intervening topography, mature vegetation and the modern housing of Priory Lawns effectively screen all views between these designated assets and the Proposed Development and Overall Project. There are no views.

Gas Connection Corridor

Geology

- 8.4.83 The Gas Connection Corridor (as Defined in Chapter 1 of this EIAR) passes through R400 road for 1.4km before linking onto the AGI to the east of the R400 road on the Power Plant area. The road overlies dark limestone & shale ("Calp") of the Lucan Formation. To the northwest, the majority of till is derived from limestones with some areas of alluvium and cut raised peat. These overlie areas of Volcaniclastic agglomerate, Waulsortian Limestones and dark limestone & shale ("Calp") of the Lucan Formation.

Archaeological Sites and Monuments within the 1km Gas Connection Corridor

- 8.4.84 There are 16 recorded archaeological sites within the 1km wide Gas Connection Corridor ranging in date from the prehistoric to the medieval period. The prehistoric sites comprise of a barrow (WM033-032) and a standing stone (WM033-023001). The barrow (WM033-032) is located on a low rise of dry ground on marshy land, with restricted views of the surrounding countryside at Castlelost West, on the northern boundary of the gas connection corridor, 500m from the centre line. It comprises a small oval area, measuring 7.3m by 6.6m, which is enclosed by a slight earthen bank and narrow, shallow external ditch. It is marked on the 2nd edition OS map (1874) as *Knocknakill*.
- 8.4.85 The standing stone (WM033-023001) is actually a large boulder, which is located within the southwest quadrant of a rath (WM033-022) at Calverstown, at the northwest extent of the Gas Connection Corridor. The stone is set on a slight north facing slope in gently undulating countryside. The site is known locally as the 'Giant's Grave' and local information suggests that bones were dug up at some stage from around its base and these are now housed within the British Museum (suggesting a find date of prior to 1923). However, the stone does not look like a typical standing stone, instead, looking like the result of field clearance or quarrying. The veracity of this stone as an archaeological site is uncertain, although it is marked on historic OS mapping as a standing stone.
- 8.4.86 There are also three undated assets within the Gas Connection Corridor which could date to the prehistoric period. These are two enclosures (WM033-075 and 064) and a cropmark (WM033-076). Enclosure (WM033-075) is located in Castlelost West 100m to the south of the centre line of the Gas Connection Corridor. There are no upstanding remains of this asset which appears as the cropmark of a roughly circular-shaped enclosure, with a diameter of 46m, which is visible on Google Earth aerial imagery.
- 8.4.87 The second enclosure (WM033-064) is located at Kilbrennan, 300m to the south of the Gas Connection Corridor. This enclosure is described as a small field or paddock which is shown on the 1st edition OS map (1837). This field is not shown on the previous 1818

Boyd Belvedere Map of Kilbrennan Townland and it may be a feature associated with a building 20m to the northwest which was constructed between 1818 and 1837.

- 8.4.88 The cropmark (WM033-076) appears on Google Earth photography taken in 2019 of Calverstown. It appears as a cropmark of a circular-shaped area 34m in diameter. It is located 10m to the west of the centre of the Gas Connection Corridor which passes through its associated Zone of Notification. The exact locations for these three assets are currently unknown and they may represent enclosure sites dating to the prehistoric period. They may also represent ringforts/raths dating to the Early Medieval period.
- 8.4.89 The Early Medieval period is represented by 10 assets within the Gas Connection Corridor. These assets are all ringforts which are generally interpreted as farming settlements consisting of circular areas enclosed by a bank with an external ditch. Six of these assets are located in proximity to the Gas Connection Corridor. Starting from the southeast, the ringfort (WM033-047) is located 288m to the northeast of the centre of the Gas Connection Corridor in the townland of Castlelost. This asset comprises a large oval area, measuring 54m north to south by 59m east to west, which is defined by a scarp with the slight remains of an external ditch from north to east to south. Above ground remains of this asset are difficult to discern on the ground, although it is still visible on aerial photography.
- 8.4.90 The ringfort (WM033-041) is located 147m to the south of the centre line of the Gas Connection Corridor, in the townland of Castlelost West, on a low rise of ground in undulating countryside with good views to the north. The ringfort is best preserved from its southeastern extent curving to the west and north and to its north-northeastern extent. It encloses an area that measures 44m north to south by 33m east to west and is enclosed by an earth and stone bank. The exterior ditch is only visible in the best-preserved sections.
- 8.4.91 Ringfort (WM033-30) is located on a slight northeast facing slope, in undulating countryside, 128m north from the centre line of the Gas Connection Corridor and within the townland of Kilbrennan. This asset is well defined enclosing an oval area, measuring 31m north to south by 36m east to west, including an earthen bank with the slight remains of an external ditch. The bank and ditch have been eroded to the southwest by a field boundary which intersects with the asset.
- 8.4.92 Ringfort (WM033-029) is also located within the townland of Kilbrennan on a slight rise of ground 155m to the north of the centre line of the Gas Connection Corridor. This asset is located on the north face of a long, low east to west orientated ridge, and is densely covered by trees and bushes. It is apparent as a circular area defined by a low earthen bank and external ditch, although the dense cover makes it hard to define. The 1818 Boyd Belvedere Map of Kilbrennan Townland marks this asset as a tree plantation rather than an antiquity suggesting that it may not date to the Early Medieval period.
- 8.4.93 The ringfort (WM033-023) is located on a slight north facing slope, in gently undulating countryside, 203m to the southwest of the centre line of the Gas Connection Corridor, in the townland of Calverstown. This asset is circular in shape, measuring c. 48.5m in diameter, and enclosed by a low earth and stone bank and a ditch which has been mostly in-filled. A modern field boundary intersects the ringfort on the eastern side and the bank and ditch have been removed here. The possible standing stone (WM033-023001) is located in the southwest quadrant of this asset.
- 8.4.94 The last ringfort (WM033-022) is located 120m to the east of the centre line of the Gas Connection Corridor, on the boundary between the townlands of Kilbrennan and Calverstown which takes the form of a fence that bisects the asset from north to south. The ringfort encloses an oval area, measuring 36.8m north to south by 43.6m east to

west, that is defined by a poorly preserved bank and ditch. The remains of another poorly preserved bank, that has been levelled, is situated to the northeast.

- 8.4.95 The medieval period is represented by two assets within the gas connection corridor with both located in close proximity to one another in the townland of Castlelost. The first is a motte and bailey castle (WM033-042) which is located 232m to the north of the centre line of the Gas Connection Corridor. The motte consists of a high steep sided mound that measures 5m high with a top diameter of 20m by 12m. The mound has been cut into by the construction of the L1127 Rochfortbridge Road and is now badly eroded in places. The remains of an Ordnance Survey Trigonometrical Station is located on the summit of the mound.
- 8.4.96 The remains of the bailey are located to the east of the motte. This comprises an enclosed area measuring 55m north to south by 41m east to west. A large hole is evident within the northeast quadrant of the bailey and this is believed to be the former location of a levelled mansion house described by Brewer in 1826. The motte and bailey are thought to have been constructed by the Anglo-Norman knight, Hugh Tyrel (Tyrrell) between 1186-1223.
- 8.4.97 The Tyrells made this their residence, later building a stone castle (WM033-043) within the bailey. The remains of this castle (WM033-043) are located 40m from the motte and were defended by strong outworks including a moat. The present remains of the castle consist of a rectangular two storey stone built castle, measuring 15.5m east to west by 8.8m north to south, with walls measuring between 1.6m and 2m thick. It has a high stone vault over the ground floor and mural stairs. These suggest that it was built during the 14th or 15th century and may represent a transition form, bridging the gap between the first-floor hall houses of the 13th century and the later multi-storey tower houses of the 15th / 16th centuries.
- 8.4.98 Other related features located outside the 1km wide Gas Connection Corridor comprise the remains of a church (WM033-031), located 400m to the northwest of the castle (WM033-043). This church comprises an ivy-covered rectangular building, measuring 20.8m by 7.55m, with walls 0.9m thick and a two storey priests' residence or vicarage at the west end of the church. An altar-tomb (WM033-031002), bearing the representation in high relief of a knight in complete armour, is located within the church. This is believed to date to the 16th century and was probably erected for Sir John Tyrrel of Castel-Lost. The church is located within a graveyard (WM033-031001) which contains some 18th century gravestones.
- 8.4.99 The Tyrrells held the area until the Irish Confederate Wars of 1641-53, when the forfeited lands of Thomas Tyrrell of Castlelost were granted to Margaret Aggs (Aggas) and Sir Jeremy Alexander who are listed as the Protestant landowners of Castlelost in 1670.
- 8.4.100 The last recorded archaeological asset within the 1km wide Gas Connection Corridor dates to the post-medieval period and is a burial site (WM033-073), located in Kilbreenan, 168m to the north of the centre line of the Gas Connection Corridor. It was identified by human bones found during ploughing in a raised area of a field in 2002. This field is known locally as the 'chapel field' and contains a whitethorn 'mass bush' which suggests that the burial site dates to penal times (1695-1778) when the celebration of Roman Catholic mass was banned by law.

Protected Structures within the 1km wide Gas Connection Corridor

- 8.4.101 There are 10 Recorded Protected Structures recorded within the 1km Gas Connection Corridor comprising 14 assets. All are built structures, considered of regional importance, with half located within the village of Rochfortbridge, the southwest extent of which is located just within the northern edge of the Gas Connection Corridor. As its name

suggests, the settlement is located at a crossing point, in this case a tributary flowing into the Mongagh River to the south. While a settlement is thought to have existed at the location since the Early Medieval period, it was Robert Rochfort MP who set the village out in 1700. No buildings from this period still exist in the village with the earliest dating to the early 19th century.

