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Kellystown Wind Farm: Brú na Bóinne World Heritage Property

Appendix 15.4 Heritage Impact Assessment

for EDF Renewables Ireland Ltd

10/07/2025

Kellystown Wind Farm: Brú na Bóinne World Heritage Property

Appendix 15.4 Heritage Impact Assessment

for EDF Renewables

RECEIVED: 07/08/2025

July 2025

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PROJECT INFORMATION:

HA JOB NO.	P25-173
LOCATION	701613, 773151 (ESPG: 2157)

PROJECT TEAM:

PROJECT MANAGER	Fraser McFarlane
AUTHOR	Fraser McFarlane
FIELD VISIT	Fraser McFarlane
GRAPHICS	Fraser McFarlane
APPROVED BY	Owen Raybould
VERSION COMMENTS	Client issue



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HERITAGE IMPACT ASSESSMENT

1. Introduction

1.1 *Background*

- 1.1.1. A planning application for the proposed Kellystown Wind Farm (the Proposed Development) comprising five wind turbines with tip heights in the range of 179.5 m to 180 m and associated infrastructure was submitted by EDF Renewables Ireland Ltd in December 2024 (LCC Ref 2460766). The Wind Farm Site¹ is located approximately 8.3 km north of Drogheda in County Louth. An Environmental Impact Assessment Report (EIAR) including a chapter on Cultural Heritage was prepared in support of the planning application.
- 1.1.2. Louth County Council requested Additional Information in February 2025 which included a request for an assessment of the Proposed Development on the Outstanding Universal Value (OUV) of the Brú na Bóinne World Heritage Property (WHP). The WHP boundary is located approximately 8 km to the south-west of the Site and comprises an ancient monument complex and ritual landscape made up of at least 90 monuments including passage graves, burial mounds, standing stones and enclosures. The site is dominated by the passage grave of Newgrange (Sí an Bhrú), Knowth (Cnogbha) and Dowth (Dubhadh).
- 1.1.3. This report presents the results of a Heritage Impact Assessment (HIA) of the predicted impact of the Proposed Development on the OUV of the Brú na Bóinne WHP. An assessment of the contribution made to OUV by the wider setting of the WHP is presented; from this basis, the impact of the Proposed Development on OUV in isolation is provided before cumulative impacts resulting from the Proposed Development along with existing developments constructed since the inscription of the WHP in 1993 is provided. An assessment of cumulative impacts as a result of these post-1993 developments, the Proposed Development and future developments is also presented.
- 1.1.4. The spatial relationship between the WHP and the Site is shown on Illus 1. The area in which the proposed turbines would be located is within the wider setting of the of WHP. The proposed Turbine Delivery Route follows existing roads with discrete areas along the route requiring temporary 'over-run' working areas to facilitate wide and abnormal loads. The proposed electrical cable Grid Connection would be below ground and retained in-road or along existing road verges only. Given the lack of visual change to the wider setting of the WHP which would result from the construction of the proposed Turbine Delivery Route and Grid Connection Route, it is the potential impact of the proposed turbines only that is the subject of this assessment.
- 1.1.5. Construction of the Proposed Development would visually change the wider setting of the WHP and could affect its OUV. Change in the wider setting would not automatically affect OUV; this would depend on the nature of the change and the ways in which this part of the setting supports OUV.
- 1.1.6. The main objective of this report is therefore to assess the impact of the Proposed Development of the OUV of the WHP through predicted visual change to its wider setting.
- 1.1.7. This freestanding HIA forms part of a wider Cultural Heritage Further Information (FI) submission for the Proposed Development. This report is included as Appendix 15.4 to EIAR Chapter 15: Cultural Heritage, prepared by John Cronin & Associates, and findings regarding impacts on OUV of the WHP contribute

¹ As outlined in Chapter 1 of the EIAR, the Wind Farm Site boundary refers to all lands that fall within the civil design footprint of the proposed Kellystown Wind Farm excluding the proposed Grid Connection and third-party lands on the Turbine Delivery Route. This area is referred to throughout this report as 'the Site'. It should be noted that the full application area as covered within the red line boundary includes the proposed Grid Connection and third-party lands to accommodate the Turbine Delivery Route as required to develop the Proposed Development.