- 8.4.102 The earliest Protected Structure associated with Rochfortbridge within the study area is Christ Church (RPS 033-013). This is a free standing Church of Ireland church, built in 1815, and comprising a two-bay hall with attached three-stage tower on square-plan to the west having a raised parapet with English-style crenelations.
- 8.4.103 Other Protected Structures, contemporary with Christ Church, comprise houses (RPS 033-003 and 033-015) and Rochfortbridge Post Office (RPS 033-004). These all date to 1820, while Sycamore House (RPS 033-002) is slightly later, dating to 1830. The more modern Protected Structures comprise a wall-mounted cast-iron post box (RPS 033-019), constructed around 1890, with the 'VR' (Victoria Regina) royal cipher and raised crown motif. A freestanding cast-iron vent pipe (RPS 033-014), erected c.1900, comprises of a fluted pedestal with moulded necking, and cylindrical shaft over having a splayed saw tooth-profiled parapet.
- 8.4.104 The remaining Protected Structures within the 1km wide Gas Connection Corridor are located within the countryside and will be discussed chronologically. The earliest structure is West House (RPS 033-027) which is located 453m to the south of the centre line of the Gas Connection Corridor in the townland of Castlelost West. It is a detached five-bay, two-storey over basement with attic storey country house which dates to 1760. It is set within the remains of its designed landscape (NIAH 4232) which has been greatly denuded with only the entrance and some mature planting remaining.
- 8.4.105 A farmyard complex (RPS 033-016) is located 160m to the west of the centre line of the Gas Connection Corridor, in the townland of Farthingstown. The complex comprises a detached single-bay, single-storey house, built c.1800, with a projecting single-bay entrance porch to the centre of the main east elevation. A flight of cut stone steps is set against the west gable. The other buildings in the complex are a single-storey outbuilding to the east of the house and an open two-storey barn barrel-vaulted corrugated roof to the west.
- 8.4.106 The next Protected Structure is Sidebrook House (RPS 033-017). This is a detached four-bay, two-storey house on an 'L'-shaped plan, built c.1815, but possibly incorporating fabric from an earlier building. Sidebrook House is located 162m to the northeast of the Gas Connection Corridor, in the townland of Farthingstown. Associated features comprise a complex of single and two storey outbuildings built in 1815 and 1850, a field gate, that includes a pair of rubble limestone gate piers constructed in 1820, and the main entrance to the house – a pair of roughcast rendered gate piers (on square-plan with cut stone capping over) supporting a pair of cast-iron gates erected in 1835. These assets are all covered by the Protected Structure (RPS 033-018).
- 8.4.107 The Forge (RPS 033-001) is a detached, gable-fronted, single-bay, single-storey former forge/smithy dating to 1830 and located 112m to the southwest of the centre line of the Gas Connection Corridor. The former forge is located on a small lane located to the immediate south of the former main Dublin to Galway Road (R446) which would have been a major national routeway in the past.

National Inventory of Architectural Heritage

- 8.4.108 The majority of the Protected Structures noted within the Gas Connection Corridor are also recorded on the NIAH with corresponding identification numbers. The exception to this is a house (RPS 033-015) located within Rochfortbridge which is recorded as a NIAH building footprint layer only.
- 8.4.109 Two further assets recorded as NIAH building footprint layers only are located within the Gas Connection Corridor. Both are located off the R446 as it enters Rochfortbridge from the west. The older of the two is Glebe House which is located 64m to the northeast of the centre line of the Gas Connection Corridor. This property is a detached three-bay, two-storey former Church of Ireland rectory dating to 1800. The property is now ruinous with its roof collapsed and original doorcase removed. The form of the rear (southwest) elevation suggests that it may incorporate an earlier building.
- 8.4.110 The NIAH building footprint layer for Glebe House also includes an 'L'-shaped outbuilding located adjacent to the southwest. This building appears to be a younger structure which is first shown on the 2nd edition OS map (1912). Glebe House is set within its own grounds which are recorded on the NIAH Garden Survey as NIAH 4237. The grounds are shown on the 1st edition OS map (1838) as five rectangular fields set around Glebe House which is centrally placed.
- 8.4.111 The house is accessed via an entrance leading from the northeast corner. Dense planting is located along the boundaries of the field to the northeast and this effectively screens Glebe House from the road. Outbuildings are shown to the southwest of Glebe House and these are as large or larger than the Rectory itself. A garden is shown to the southeast of these buildings. A lane is shown providing access to the south of the outbuildings from the main road. This lane terminates at a small rectangular building at its northwest extent.
- 8.4.112 The grounds of Glebe House (NIAH 4237) are changed on the 2nd edition OS map (1912) with the large outbuildings now replaced with the current 'L'-shaped outbuilding. The lane, small rectangular building and garden have also been removed, with this area subdivided into smaller rectangular fields. The field to the northeast appears unchanged. The current layout of the grounds of Glebe House (NIAH 4237) still retain their original form, although the smaller fields have been amalgamated into larger areas. The Gas Connection Corridor will pass through the southwest extent of the grounds of Glebe House (NIAH 4237).
- 8.4.113 The last NIAH building footprint layer relates to the Bridge House Bar and Restaurant, located 471m to the northeast of the centre line of the Gas Connection Corridor. This is an attached three-bay, two-storey former house, built c.1860, having a later single-storey extension to the rear to the southeast. This extension has a barrel-vaulted corrugated metal roof.

Previous Archaeological Investigations

- 8.4.114 The Gas Connection Corridor passes through six townlands - Derrygreenagh, Farthingstown, Castlelost, Castlelost West, Kilbrennan and Calverstown. Examination of Excavations.ie revealed that previous archaeological investigations have taken place in all the townlands with the exception of Kilbrennan.
- 8.4.115 Starting at the south, in the townland of Derrygreenagh, surveys conducted by the Irish Archaeological Wetland Unit in 2001 took place within Derrygreenagh and these have been described above in relation to archaeological assets associated with the Power Plant Area and Electricity Connection. None of the archaeological sites uncovered by the surveys are located within the Gas Connection Corridor (McDermott, 2002; Murray, 2002; Whitaker, 2006; Whitaker, 2014; Rohan 2009).

- 8.4.116 An archaeological investigation took place in 2017. This was related to the archaeological monitoring of geotechnical site investigations associated with the development of a wind farm in the townlands of Derryarkin, Derryiron, Coolcor, Coolville, Ballyburly, Greenhills, Bunsallagh, Derrygreenagh, Knockdrin, Wood, Killowen, Corbetstown, Carrick, Garr and Dunville, just north of Rhode (Fitzpatrick, 2017).
- 8.4.117 The excavation of 54 trenches was monitored, with the trenches generally measured 3-5m in length x 1m in width, and were excavated to varying depths up to 4m in depth. Nothing of archaeological significance was uncovered.
- 8.4.118 Seven recorded archaeological investigations have taken place in the townland of Farthingstown. All were associated with the archaeological testing and resolution of the route of the proposed N6 Kinnegad-Kilbeggan realignment. Testing took place in 2004 with six areas of archaeological potential uncovered. These included three potential hearth features or burnt areas and a segment of a trackway through bogland recorded in Farthingstown (Tierney, 2004). Further examination of the segment of trackway revealed it to be non-archaeological and the result of natural tree growth in the area (Tierney, 2005a).
- 8.4.119 One of the possible hearths comprised an area of burnt, blackened soil and burnt reddish clay, measuring 0.75m east to west by 0.5m north to south. Further investigation around the hearth was undertaken in 2005, although nothing of archaeological significance was uncovered (Tierney, 2005b). A possible linear feature had been uncovered during the 2004 testing but further investigation in 2005 revealed this to be a natural feature (Tierney, 2005c).
- 8.4.120 Further investigation took place in 2005 of the location of another possible hearth, but while a number of decaying stone deposits, darkened possibly by manganese oxide, were uncovered, the hearth was not relocated (Tierney, 2005d). A test trench excavated in 2004, containing another possible hearth, also had a raised linear feature. Both of these possible features were re-examined in 2005 with the linear feature found to be a former field boundary (Tierney, 2005e).
- 8.4.121 Another previous archaeological investigation is recorded for the townland of Castlelost. This took place in 2022 comprising six trenches excavated within grassed areas within the grounds of a former Convent in Rochfortbridge (outside the Gas Connection Corridor) (Coen, 2022). Of particular interest was a mound located along the northwest boundary which was thought to have archaeological potential. Investigation revealed this to be a natural gravel deposit. Nothing of archaeological significance was uncovered in the other test trenches.
- 8.4.122 Archaeological investigations in the townland of Castlelost West in 2004, related to the archaeological monitoring of topsoil stripping and the excavation of foundations for a single new house, located adjacent to the motte and bailey (WM033-042) and castle (WM033-043). Nothing of archaeological significance was uncovered during the archaeological monitoring (Purcell, 2004).
- 8.4.123 At Calverstown, two other archaeological investigations took place in 2010 and 2011. These were undertaken in advance of the N52 Carrickbridge to Clonfad road scheme. One archaeological feature was uncovered in the townland of Calverstown comprising a single small pit measuring 0.83m in diameter and 0.15m in depth (Whitty, 2010). This pit was investigated in 2011 and found to contain *in situ* burning dated to the post-medieval/early modern periods (Hardy, 2011).

Historic Cartographic Evidence

- 8.4.124 The 1st edition OS map (1838) shows the location of the Gas Connection Corridor during the first half of the 19th century (map not reproduced). The southeast extent of the

location of the Gas Connection Corridor comprises peat bog which surrounds Derrygreenagh Hill. The peat bog is generally featureless apart from the road between Rochfortbridge and Rhode which crosses from the northwest to the southeast. The Monagh River is a prominent natural feature crossing the peat bog from west to east and also forming the county boundary between Offaly to the south and Westmeath to the north. There is a pronounced bow in the river immediately to the west of the road and the small Lough Adulagh is located on the southwest extent of this bow.

- 8.4.125 The peat bog continues into the townland of Farthingstown with farmland becoming prevalent to the northwest. The farmland is characterised by larger fields to the southeast and smaller rectangular fields to the northwest. The smaller fields to the northwest also have scattered dwellings which are served by accesses extending south from a laneway. Sidebrook House (RPS 033-017), its associated structures (RPS 033-018) and the house (RPS 033-016) form more concentrated settlement before the village of Rochfortbridge is reached to the northwest. The route of the corridor crosses the intervening fields and passes over the Monagh River which forms the boundary between the townlands of Farthingstown and Castlelost.
- 8.4.126 The ringfort (WM033-048) is apparent as a square tree-lined enclosure to the southwest of Rochfortbridge. There are no indications that it is an archaeological asset. The majority of Rochfortbridge is located outside the location of the Gas Connection Corridor, although scattered housing is apparent along the Galway Road to the southwest. The majority of the Historic Buildings within Rochfortbridge are extant at this stage, with the exception of the Bridge House Bar and Restaurant. The rectory Glebe House and its planned landscape (NIAH 4237) are very visible to the southwest of the village.
- 8.4.127 The location of the Gas Connection Corridor continues northwest passing through rectangular fields with straight boundaries. These boundaries show no indications of deviating around obstructions or possible archaeological assets while the recorded ringforts are located within the centres of fields and are clearly visible. The location of the Gas Connection Corridor passes over the Castlelost Road and also the boundary between the townlands of Castlelost and Castlelost West. This boundary is formed by a straight hedgerow which extends north-northwest from the Monagh River to another stream which forms the boundary between the townlands of Clontyallon and Castlelost and Castlelost West.
- 8.4.128 The motte and bailey (WM033-042) and castle (WM033-043) are marked as is the church (WM033-031) to their northwest. These are set within rectangular fields and there is no indications of a former medieval landscape. The planned landscape of West House (NIAH 4232) is apparent to the southwest with West House (RPS 033-27) clearly marked.
- 8.4.129 The townland boundary between Castlelost West and Kilbrennan is formed by a stream and the fields in this area are large with irregularly shaped boundaries, although none of these appear to respect possible archaeological assets. The exception to this is a field boundary which incorporates the southern extent of the ringfort (WM033-030). This is indicated by a slight curve in the field boundary. The townland boundary between Kilbrennan and Calverstown is formed by a stream and the size of the fields increases within Calverstown. There are no signs of the cropmark (WM033-076) and the standing stone (WM033-023001) is marked within the ringfort (WM033-023), suggesting it may be an actual archaeological feature and not field clearance as suggested. The location of the Gas Connection Corridor terminates to the south of an area of marginal ground with marginal ground located in the northeast corner of the field. A stream appears to extend into this field from the northeast corner.

- 8.4.130 The 2nd edition OS map (1912) shows the location of the Gas Connection Corridor at the start of the 20th century (map not reproduced). The terrain at the southeast end of the corridor still comprises peat bog which is still generally featureless, although drainage channels are now shown close to the Monagh River. The bow in the river is still extant and Lough Adhoul is still marked at the southwest extent of the bend. Little has changed on the approach northwest towards Rochfortbridge, although the ringfort (WM033-048) is now clearly marked as a bivallate oval structure rather than the square structure previously shown.
- 8.4.131 Rochfortbridge is still concentrated to the east of the Castlelost Road and the buildings on the Galway Road have diminished in number. The Historic Buildings are evident, and these have now been joined by the house which will become the Bridge House Bar and Restaurant. Glebe House is clearly marked, and the forge (RPS 033-001) is now marked. The terrain remains largely unchanged to the northwest, although the barrow (WM033-032) is now marked as 'Knocknakill', with this name possibly a reference to the nearby church (WM033-031). The northwest extent of the location of the Gas Connection Corridor has been subdivided with a smaller field now created within the northern section. This appears marginal along its northern boundary. The ringforts (WM033-022 and 023) are evident, although they are denuded. There are no indications for the cropmark (WM033-076).
- 8.4.132 The 3rd edition OS map (1922) shows the location of the Gas Connection Corridor at the start of the 20th century (map not reproduced). The layout of the location of the Gas Connection Corridor is largely unchanged on the previous map edition. Many of the ringforts are shown as denuded and barely visible in the landscape. The standing stone (WM033-023001) is still marked within the ringfort (WM033-023) while the ringfort (WM033-024) is clearly bisected by a field boundary, which also serves as the boundary between the townlands of Kilbrennan and Calverstown. The location where the centre of the Gas Connection Corridor terminates is still divided into two portions with marginal ground still indicated within the northern portion.

8.5 Predicted Impacts

Do Nothing Scenario

- 8.5.1 The Do-Nothing scenario would not result in any significant changes to the baseline cultural heritage resource. The magnitude of impact would be no change leading to a permanent significance of effect of neutral.
- 8.5.2 If the Proposed Development were not to proceed, environmental monitoring and site management would continue in the short-term, as required under the conditions of the IPC Licence (P0501-01).
- 8.5.3 If the Proposed Development were not to proceed, the site would be required to be rehabilitated in compliance with Condition 10 of the aforementioned IPC licence. These rehabilitation works include a range of measures, including rewetting and stabilisation of peatlands, as outlined in Appendix 9J of this EIAR. The rehabilitation works would not involve any excavation of material and therefore impacts to sub-surface archaeological features are limited. The impacts of rehabilitation of all lands within the Proposed Development Site under the Do-Nothing Scenario is considered to be permanent, imperceptible and neutral.

Impact Assessment for Power Plant Area

Construction Phase

- 8.5.4 Construction of the Power Plant Area under consideration could impact heritage assets in the following ways:
- Partial or total removal of heritage assets (previously unrecorded sub-surface archaeological features) during demolition, site clearance and construction of the Power Plant Area facility and associated features such as the power station elements, AGI and associated infrastructure;
 - Change to the setting of heritage assets, including visual and noise intrusion, and changes in traffic levels (construction phase only);
 - Impact of landscaping, spoil and peat deposition and planting on the setting of heritage assets, and damage caused to archaeological deposits caused by planting or earthwork embankments;
 - Compaction of archaeological deposits due to construction traffic movement or materials storage; damage through rutting of superficial deposits from construction traffic;
 - Vibration and changes in air quality, causing damage to historic monuments during construction;
 - Changes in groundwater levels through abstraction leading to the desiccation of previously waterlogged archaeological deposits, damage caused by changes to hydrology and chemical alteration, or changes in silt deposition regimes;
 - Effects on the setting of heritage assets, including visual and noise intrusion, and changes in traffic levels;
 - Severance causing dereliction or neglect of historic monuments or reduction of group value and adverse impacts on amenity as a result of construction works; and
 - Change to the setting of heritage assets, including visual and noise intrusion, and changes in traffic levels (construction phase only).

- 8.5.5 The Power Plant Area is mainly located upon Derrygreenagh Hill which is an area of dry land surrounded by peat bog. While there are no known Cultural Heritage assets within Derrygreenagh Hill, a large number of wetland archaeological sites are recorded in the peat bog to the southeast. Many of these sites appear to represent prehistoric crossing points to Derrygreenagh Hill from the dryland to the southeast. The peat bog would have represented a valuable source of food and other resources, with Derrygreenagh Hill well placed as a location for settlement and industrial activities, while further trackways could extend into the bog from other sides of the island. Evidence for such activity could exist as sub-surface archaeological features within the Power Plant Area.
- 8.5.6 The Power Plant Area is located primarily on land occupied by sheds, workshops and administration buildings associated with the existing Bord na Móna Derrygreenagh Works. The majority of the Site has been severely disturbed by previous development associated with the Works, with the result that the majority of heritage assets, that may have existed within the Power Plant Area, will have been heavily disturbed, removed or destroyed.
- 8.5.7 The exception to this is the peripheral areas of the Power Plant Area on all sides. These currently comprise grassed areas or extend into the bog. These areas have undergone past disturbance associated with Bord na Móna's operations, although the level of this disturbance is currently unknown. There is the possibility for previously unrecorded heritage assets to exist within these areas. This includes the area of peat deposition located to the southeast of Derrygreenagh Hill adjacent to the concentration of recorded archaeological features uncovered during previous wetland survey. It is likely that archaeological features associated with this concentration are located within the peat deposition area.
- 8.5.8 Such archaeological features are likely to be of **local** interest and of **low** heritage value given the recorded archaeological assets within the surrounding study area. Groundworks within the Power Plant Area would severely impact upon any such archaeological remains should they exist and would alter the special interests or qualities of an asset. The magnitude of this impact would be **high** giving a significance of effect of **Significant** which would be **permanent** and **adverse**.
- 8.5.9 Three Protected Structures are located within the wider 3km study area around the Power Plant Area. These are all located c.2.5km to the northwest and comprise Sidebrook House (RPS 33-017), a complex of single and two-storey outbuildings built c.1815 and c.1850 (RPS 33-018), a field gate (RPS 33-018), entrance gates (RPS 33-018) and a house dating to 1800 (RPS 33-016). There are no views between these assets and the Power Plant Area.
- 8.5.10 Similarly, there is no likelihood of negative impacts, caused by changes to the setting of the designated assets by noise, dust, vibration and visual intrusion, from temporary construction related activities due to the distance between these assets and the Power Plant Area. There will be **no impact** to Sidebrook House (RPS 33-017), a complex of single and two-storey outbuildings built c.1815 and c.1850 (RPS 33-018), a field gate (RPS 33-018), entrance gates (RPS 33-018) and a house dating to 1800 (RPS 33-016) during the construction phase.