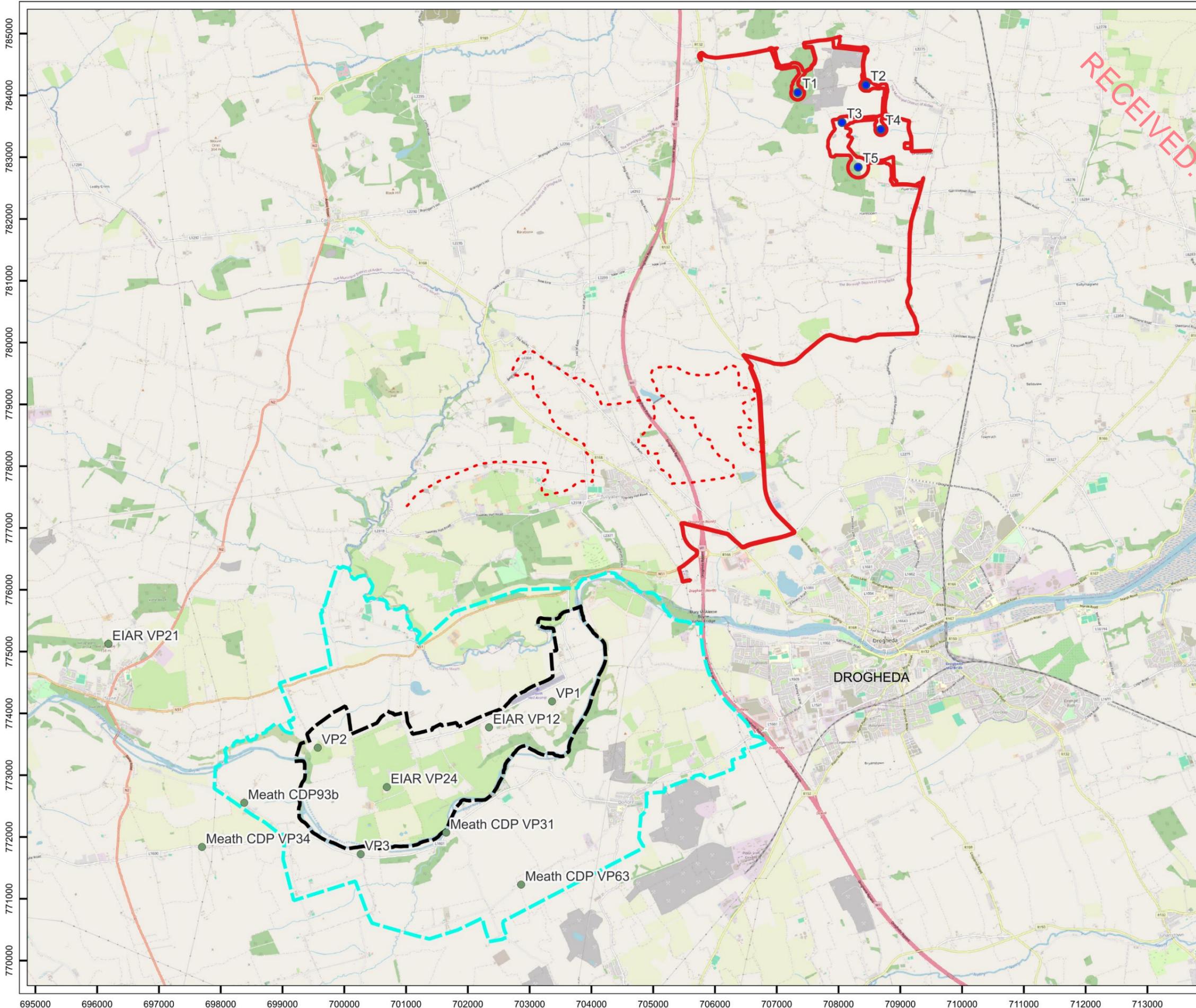
to the overall assessment in the revised chapter prepared in response to the Request for Further Information.