Operational Phase

- 8.5.11 Once the Power Plant Area is operational, there will be no requirement for groundworks or ground intrusive activity in the area. Significant effects for the operation of the Proposed Development derive from changes to the setting of heritage assets. These largely mirror the effects assessed for the permanent presence of the Proposed Development as detailed above in the assessment of the construction phase. There would be no change to the effects assessed for the designated assets within the wider

study area due to the permanent presence of the Proposed Development during the operational phase. Additionally, the level of traffic associated with the construction phase will not be present during the operational phase also reducing impact. Given this, there is no need to reassess each designated heritage asset as the significance of effect will remain as determined for the Construction Phase.

8.5.12 There will be no additional impacts to heritage assets during the operational phase.

Decommissioning Phase

8.5.13 Full details of the decommissioning works would be presented in a Decommissioning Plan (including a Closure Remediation and Aftercare Management Plan), to be produced and agreed with the EPA as part of the Industrial Emissions Licence (IEL) and site surrender process for the facility at the end of the design life of the Power Plant Area.

8.5.14 Temporary effects, arising from the process of decommissioning of the Power Plant Area, are considered to be of a similar nature and duration to those temporary effects arising from the construction process and, therefore, have not been considered separately in this chapter.

Impact Assessment for Electricity Grid Connection

Construction Phase

8.5.15 Construction of the Electricity Grid Connection could impact heritage assets in the following ways:

- Partial or total removal of heritage assets during site clearance and construction of the 220kV and 400kV substations, overhead powerlines, underground cables and associated features and infrastructure, including temporary site compounds and accesses. This includes the erection of electricity pylons to carry the overhead line;
- Impact of landscaping, spoil disposal and planting on the setting of heritage assets, and damage caused to archaeological deposits by planting or earthwork embankments;
- Compaction of archaeological deposits due to construction traffic movement or materials storage; damage through rutting of superficial deposits from construction traffic;
- Vibration and changes in air quality, causing damage to historic monuments during construction;
- Changes in groundwater levels leading to the desiccation of previously waterlogged archaeological deposits, damage caused by changes to hydrology and chemical alteration, or changes in silt deposition regimes;
- Effects on the setting of heritage assets, including visual and noise intrusion, and changes in traffic levels;
- Severance causing dereliction or neglect of historic monuments or reduction of group value and adverse impacts on amenity as a result of construction works; and
- Change to the setting of heritage assets, including visual and noise intrusion, and changes in traffic levels (construction phase only).

8.5.16 The majority of the Electricity Grid Connection is located within peat bog which has been disturbed by commercial peat extraction activities, although layers of peat between 0.5m and 2.0m deep are still present. The exception to this is the location of the 400kV substation at the southern end which is located within pasture land on the edge of peat bog.

- 8.5.17 While there are no recorded Cultural Heritage assets within the footprint of the Electricity Grid Connection, there are 108 recorded heritage assets within the surrounding study area. The majority of these are wetland archaeological assets related to the adjacent peat bog, in particular, in the townland of Togher to the south. These assets in Togher relate to late Neolithic and Early Bronze Age activity exploiting wetland resources including Lough Nashade.
- 8.5.18 Recorded dryland archaeology includes the possible Hilltop enclosure (OF010-017) and Castle (OF010-019), while the wider study area reveals that the area was important during the Bronze Age, with prominent intervisible barrows located on Croghan Hill (OF010-004001) and Clonin Hill (NM. 532). Given these baseline conditions, there is the possibility for previously unrecorded heritage assets to exist within all parts of the Electricity Grid Connection. Such archaeological features are likely to be of **local** interest and of **low** heritage value given the known archaeological assets within the study area.
- 8.5.19 Groundworks associated with the Electricity Grid Connection would severely impact upon any such archaeological remains should they exist and would alter the special interests or qualities of the assets. The magnitude of this impact would be **high** giving a significance of effect of **Significant** which would be **permanent** and **adverse**.
- 8.5.20 Ten Protected Structures are located within the wider 3km study area around the Electricity Grid Connection. These are all located to the east and southeast at Toberdaly and the village of Rhode. There are no direct views between these assets and the Electricity Grid Connection with lines of sight screened by topography, vegetation, and intervening buildings.
- 8.5.21 Similarly, there is no likelihood of negative impacts caused by changes to the setting of the designated assets from noise, dust, vibration and visual intrusion caused by temporary construction related activities. This is due to the distance between these assets and the Electricity Grid Connection. There will be **no impact** to the Protected Structures within the 3km study area.
- 8.5.22 The National Monument Barrow (NM. 532), located on Clonin Hill, is regionally important. Views from this monument to the locally important bowl barrow (OF010-004001), located on Croghan Hill, will look directly across the area where the overhead power line will run. The power line will be clearly visible, although views will be looking over the infrastructure with neither of the two archaeological assets blocked or screened.
- 8.5.23 Additionally, the ability to understand and appreciate the monuments will not be lessened by the presence of the Proposed Development. The change to setting would be such that the special interests or qualities of the Barrow (NM. 532) are slightly affected, without a noticeable change, leading to a magnitude of impact of **Low**, and resulting in a significance of effect of **moderate**. The **moderate** significance of effect would be **long-term** and **adverse**.
- 8.5.24 The change to setting for the bowl barrow (OF010-004001) would be such that the special interests or qualities are slightly affected, without a noticeable change, leading to a magnitude of impact of **Low**, resulting in a significance of effect of **Slight**. The **Slight** significance of effect would be **long-term** and **adverse**.
- Operational Phase*
- 8.5.25 The scheme would be completed with the Electricity Grid Connection in place during Operation, with all groundworks completed and construction-related personnel and items removed from the area. Given this, there will be no physical impacts to heritage during the operation phase.

8.5.26 Significant effects for the operation of the Electricity Grid Connection derive from changes to the setting of heritage assets. These largely mirror the effects assessed for the permanent presence of the Electricity Grid Connection as detailed above in the assessment of the construction phase. There would be no further change to the effects assessed for the designated assets within the 3km study area due to the permanent presence of the Electricity Grid Connection during the operational phase.

Decommissioning Phase

8.5.27 The Electricity Grid Connection will be managed by the transmission asset operators (TAO) and transmission service operators (TSO) (ESBNI and EirGrid for electricity) as part of the national grid electricity. Upon decommissioning of the Power Plant Area, the 220kV substation and 400kV substation and associated transmission infrastructure will remain in situ and form part of the national grid infrastructure.

8.5.28 Temporary effects arising from the process of decommissioning of the Electricity Grid Connection are considered to be of a similar nature and duration to those temporary effects arising from the construction process and therefore have not been considered separately in this chapter. Effects of the decommissioning of the Electricity Grid Connection therefore have not been considered separately in this chapter.

Impact Assessment for Gas Connection Corridor

Construction Phase

8.5.29 Construction of the Gas Connection Corridor under consideration could impact heritage assets in the following ways:

- Partial or total removal of heritage assets during site clearance and construction of pipe trenches, Above Ground Installations (AGI) in Kilbrennan, temporary access roads and contractor compound areas;
- Impact of landscaping, spoil disposal and planting on the setting of heritage assets, and damage caused to archaeological deposits by planting or earthwork embankments;
- Compaction of archaeological deposits due to construction traffic movement or materials storage; damage through rutting of superficial deposits from construction traffic;
- Vibration and changes in air quality, causing damage to historic monuments during construction;
- Changes in groundwater levels leading to the desiccation of previously waterlogged archaeological deposits, damage caused by changes to hydrology and chemical alteration, or changes in silt deposition regimes;
- Effects on the setting of heritage assets, including visual and noise intrusion, and changes in traffic levels; and
- Severance causing dereliction or neglect of historic monuments or reduction of group value and adverse impacts on amenity as a result of construction works.

8.5.30 There is one Historic Asset within the route of the Gas Connection Corridor. This is the Planned Landscape (NIAH 4237) associated with the former rectory Glebe House. This Planned Landscape has been denuded with the route of the Gas Connection Corridor now farmland and not recognisable as a heritage feature. The gas pipeline within the Gas Connection Corridor would be reinstated once laid with no above ground visible traces. The physical appearance of the farmland would not be impacted. The heritage value of this asset is **Low** and the magnitude of impact can be classed as low, resulting

in a significance of effect of **slight**. The **slight** significance of effect would be **short-term** and **adverse**.

- 8.5.31 The Gas Connection Corridor passes through an archaeologically sensitive landscape, with archaeological evidence for activity dating from the prehistoric through to the post-medieval periods. The terrain across which the Gas Connection Corridor traverses ranges from peat bog to pasture. Early Medieval assets in the form of ring-forts are well represented, while a former medieval landscape is also present at Castlelost, with the castle (WM033-043), motte and bailey (WM033-042) and church (WM033-031) still extant, although this is located on the northern side of the Castlelost Road away from the route of the Gas Connection Corridor.
- 8.5.32 The area of the Gas Connection Corridor appears to have been agricultural ground which has remained relatively unchanged. There is the possibility for buried and currently unknown archaeological remains to survive, or other heritage assets that have not yet been identified or recorded to be present within the footprint of the Gas Connection Corridor. Given the known recorded assets within the Gas Connection Corridor, such assets are likely to be of **local** significance and would be judged of **Low** heritage value.
- 8.5.33 Groundworks associated with the Gas Connection Corridor, especially the northern AGI at Kilbrennan, would severely impact upon such assets either disturbing or removing them. The magnitude of impact is therefore classed as **High** giving a significance of effect of **Moderate Adverse**.
- 8.5.34 There are heritage assets within the Gas Connection Corridor which have been designated and are considered regionally important. While these assets will not be physically impacted by the construction of the Gas Connection Corridor, there is the possibility of temporary negative impacts to the setting of the designated assets by noise, dust and vibration. These would be caused by construction related traffic which could diminish the importance of these assets, although this will be temporary and localised.
- 8.5.35 Ten Protected Structures are recorded within the 1km Gas Connection Corridor, comprising 14 assets. All are built structures considered of regional importance with half located within the village of Rochfortbridge. The route of the Gas Connection Corridor passes between Sidebrook House (RPS 33-017), the complex of single and two-storey outbuildings built c.1815 and c.1850 (RPS 33-018), a field gate (RPS 33-018), entrance gates (RPS 33-018), 161m to the east, and a house dating to 1800 (RPS 33-016), 227m to the west.
- 8.5.36 The settings of these assets will be impacted by noise, dust and vibration during the construction works when the works within the Gas Connection Corridor is under construction, but the ability to understand and appreciate these assets will not be lessened by the presence of the Gas Connection Corridor. The change to setting would be such that the special interests or qualities of the assets are only slightly affected, without a noticeable change, leading to a magnitude of impact of **Low**, resulting in a significance of effect of **Slight**. The quality of the **Slight** significance of effect is judged as **Neutral** while its duration is **short-term**.
- 8.5.37 Similarly, the Forge (RPS 033-001) is located 112m to the southwest of the centre line of the Gas Connection Corridor. The setting of this asset will be impacted by noise, dust and vibration during the construction works when the Gas Connection Corridor is under construction, but the ability to understand and appreciate it will not be lessened by the presence of the proposed Power Plant Area. The change to setting would be such that the special interests or qualities of the asset will be only slightly affected without a noticeable change, leading to a magnitude of impact of **Low**, resulting in a significance of effect of **Slight**. The quality of the **Slight** significance of effect is judged as **Neutral** while its duration is **short-term**.