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Scotland

65 Sussex Street
Glasgow
G41 1DX
t: 0141 418 0471
www.headlandarchaeology.com

- Key
- Kellystown Wind Farm Site Boundary
 - Proposed Turbine
 - Brú na Bóinne WHP Core Area
 - Brú na Bóinne WHP Buffer Zone
 - Northern Ridgeline (as shown on Louth County Development Plan)
 - Viewpoints



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Illus 1: Kellystown Wind Farm and Brú na Bóinne WHP Locations and Viewpoints

1.2 *Professional Standards and Statement of Competence*

- 1.2.1. Headland Archaeology (UK) is a Registered Organisation with the Chartered Institute for Archaeologists (CIfA), an audited status which confirms that all work is conducted in accordance with the highest standards of the profession.
- 1.2.2. Headland Archaeology (UK), as part of the RSK Group, is recognised by the Institute of Historic Building Conservation (IHBC) under their 'Historic Environment Service Provider Recognition' scheme. This quality assurance standard acknowledges that RSK works to the conservation standards of the IHBC, the UK's lead body for built and historic environment practitioners and specialists.
- 1.2.3. Headland Archaeology (UK) operates a quality management system to help ensure all projects are managed in a professional and transparent manner, which enables it to qualify for ISO 9001 (Quality Management), ISO 45001 (health and safety management) and ISO 14001 (environmental management).
- 1.2.4. Headland Archaeology has experience of carrying out HIA for World Heritage Properties in the UK and Ireland including development projects affecting the setting of the 'Heart of Neolithic Orkney,' 'Frontiers of the Roman Empire,' 'Derwent Valley Mills,' 'Pontcysyllte Aqueduct and Canal' and 'Brú na Bóinne' World Heritage Properties.
- 1.2.5. This HIA was prepared by Fraser McFarlane (M.A. Archaeology/Classics MLitt Professional Archaeology). Fraser is a Senior Archaeology and Built Heritage Consultant with Headland Archaeology (UK) Limited and is an Associate of the Chartered Institute of Archaeologists.
- 1.2.6. Fraser has over 14 years professional cultural heritage experience, with particular experience of assessing the impact of onshore wind farm developments on the setting of heritage assets in rural landscapes. Fraser has experience of carrying out HIA work in relation to World Heritage Properties having carried out a HIA for the Mtskheta World Heritage Property in Georgia in relation to a proposed wind farm development and having also worked on impacts of a proposed peat restoration scheme on the English Lake District World Heritage Property.

1.3 *Site Location and Description*

Proposed Development Site

- 1.3.1. The c.64.5 hectare (ha) Site is located 8.3 km north of Drogheda in County Louth. The closest of the proposed turbines to the WHP Buffer Zone (Turbine 5) would be located approximately 7.6 km to the north-east (Illus 1). The WHP Buffer Zone is an area set by UNESCO which delineates area(s) outside a WHP and adjacent to its boundaries which contribute to the protection, conservation, management, integrity, authenticity and sustainability of the OUV of the property. The Buffer Zone for Brú na Bóinne is shown on Illus 1.
- 1.3.2. The principal land use within the Site area comprises pasture farmland with commercial forestry present at the north-west. The Site elevations range from 90 m above ordnance datum (AOD) in the northern portion of the site to 120 m AOD towards the north-west side of the Site.
- 1.3.3. Outside the Site boundary, south of the L6274 road, there is a concrete works which is located between the proposed Turbines 1 and 2. The M1 motorway located approximately 1.4 km to the west. The surrounding nearby landscape is otherwise largely characterised by small settlements and agricultural fields.

Brú na Bóinne World Heritage Property

- 1.3.4. Brú na Bóinne is one of the world's most important Neolithic landscapes, comprising at least ninety monuments including passage grave, burial mounds, standing stones and enclosures and contains one of the most important concentrations of prehistoric megalithic art in Europe. It is dominated by the three Neolithic passage graves of Newgrange, Knowth and Dowth but also contains monuments dating to

Bronze Age, Iron Age and medieval periods. The WHP covers a Core Area and a Buffer Zone (Illus 1). A definition of a WHP's Buffer Zone is provided in paragraph 1.3.1 above. The Core Area is the term used in Map 8.1 of the Meath County Development Plan 2021-2027 in relation to the boundary of the WHP. The boundary of a WHP is defined by UNESCO and relates to the area which contains all of the attributes of a WHP's OUV. The WHP Core Area is situated within County Meath. The majority of the Buffer Zone is also located in County Meath, with a small area of the Buffer Zone located in County Louth in the townland of Littlegrange. The WHP Core Area is located approximately 3 km east-south-east of Slane and approximately 4 km west of Drogheda.

- 1.3.5. The WHP Core Area is largely characterised by undulating, enclosed agricultural fields although there is an airstrip located at the north-east of the Core Area with farmhouses and minor roads dispersed throughout. The River Boyne defines its southern, western and eastern sides.
- 1.3.6. The Buffer Zone is similar, characterised by enclosed agricultural fields with dispersed farmhouses. The village of Donore is located at the south-east of the Buffer Zone, with the N51 road located at the north and the M1 defining the Buffer Zone's eastern extent. A small tributary of the Boyne, the River Mattock, is located at the north of the Buffer Zone.

2. County Development Plans, Guidance and Management Plans

2.1 County Development Plans

- 2.1.1. This HIA has been informed by the Louth and Meath County Development Plans. These are of particular relevance as they contain within them policies that are specific to the Brú na Bóinne WHP as outlined below.

Louth County Development Plan 2021-2027

- 2.1.2. The Louth County Development Plan contains the following policies relevant to this HIA:

Policy Objective BHC 14

To work in partnership with Meath County Council, relevant agencies and the public to promote, understand, conserve and sustainably manage the UNESCO World Heritage Site of Brú na Bóinne to maintain its Outstanding Universal Value (OUV).

Policy Objective BHC 15

To ensure no development which might have significant deleterious impacts upon the character of the World Heritage Site is permitted.

Policy Objective BHC 16

To protect the northern ridgeline (Chapter 13, Map 13.1) which frames the views within and from the World Heritage Site of Brú na Bóinne from visually intrusive and inappropriate development, subject to the Development Management Assessment Criteria detailed in Chapter 13 [of the CDP] and using view-shed analysis as a tool to guide and inform development management.

Policy Objective BHC 18

To prepare a Framework Plan for the protection, development and promotion of lands subject to Rural Policy Zone One (as applicable to the lands including the UNESCO World Heritage Site of Brú na Bóinne, the Tentative World Heritage Site of Monasterboice, and the Battle of the Boyne Battlefield site).

- 2.1.3. The northern ridgeline referred to in **Policy Objective BHC 16** and depicted on Map 13.1 in Chapter 13 of the Louth CDP is shown on Illus 1.

Meath County Development Plan 2021-2027

- 2.1.4. The Meath County Development Plan contains the following policies and objectives relevant to this HIA:

HER POL 6

To protect the Outstanding Universal Value of the UNESCO World Heritage Site of Brú na Bóinne in accordance with the relevant guidelines and national legislation, so that its integrity, authenticity and significance are not adversely affected by inappropriate development or change.

HER OBJ 11

To protect the ridgelines which frame views within and from the UNESCO World Heritage Site of Brú na Bóinne from inappropriate or visually intrusive development.

- 2.1.5. Appendix 10 of the Meath County Development Plan also presents a list of 'Protected Views and Prospects' 19 of which have been designated at least in part, for the contribution that they make to our experience and appreciation of the WHP. These are shown in a detailed plan (Map 8.6.1 of the Meath County Development Plan) where it is clear that there are an additional five Protected Views that

contribute to our experience of the World Heritage Property but are not described as such in Appendix 10 (PV 29, 30, 31, 62, 74).

- 2.1.6. Protected Views which have been used to inform this HIA are outlined in Section 4.2. The extent to which the Louth and Meath County Development Plans inform on the contribution of setting and wider setting to OUV is considered in Section 6.