8.5.38 Seven of the Protected Structures are located within the village of Rochfortbridge to the northeast. The closest asset is Sycamore House (RPS 033-002), 694m away, while the more rural asset West House (RPS 033-027) is located 453m to the south in the townland of Castlelost West. The settings of these assets will not be impacted by noise, dust and vibration during the construction works when the Gas Connection Corridor is under construction. There will be **no impacts** on these assets.

Operational Phase

8.5.39 Once the Gas Connection Corridor is operational there will be no requirement for further groundworks or ground intrusive activities in this area. The pipeline will be below ground and the Gas Connection Corridor will be returned to agricultural land use. Given this, there will be **no additional impacts** to archaeology or cultural heritage during the operational phase.

Decommissioning Phase

8.5.40 The gas connection will be managed by the transmission asset operators (TAO) and transmission service operators (TSO) (GNI for gas) as part of the national gas networks. At the end of its design life, it is expected that the gas connection pipeline may have residual life remaining and the operational life may be extended if appropriate and/or the asset refurbished and retained as part of the national transmission network. Effects of the decommissioning of the Gas Connection Corridor, therefore, have not been considered separately in this chapter.

8.6 Mitigation Measures

Power Plant Area

Construction Phase

- 8.6.1 Should planning permission be obtained for the Proposed Development, the Applicant will appoint a suitably qualified archaeologist as the Project Archaeologist to oversee the construction phase activities. Archaeological testing will be carried out at the pre-construction phase in areas, identified in the construction impacts section of Section 8.5 above, where the Proposed Development has the potential to impact upon archaeological remains (peripheral areas around the current Bord na Móna complex) (Figure 8.4).
- 8.6.2 This testing will take the form of mechanically excavated test trenches. These will be excavated under the constant supervision of a suitably qualified and licensed archaeological contractor who will be appointed to carry out the archaeological fieldwork. Relevant licenses will be acquired from the Department for Housing, Local Government and Heritage (DoHLGH)/NMS and the National Museum of Ireland (NMI) for all archaeological works. These will be carried out in accordance with an Overarching Method Statement for Archaeological Works prepared by the Project Archaeologist and agreed with the NMS. It is anticipated that all archaeological works will be completed prior to the commencement of construction activities.
- 8.6.3 The programme of pre-development archaeological testing will consist of the mechanical excavation of test trenches down to sterile glacial tills and bedrock, by means of a smooth toothless bucket. These will be undertaken at specified locations within the Proposed Development. The appointed archaeologist will undertake full-time monitoring of the excavation of the test trenches and where appropriate, carry out archaeological investigation.
- 8.6.4 Should archaeological material/features be encountered during the archaeological testing, the use of machinery shall cease, and further archaeological investigation (by hand) shall be carried out to determine the nature and extent of the archaeological remains. Archaeological deposits shall not be removed as part of the assessment process.
- 8.6.5 The testing will be undertaken in advance of construction to allow adequate time to evaluate, record and, where necessary, mitigate any archaeological features that may be revealed. In the event that any archaeological features are uncovered during construction, the appointed Archaeologist and the National Monuments Service will be consulted to determine the appropriate mitigation measures. These may include preservation in situ, preservation by record through systematic archaeological excavation, and/or archaeological monitoring of specific construction activities during the construction phase.
- 8.6.6 Archaeological issues will be resolved where possible, at the pre-construction stage of the development, although areas within peat bog may require evaluation during the construction phase with groundworks carried out under archaeological supervision. If unexpected archaeological remains or artefacts are discovered during construction work, work in that area will cease and the area will be protected. An unexpected finds procedure will be included in the Overarching Method Statement for Archaeological Works. The Project Archaeologist and NMS will be notified, and the unexpected finds procedure will be implemented.
- 8.6.7 Works in the Power Plant Area will have an impact upon the settings of heritage assets during Construction. Consideration of visual intrusion and noise impacts are addressed in Chapter 9 (Noise and Vibration), Chapter 10 (Landscape and Visual Effects) and

Chapter 12 (Traffic and Transport) while embedded mitigation measures are included within the scheme design.

Embedded Mitigation to be adopted during Scheme Construction

- 8.6.8 During the construction phase procedures will be adopted, as described in the Construction Environmental Management Plan (CEMP) (refer to Appendix 5A, EIAR Volume II), to reduce the impact of noise, dust, and vibration during construction.

Operational Phase

- 8.6.9 All impacts will occur during the Construction phase and there is no requirement for mitigation measures during the Operation Phase.

Decommissioning Phase

- 8.6.10 Full details of the decommissioning works will be presented in a Decommissioning Plan to be produced and agreed with the EPA at a later date, as part of the Industrial Emissions Licence application. The Decommissioning Plan will present likely measures to be implemented under the site surrender process for the facility at the end of the operational life for the Power Plant.
- 8.6.11 Temporary effects arising from the process of decommissioning of the Proposed Development are considered to be of a similar nature and duration to those temporary effects arising from the construction process and therefore have not been considered separately in this chapter.

Electricity Grid Connection

Construction Phase

- 8.6.12 If after planning is consented and the project proceeds, the Applicant will appoint a suitably qualified archaeologist as Project Archaeologist. Archaeological testing will be carried out at the pre-construction phase in areas, identified in the construction impacts section above, where the Proposed Development has the potential to impact upon archaeological remains. These include the substation areas, construction compounds, hardstandings, pylon bases, underground cable and new access tracks (Fig 8.5).
- 8.6.13 This testing will take the form of mechanically excavated test trenches. This will be undertaken under the constant supervision of a suitably qualified and licensed archaeological contractor who will be appointed to carry out the archaeological fieldwork. Relevant licenses will be acquired from the Department for Housing, Local Government and Heritage (DoHLGH)/NMS and the National Museum of Ireland (NMI) for all archaeological works. These will be carried out in accordance with an Overarching Method Statement for Archaeological Works prepared by the Project Archaeologist and agreed with the NMS. It is anticipated that all archaeological works will be completed pre-construction.
- 8.6.14 The programme of pre-development archaeological testing will consist of the mechanical excavation of test trenches down to sterile glacial tills and bedrock, by means of a smooth toothless bucket. These will be undertaken at specified locations within the Proposed Development., The appointed archaeologist will undertake full-time monitoring of the excavation of the test trenches and, where appropriate, carry out archaeological investigation.
- 8.6.15 Should archaeological material/features be encountered during the archaeological testing, the use of machinery shall cease, and further archaeological investigation (by hand) shall be carried out to determine the nature and extent of the archaeological remains. Archaeological deposits shall not be removed as part of the assessment process.

- 8.6.16 The testing will be undertaken in advance of construction to allow adequate time to evaluate, record and where necessary mitigate any archaeological features that may be revealed. In the event that any archaeological features are uncovered during construction, the appointed Archaeologist and the National Monuments Service will be consulted to determine the appropriate mitigation measures. These may include preservation in situ, preservation by record through systematic archaeological excavation, and/or archaeological monitoring of specific construction activities during the construction phase.
- 8.6.17 Archaeological issues will be resolved where possible at the pre-construction stage of the development, although the elements of the scheme associated with the overhead powerline and the underground cable trench, within peat bog, may require evaluation during the construction phase with groundworks carried out under archaeological supervision. If unexpected archaeological remains or artefacts are discovered during construction work, work in that area will cease and the area will be protected. An unexpected finds procedure will be included in the Overarching Method Statement for Archaeological Works. The Project Archaeologist and NMS will be notified, and the unexpected finds procedure will be implemented.
- 8.6.18 The Electrical Grid Connection will have an impact upon the settings of heritage assets during Construction. Consideration of visual intrusion and noise impacts are addressed in Chapter 9 (Noise and Vibration), Chapter 10 (Landscape and Visual Effects) and Chapter 12 (Traffic and Transport) while embedded mitigation measures are included within the scheme design.

Embedded Mitigation to be adopted during Scheme Construction

- 8.6.19 During the construction phase procedures would be adopted, as described in the Construction Environmental Management Plan (CEMP) (refer to Appendix 5A, EIAR Volume II), to reduce the impact of noise, dust and vibration during construction.

Operational Phase

- 8.6.20 All impacts will occur during the Construction Phase and there is no requirement for mitigation measures during the Operation Phase.