2.2 *Guidance*

- 2.2.1. This assessment adopts the general approach to impact assessment recommended by UNESCO in its Guidance and Toolkit for Impact Assessments in a World Heritage Context (2022). More specifically, it has followed the guidance provided in Chapter 5: Assessing Impact on World Heritage as part of a Wider Environmental and Social Impact Assessment. How this guidance has been applied is outlined in Section 4: Methodology.
- 2.2.2. In addition, this assessment follows the approach outlined in UNESCO's "Renewable energy development and impact assessment in a World Heritage context".. This guidance complements UNESCO's Guidance and Toolkit for Impact Assessments in a World Heritage Context.

3. Aims and Objectives

- 3.1.1. The aim of this HIA is to provide an assessment of the potential impact of the Proposed Development on the OUV of Brú na Bóinne WHP through causing visual change within its wider setting.
- 3.1.2. This will be achieved by analysing how the wider setting of the WHP currently supports OUV, and how visual change to that wider setting resulting from the construction of the Proposed Development could affect OUV.
- 3.1.3. An explanation of how the design of the Proposed Development has evolved in order to avoid or minimise potential adverse impacts on OUV is presented in Section 4.

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4. Methodology

4.1 *General Approach to Impact Assessment*

- 4.1.1. This assessment has been undertaken using methods that follow the approach to impact assessment for World Heritage promoted by UNESCO in its Guidance and Toolkit for Impact Assessments in a World Heritage Context (2022). The impact assessment process recommended in Chapter 4 of the guidance involves 11 steps, summarised in Table 4.1 of the guidance document as follows:

Activities throughout assessment

- A. Participation
- B. Proactive problem solving

Steps of impact assessment

1. Screening
2. Scoping
3. Baseline
4. Proposed action and alternatives
5. Identifying and predicted impacts
6. Evaluating impacts
7. Mitigation and enhancement
8. Reporting
9. Reviewing the report
10. Decision-making
11. Follow-up

- 4.1.2. Steps 3-8 are the responsibility of the Proposed Development project's impact assessment team (UNESCO 2022, Figure 5.1); methods employed for each of these activities are described below.

- 4.1.3. In addition to the process outlined above, UNESCO's "Renewable energy development and impact assessment in a World Heritage context" outlines eight principles for conducting a World Heritage related impact assessment in relation to wind energy projects. These are as follows:

'Principle 1: all renewable energy project proposals that may adversely affect a World Heritage property must undergo a rigorous impact assessment (Environmental and Social Impact Assessment [ESIA] or Heritage Impact Assessment, [HIA]), whether they are located within or outside the World Heritage property's boundaries. This assessment should take place as early as possible in order to provide timely and effective input to decision makers. Assessments that take place late in the decision-making process or after the decision has been made cannot adequately inform decision-makers.

Principle 2: Experts with knowledge about World Heritage in general and specifically about the World Heritage property/properties in question must be closely involved in the assessment process in order to identify the issues that will need to be assessed. These experts can also work together with project proponents and engineers to find alternative solutions to proposals that may adversely affect a World Heritage property's Outstanding Universal Value.

Principle 3: The likely environmental and social impacts of the development proposal on the property's Outstanding Universal Value must be assessed; these include direct, indirect and cumulative effects. This assessment should consider the property's values, integrity and protection and management, as well as its connection to the wider landscape, and should be based on adequate information and data.

Principle 4: Reasonable alternatives to the project proposal must be identified and assessed with the aim of recommending the most sustainable option to decision makers. The different options should be clearly communicated to decision makers and those that are least damaging to the site's Outstanding Universal Value should be highlighted (in some cases, these options include the "no project" option). Very often, it is possible to find economically viable and feasible alternatives can be found to development proposals that may be damaging to a World Heritage property's OUV. A detailed and early consideration of alternatives can also help to ensure that resources are not wasted in developing proposals that are incompatible with World Heritage status.