Decommissioning Phase

- 8.6.21 Decommissioning of the Electricity Grid Connection is not envisaged as it will be managed by EirGrid once it is operational and will become an important part of the national grid infrastructure. Therefore, no mitigation measures are proposed.

Gas Connection Corridor

Construction Phase

- 8.6.22 The Gas Connection Corridor is part of the Overall Project and will enable the Proposed Development to connect to the existing high pressure Gas Pipeline to the West (BGE/77), north of the power plant area via AGI at tie-in location and underground routing of pipeline. The Gas Connection Corridor is not being applied for in the planning application for the Proposed Development (as it will be applied for by Gas Networks Ireland), however the Gas Connection Corridor and construction and operation phases is assessed in this EIAR as part of the Overall Project Site.
- 8.6.23 If after planning is consented and the project proceeds, GNI will appoint a suitably qualified archaeologist as Project Archaeologist and archaeological testing will be carried out at the pre-construction phase.

Embedded Mitigation to be adopted during Scheme Construction

- 8.6.24 During the construction phase procedures would be adopted by GNI to reduce the impact of noise, dust, and vibration during construction.

Operational Phase

- 8.6.25 All impacts will occur during the Construction phase and there is no requirement for mitigation measures during the Operation Phase.

Decommissioning Phase

- 8.6.26 Decommissioning of the Gas Connection Corridor is not envisaged as it will be managed by Gas Networks Ireland (GNI) and will become an important part of the Republic of Ireland's gas network infrastructure. Therefore, no mitigation measures are proposed.

8.7 Residual Effects

8.7.1 Residual Effects are defined as those effects that remain following the implementation of mitigation measures (EPA 2022). Only those assets where a likely significant effect has been identified prior to the implementation of mitigation measures (Section 8.5) are discussed in this section. Those assets where no impact or effects have been identified are not included, as mitigation measures are not required in these instances and there are no differences between the Predicted Impacts and Residual Effects as a result.

Power Plant Area

Construction Phase

8.7.2 There is potential for currently unrecorded archaeological deposits to be present within the Power Plant Area. Mitigation has been proposed in the form of archaeological monitoring and excavation, if appropriate, to determine the presence/ absence of such features and to preserve them by record. Based on the results of the baseline report, it is assessed that previously unrecorded archaeological assets within the site are likely to be of local value. The residual effect is therefore assessed to be **moderate, negative, and permanent**.

Operational Phase

8.7.3 Appropriate measures will have been implemented at construction phase and no further mitigation will be required at the operational phase (including maintenance periods). The residual effect would remain **moderate, negative and permanent**.

Decommissioning Phase

8.7.4 Temporary effects arising from the process of decommissioning of the Power Plant Area are considered to be of a similar nature and duration to those temporary effects arising from the construction process and therefore have not been considered separately in this chapter.

Electricity Grid Connection

Construction Phase

8.7.5 There is potential for currently unrecorded archaeological deposits to be present within the Electricity Grid Connection area. Mitigation has been proposed in the form of archaeological monitoring and excavation, to determine the presence/ absence of such features and to preserve them by record. Based on the results of the baseline report, it is assessed that previously unrecorded archaeological assets within the site are likely to be of local value. The residual effect is therefore assessed to be **moderate, negative, and permanent**.

8.7.6 The setting of the National Monument Barrow (NM. 532) will be impacted by the physical presence of the Overhead Power Line during the construction phase. Assessment of the location of this asset has determined that the construction of the Overhead Power Line will slightly impact the special interests and qualities of this monument and our ability to understand and appreciate it. The magnitude of this impact would be Low leading to a Moderate effect. The moderate effect will be long-term reversible and adverse. This will not change with mitigation and the residual effect is therefore assessed to be **moderate, negative, and long-term reversible**.

8.7.7 The setting of the bowl barrow (OF010-004001) will be impacted by the physical presence of the Overhead Power Line during the construction phase. Assessment of the location of this asset has determined that the construction of the Overhead Power Line will slightly impact the special interests and qualities of this monument and our ability to understand and appreciate it. The magnitude of this impact would be Low leading to a

Slight effect. The slight effect will be long-term reversible and adverse. This will not change with mitigation and the residual effect is therefore assessed to be **slight, negative, and long-term reversible**.

Operational Phase

- 8.7.8 Appropriate measures will have been implemented at construction phase and no further mitigation will be required at the operational phase (including maintenance periods). The residual effect would remain **moderate, negative and permanent**.

Decommissioning Phase

- 8.7.9 Decommissioning of the Electricity Grid Connection is not envisaged and has not been assessed under this EIAR as it will be managed by EirGrid once it is operational and will likely become an important part of the national grid infrastructure.

Gas Connection Corridor

Construction Phase

- 8.7.10 The Gas Connection Corridor is not being applied for in the planning application for the Proposed Development (as it will be applied for by Gas Networks Ireland), however the underground connection corridor and construction and operation is assessed in this EIAR as part of the Overall Project Site.
- 8.7.11 The Planned Landscape (NIAH 4237) associated with the former rectory Glebe House will experience a **low** impact from the Proposed Development and Overall Project with its setting temporarily impacted. The heritage value of this asset is **Low** and the magnitude of impact can be classed as low, leading to a significance of effect of slight. The slight significance of effect would be short-term and adverse. The residual effect is, therefore, assessed to be **slight, negative, and short-term**.
- 8.7.12 There is potential for currently unrecorded archaeological deposits to be present within the Gas Connection Corridor. These will experience a very high impact from the Proposed Development and Overall Project. Mitigation has been proposed in the form of archaeological monitoring and excavation, if appropriate, to determine the presence/absence of such features and to preserve them by record. Based on the results of the baseline report, it is assessed that previously unrecorded archaeological assets within the site are likely to be of local value. The residual effect is, therefore, assessed to be **moderate, negative, and permanent**.
- 8.7.13 The settings of Sidebrook House (RPS 33-017), the complex of single and two-storey outbuildings (RPS 33-018), a field gate (RPS 33-018), entrance gates (RPS 33-018) 161m to the east and a house dating to 1800 (RPS 33-016) will be impacted by noise, dust and vibration during the construction works when the Gas Connection Corridor is under construction within the Gas Connection Corridor. The change to setting would be such that the special interests or qualities of the assets are only slightly affected without a noticeable change, leading to a magnitude of impact of Low, resulting in a significance of effect of Slight. The quality of the Slight significance of effect is judged as Neutral while its duration is short-term. This will not change with mitigation and the residual effect is, therefore, assessed to be **slight, negative, and short-term**.
- 8.7.14 Similarly, the setting of the Forge (RPS 033-001) will be impacted by noise, dust and vibration during the construction works when the Gas Connection Corridor is under construction within the Gas Connection Corridor. The change to setting would be such that the special interests or qualities of the asset is only slightly affected without a noticeable change, leading to a magnitude of impact of Low, resulting in a significance of effect of Slight. The quality of the Slight significance of effect is judged as Neutral while

its duration is short-term. This will not change with mitigation and the residual effect is therefore assessed to be **slight, negative, and short-term**.

Operational Phase

- 8.7.15 Appropriate measures will have been implemented at construction phase and no further mitigation will be required at the operational phase (including maintenance periods). The residual effect would remain **slight, negative and short-term**.

Decommissioning Phase

- 8.7.16 Decommissioning of the Gas Connection Corridor is not envisaged and has not been assessed under this EIAR as it will be managed by Gas Networks Ireland (GNI) and will become an important part of the Republic of Ireland's gas network infrastructure.

8.8 Cumulative Effects

Impacts – Interaction of Effects between the Various Elements of the Proposed Development and Overall Project

- 8.8.1 The potential cumulative impacts from interactions between various elements of the Proposed Development and Overall Project, as described in Chapter 5, have been considered in terms of impacts on Climate. Due to the proximity, scale and timelines associated with each element, there is potential for cumulative effects with the Proposed Development and Overall Project.
- 8.8.2 This impact assessment has considered all elements of the Proposed Development and Overall Project, including elements which are not subject to this planning permission, during the construction, operation and decommissioning phases. A thorough cumulative impact assessment has therefore been carried out below to examine the impacts that the various elements of the Overall Project will have on climate and climate change.

Power Plant Area

- 8.8.3 The Electricity Grid Connection is part of this application while a separate consent application for the Gas Connection Corridor will be subject to separate consenting applications which will be made by GNI. These elements of the Overall Project are integral to the operation of the Power Plant Area. Therefore, there is potential for overlapping construction phases of each element of the Overall Project (i.e., Power Plant Area, Electricity Grid Connection, Gas Connection Corridor) creating cumulative dust, vibration and noise impacts as well as a visual impact to the setting of heritage assets.
- 8.8.4 There are no recorded heritage assets either within the Electricity Grid Connection or the Power Plant Area, while the Planned Landscape (NIAH 4237), associated with the former rectory Glebe House which the Gas Connection Corridor crosses, is 4km from the Power Plant Area, with the M6 motorway intervening. Given these conditions, the construction of the Power Plant Area will not combine with the construction of the Electricity Grid Connection and Gas Connection Corridor to create a cumulative impact upon heritage assets. There will be no cumulative effects.

Electricity Grid Connection

- 8.8.5 The Electricity Grid Connection is part of this Proposed Development application with the Power Plant Area, while the Gas Connection Corridor will be subject to separate consenting applications which will be made by GNI. These are all part of the Overall Project and are all integral for the overall operation. Therefore, there is potential for overlapping construction phases of each element of the Overall Project (i.e., Power Plant Area, Electricity Grid Connection, Gas Connection Corridor) creating cumulative dust, vibration and noise impacts as well as a visual impact to the setting of heritage assets.
- 8.8.6 There are no recorded heritage assets either within the Electricity Grid Connection or Power Plant Area while the Planned Landscape (NIAH 4237), associated with the former rectory Glebe House which the Gas Connection Corridor crosses, is 4km from the northern extent of the Electricity Grid Connection, with the M6 motorway intervening. The National Monument Barrow (NM. 532) is located 5km to the south of the Power Plant Area and the southern extent of the Gas Connection Corridor. These distances will negate any additional impacts to setting from combined construction dust, vibration and noise. There will be no cumulative effects.