Principle 5: Mitigation measures should be identified in line with the mitigation hierarchy, which requires first avoiding potential negative impacts and then reducing unavoidable residual impacts through mitigation measures. In the event of the identification of any unavoidable minor residual negative impacts on a World Heritage property's Outstanding Universal Value, the ESIA/HIA should outline how these will be mitigated and monitored through a budgeted environmental management plan, indicating how the mitigation measures will be implemented, who will implement them in what time frame and with what resources.

Principle 6: Special sections on World Heritage must be included in ESIA/HIA that have a general scope. These sections should present to decisionmakers clear conclusions on the potential impacts of the wind energy proposal on the World Heritage property's Outstanding Universal Value as well as relevant recommendations/measures related to the impacts. They should be reflected in the Executive Summary of the impact assessment report.

Principle 7: Information from the assessment and the results must be publicly disclosed and subject to thorough public consultation at all relevant stages. All relevant rights holders, local communities and other stakeholders, including Indigenous Peoples where applicable, should be involved. Feedback from consultation should be fully reflected and documented in the assessment. The relevant government agencies and non-governmental organizations should be involved and consulted early on and throughout the impact assessment process. They will need to be able to review the resulting report.

Principle 8: Adequate follow-up measures need to be based on information from and result of the impact assessment. This might include the need to propose, implement and independently audit an environmental management plan. The plan should detail operating, monitoring and other relevant conditions in relation to the property's Outstanding Universal Value. The developer must set aside funds from the outset to cover the costs of the follow-up measures, including independent auditing of the implementation of the environmental management plan at regular intervals.'

- 4.1.4. The ways in which this assessment has followed the steps outlined in "UNESCO's Guidance and Toolkit for Impact Assessments in a World Heritage Context" (2022) and adhered to the eight principles outlined in UNESCO's 2025 "Renewable energy development and impact assessment in a World Heritage context" are presented in paragraphs 4.1.5-4.1.20 below. It is acknowledged that there is a degree of overlap between the eight principles as outlined above and the steps outlined by UNESCO in its Guidance and Toolkit for Impact Assessments in a World Heritage Context (2022). Where relevant this is reflected in each sub-heading below.

A. Participation/ Principle 7

- 4.1.5. Participation, as defined in the UNESCO guidance, is referred to as 'consultation' in the present project. Consultation includes not only the statutory consultation associated with the application but also, at pre-planning stage, the consultation with the public and other stakeholders to ensure their views are taken into consideration at the pre-planning assessment stage.
- 4.1.6. As part of this process the World Heritage Unit (WHU) of the National Monuments Service were consulted. A letter was sent to the WHU on 23rd April 2025 via email in which the proposed methodology for the HIA and proposed viewpoints to support the assessment were presented. Supporting information comprising viewpoint location maps and indicative wireline visualisations were also provided. A follow up email was sent on 23rd April 2025 in which the proposed approach for assessing cumulative effects was presented. An online meeting was then held with the WHU on 24th April 2025 to discuss the proposed

HIA methodology and viewpoints. The WHU agreed with the proposed approach to the HIA and requested that the HIA should refer to the Department of Housing, Local Government and Heritage's 2023 'Summary of the Attributes for Ireland's two existing World Heritage Properties 'Brú na Bóinne' and 'Sceilg Mhichíl'. An onsite meeting with the WHU was carried out on 23rd May 2025 during which Knowth, Newgrange and Dowth passage graves were visited along with Dowth Henge. The ways in which setting and wider setting support OUV was discussed during the visit. This has informed the results of this HIA.

B. Proactive problem solving/ Principle 2

4.1.7. Guidance (UNESCO 2022, s.6.3) notes that impact assessment provides an opportunity to think creatively about the Proposed Development and potentially contribute to sustainable development. Specifically, the guidance states that the following opportunities should be identified during pre-application stage:

- *'Avoid entirely or minimize the negative impacts to such an extent that there are no longer any concerns for World Heritage*
- *Provide or enhance the positive impacts'*

4.1.8. This approach has been incorporated into the present project through the design evolution process. The results of this approach, in terms of reduction in adverse impacts are described in Section 9 of this report.