Gas Connection Corridor

- 8.8.7 The Gas Connection Corridor will be subject to separate consenting applications which will be made by GNI. However, the Gas Connection Corridor has been considered part of the Overall Project as it is integral to the operation of the Proposed Development.

Therefore, there is potential for overlapping construction phases of each element of the Overall Project (i.e., Grid Connection, Gas Connection Corridor and Power Plant) creating cumulative dust, vibration and noise impacts as well as a visual impact to the setting of heritage assets.

- 8.8.8 There are no recorded heritage assets within the Power Plant Area or the Electricity Grid Connection while the Planned Landscape (NIAH 4237), associated with the former rectory Glebe House which the Gas Connection Corridor crosses, is 4km from the Power Plant Area and the northern extent of the Electricity Grid Connection, with the M6 motorway intervening. These distances will negate any additional impacts to setting from combined construction dust, vibration and noise. There will be no cumulative effects.

Cumulative In-Combination Effects

- 8.8.9 Cumulative impact is defined as ‘The addition of many small impacts to create one larger, more significant impact’ (EPA 2022)
- 8.8.10 In this regard, in order to assess overall cumulative effects on archaeology and cultural heritage the Proposed Development and Overall Project is considered in the context of a number existing, proposed and permitted developments in the area as listed in Chapter 4 of this EIAR.
- 8.8.11 The nearest existing, permitted, and proposed developments are listed in table 8.4 below: The addition of the Proposed Development and Overall Project to this already largely altered landscape (i.e., through the existing and renewable energy developments) will not result in a visual impact to any nearby recorded monuments, protected structure or NIAH structures or features. Therefore, as the Proposed Development and Overall Project will not result in any significant indirect visual impact on cultural heritage sites, there will not be any potential for cumulative impacts of same.
- 8.8.12 In terms of potential cumulative direct impacts, potential direct impacts which may occur to sub-surface archaeological features within the site of the Proposed Development and Overall Project will be mitigated against, as discussed in Section 8.6 above. The Proposed Development and Overall Project in combination with other developments, could result in potential negative effects to sub-surface archaeological feature (i.e., cumulative impacts). Since each of these projects considered cumulatively (listed in Section 4.7 of Chapter 4 of this EIAR) have been or will be subject to thorough assessment from a cultural heritage perspective through the EIAR process, all potential negative effects of other projects are deemed to have been dealt with through the use of effective mitigation measures and planning conditions issued by the relevant Planning Authorities. There is no potential for cumulative impacts to surface or sub-surface archaeological features arising from the Proposed Development and Overall Project in combination with other projects.
- 8.8.13 The analysis of potential direct and indirect impacts on cultural heritage concludes that the Proposed Development and Overall Project will result in no significant impacts. There is no potential for cumulative impacts arising from the Proposed Development and Overall Project in combination with other projects. No significant cumulative impacts on cultural heritage are anticipated during the construction, operation or decommissioning phase, following successful implementation of the mitigation measures outlined in Section 8.6.

Table 8.4: The Nearest Existing, Permitted and Proposed Developments

PLANNING AUTHORITY AND REFERENCE	DESCRIPTION OF DEVELOPMENT	APPLICANT / ADDRESS	STATUS POTENTIAL/SUBMITTED/PERMITTED/IN-CONSTRUCTION/ OPERATIONAL	DISTANCE FROM THE OVERALL PROJECT AND LATITUDE AND LONGITUDE
Offaly CC 22490	Construction of a materials recovery facility for the processing of up to 90,000 tonnes per annum of waste	Oxygen Environmental Unlimited Company - Derryarkin, Rhode, Co. Offaly	Awaiting decision Submitted	180m (53.378761 -7.273885)
Offaly CC 23277	To import soil and stone not exceeding 25,000 tons over a period of 2 yrs for the purpose of raising existing ground levels	Knockdrin and Derrygreenagh Townlands, Rhode, Co. Offaly - Tony McCabe	Awaiting decision Submitted	800m (53.385101 -7.247576)
Offaly CC 19176	Erection of a guyed wind monitoring mast, 100m in height, for a period of six years.	Bord na Mona Powergen Ltd - Derrygreenagh, Rhode	Granted 11/06/2019 Operational	550m (53.386166 -7.262591)
Offaly CC 18324	The filling of lands with inert waste for the purpose of land reclamation and all associated ancillary facilities.	Kilmurray Pre-Cast Concrete Ltd - Derryarkin, Rhode	Granted 24/10/2019 Operational	400m (53.378856 -7.277439)
Offaly CC 1849	Development consisting of the extraction of sand and gravel from a greenfield area. An EIAR and NIS has been submitted	Kilmurray Pre-Cast Concrete Ltd - Derryarkin, Rhode	Granted 29/03/2018 Permitted	1.4km (53.380454 -7.276262)
Offaly CC 1925	Extension to the south west and south east of the existing sand and gravel pit upgrading	Derryarkin Sand and Gravel DAC, Derrygreenagh Knockdrin Garr and Carrick townlands, Rhode.	Granted 21/03/2019 In Construction	850m (53.401126 -7.236346)
Offaly CC 2171	Continuation of use of an internal haul road which connects two areas of an existing sand and gravel pit.	Kilmurray Pre-Cast Concrete Ltd - Derryarkin, Rhode	Granted 12/04/2021 Operation	1.48km (53.377529 -7.280928)
Offaly CC 21247	A 23-year permission for a 44.0-hectare extension to an existing authorised sand and gravel pit. An EIAR has been submitted	Kilmurray Pre-Cast Concrete Ltd - Derryarkin, Rhode	Granted 18/02/2022 Permitted	900m (53.377529 -7.280928)

Offaly CC 20237	Development of a combined heat and power generating biomass gasification plant.	Newleaf Energy Ltd, Coolcor, Rhode	Granted 06/05/2021 Permitted	950m (53.361662 -7.217303)
Offaly CC 20238	An energy storage facility designed to provide system support services to the electricity grid on a 2.7-hectare site.	Rhode Energy Storage Ltd - Coolcor, Rhode	Granted 20/05/2021 Permitted	950m (53.358677 -7.215405)
Offaly CC 19161	Development of an energy storage facility designed to provide 20mw	Schwungrad Energie Ltd - Coolcor, Rhode, Co. Offaly	Granted 04/06/2019 Permitted	950m (53.358783 -7.214572)
Offaly CC 22664	Construction of a 110kv substation, clonin, rhode, co. Offaly CC.	Eirgrid PLC - Derryiron 110kV Substation, Clonin, Rhode	Granted 23/02/2023 Permitted	1.4km (53.358077 -7.214119)
Offaly CC 19315	Continued use of an existing guyed wind monitoring mast, 100m in height for a further period of three years.	Bord na Mona Powergen Ltd - Ballybeg Bog, Derryiron	Granted 23/08/2019 In Operation	1.1km (53.362031 -7.238157)
An Bord Pleanala - OCC ABP-309491	110kV substation, associated 110kV underground grid connection, cabling and associated works	OBM solar Ltd - Srah, Coolcor and Clonin, Rhode	Granted 13/10/2021 Permitted	650m (53.369471 -7.202099)
An Bord Pleanala - OCC ABP-304925	Solar pv energy development within a site area of approximately 15ha.	Highfield Solar Ltd - Clonin, Rhode	Granted 11/03/2021 Permitted	800m (53.351203 -7.219196)
Offaly CC 21488	a 10-year permission for the construction of an extension to the permitted solar pv and battery storage development permitted	OBM Solar Ltd.Srah Greenhilld and Wood, Rhode	Granted 10/12/21 Permitted	500m (53.374489 -7.181083)
Offaly CC 22446	Retention Permission for continuation of use for an existing guyed wind monitoring mast	Bord na Mona Powergen Ltd, Ballybeg Bog, Derryiorn, Co. Offaly	Granted 05/12/2022 In Operation	950m (53.361890 -7.239347)
Offaly CC 21364	Solar panels ground floor mounted on support structures within an area of 1.73Ha.	Paschal Kavanagh, Clonin, Rhode, Co. Offaly	Granted 22/02/2022 Permitted	200m (53.350305 -7.222358)
Westmeath CC 21515	The development comprising 275MWe reserve gas-fired generator. An EIAR has been submitted.	Lumcloon Energy Ltd, Kiltotan and Collinstown and Oldtown, Rochfortbridge, Co Westmeath	Granted 11/05/2022 Permitted	650m 53.398068, -7.322707)
Westmeath CC 21532	The Energy Storage System (ESS) development. Permission is sought for 10 years. An EIAR has been prepared.	Lumcloon Energy Ltd, Kiltotan and Collinstown and Oldtown, Rochfortbridge, Co Westmeath.	Granted 11/05/2022 Permitted	650m (53.399997 -7.320505)

8.9 References

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3rd Edition OS map (1922)



- LEGEND**
- Power Plant Area Boundary
 - Electricity Grid Connection Boundary
 - Gas Connection Corridor Boundary
 - Power Plant 1km Study Area
 - Power Plant 3km Study Area
 - Zone of Notification
 - Record of Protected Structures (Westmeath C.C.)
 - Sites and Monuments Record (SMR)

NOTES

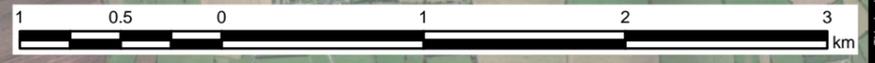
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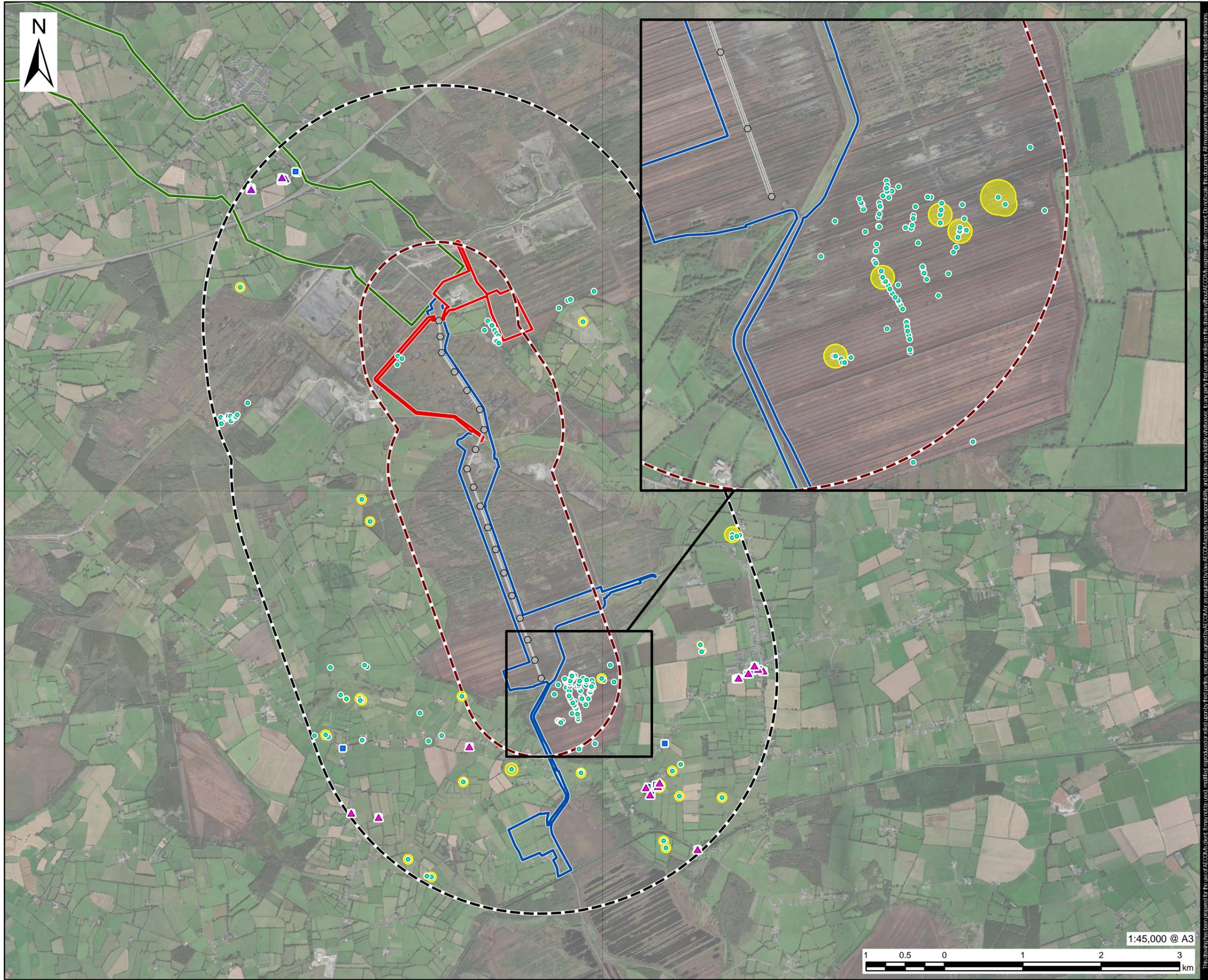
ISSUE PURPOSE
FOR ISSUE
PROJECT NUMBER
60699676
FIGURE TITLE
Heritage Assets within Study Areas around the Main Development Site

FIGURE NUMBER
Figure 8.1

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- LEGEND**
- Power Plant Area Boundary
 - Electricity Grid Connection Boundary
 - Gas Connection Corridor Boundary
 - Overhead Cable 1km Study Area
 - Overhead Cable 3km Study Area
 - Overhead Cable
 - Pylons
 - Zone of Notification
 - ▲ Record of Protected Structures (Westmeath C.C.)
 - ▲ Record of Protected Structures (Offaly C.C.)
 - National Inventory of Architectural Heritage (NIAH)
 - Sites and Monuments Record (SMR)

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FOR ISSUE
PROJECT NUMBER
60699676
FIGURE TITLE
Heritage Assets within study areas around the Electricity Grid Connection

FIGURE NUMBER
Figure 8.2

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LEGEND

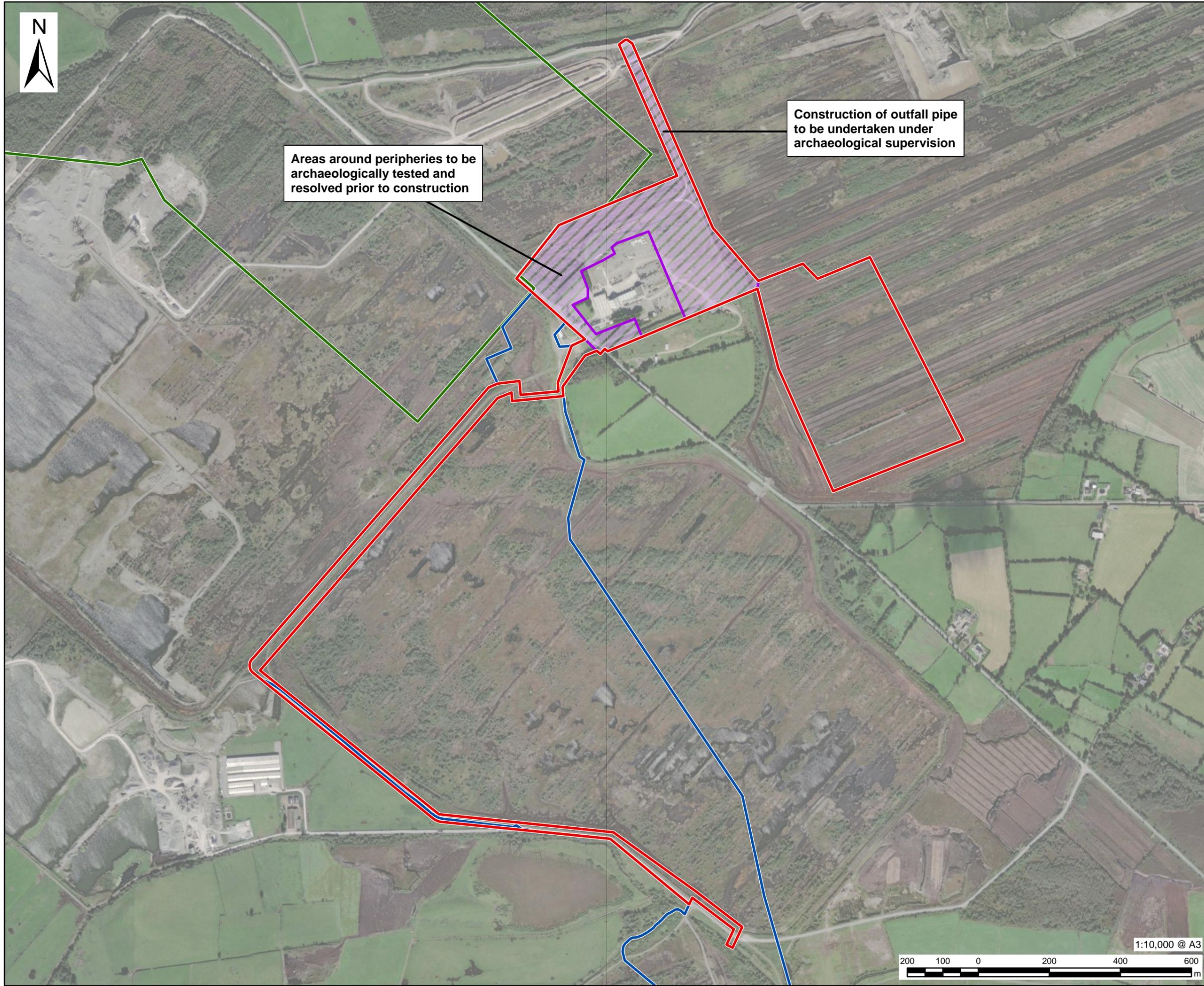
- ▭ Power Plant Area Boundary
- ▭ Electricity Grid Connection Boundary
- ▭ Gas Connection Corridor Boundary
- Heritage Assets**
- Zone of Notification
- ▲ Record of Protected Structures (Westmeath C.C.)
- National Inventory of Architectural Heritage (NIAH)
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ISSUE PURPOSE
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PROJECT NUMBER
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FIGURE TITLE
Heritage Assets within study areas around the Gas Connection Corridor

FIGURE NUMBER
Figure 8.3

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LEGEND

	Power Plant Area Boundary
	Electricity Grid Connection Boundary
	Gas Connection Corridor Boundary
	Areas Requiring Archaeological Investigation

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ISSUE PURPOSE
FOR ISSUE
PROJECT NUMBER
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FIGURE TITLE
Proposed Heritage Mitigation for the Power Plant Area

FIGURE NUMBER
Figure 8.4

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LEGEND

	Power Plant Area Boundary
	Electricity Grid Connection Boundary
	Gas Connection Corridor Boundary
	Proposed Heritage Mitigation

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ISSUE PURPOSE
FOR ISSUE
PROJECT NUMBER
60699676
FIGURE TITLE
Proposed Heritage Mitigation for the Electricity Grid Connection

FIGURE NUMBER
Figure 8.5

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