3. Baseline

4.1.9. The need to analyse and understand the current baseline is addressed in this report through an analysis of the OUV of the WHP, focussing on the ways in which the wider setting around the WHP contributes to OUV. This has been informed by an appraisal of academic research and policy/management documents relating to the WHP. This is dealt with in Sections 5 and 6 of this report.

4. Proposed action and alternatives/ Principle 4

4.1.10. A detailed description of the Proposed Development (i.e. the 'Proposed action') is provided in Section 8. Chapter 3 of the EIA Report presents the consideration of alternative wind farm designs and layouts and provides reasoning as to why these were not carried forward.

5/6. Identifying, predicting and evaluating impacts/ Principle 1/ Principle 3

4.1.11. The Proposed Development would be located in the wider setting of the WHP and would lead to change in that setting. The identification of impacts on OUV requires the assessment of whether and how predicted changes in the wider setting would affect the ways in which that setting supports OUV (as identified in the baseline study).

4.1.12. Analysis of the changes that would occur in the wider setting of the WHP is based on fieldwork in order to understand how the Proposed Development would be experienced on the ground. This has been informed by a field visit (carried out between 21st and 23rd of May 2025 by the author) and the production of wirelines and photomontages that illustrate the predicted appearance of the proposed turbines from selected viewpoints relevant to the experience and appreciation of the WHP.

4.1.13. An assessment of the predicted impact of the Proposed Development is presented in Section 10 of this report and includes separate consideration of construction and operation phase impacts. It also assesses the potential for cumulative impacts that would result from the Proposed Development in combination with developments constructed since the inscription of the WHP in 1993 and with future planned or approved projects. Upon decommissioning, any operational impacts caused by the Proposed Development on the WHP would be reversed. Decommissioning phase impacts are therefore scoped out of this HIA.

4.1.14. In line with Principle 3, this HIA has been informed by the values and integrity of the WHP as outlined in the WHP's Statement of OUV and in the 2023 'Summary of the Attributes for Ireland's two existing World Heritage Properties 'Brú na Bóinne' and 'Sceilg Mhichíl'. Measures for the protection and management of the WHP outlined in these documents and the Meath and Louth County Development Plans have also informed this assessment.

- 4.1.15. The predicted impact of the Proposed Development on OUV is assessed using the various categories of impact significance recommended in the UNESCO guidelines (2022, page 84):
- *‘Neutral: Research into the potential impact reveals that no change would occur to the attribute.*
 - *Minor: Research into the potential impact shows that the change would be negligible.*
 - *Moderate: Research into the potential impact shows that there would be some change to the attribute.*
 - *Major: Research into the potential impact shows that there would be large change to the attribute.’*
- 4.1.16. ‘Change’ to an attribute is understood to mean the magnitude of change (positive or negative) in OUV. ‘Attribute’ is understood to include elements of the WHP itself that convey OUV as well as elements of the Buffer Zone or wider setting that support OUV. It is these categories of impact that will be used in this HIA to assess the impact of the Proposed Development on OUV.
- 4.1.17. The 2022 UNESCO guidance does not provide a criteria for what constitutes degrees of change to an attribute. The earlier 2011 ICOMOS ‘Guidance on Heritage Impact Assessments for Cultural Heritage World Heritage Properties’ does, however, provide a useful guide on assessing magnitudes of impact which it is considered can be applied in this HIA for assessing degrees of change. This has been adapted for the purposes of this HIA and is presented in Table 1. As no positive changes are predicted in relation to the Proposed Development, this criteria presents a description of what is considered to constitute negative degrees of change.

Table 1: Criteria for Assessing Degrees of Change (after Table 15.2 of ICOMOS 2011, 17)

Degree of Change	Summary
Large	<p>Changes to most or all key archaeological materials, including those that contribute to OUV such that the resource is totally altered.</p> <p>Comprehensive changes to setting.</p> <p>Change to most or all key historic landscape elements, parcels or components; extreme visual effects; gross change of noise or change to sound quality; fundamental changes to use or access; resulting in total change to historic landscape character unit and loss of OUV.</p> <p>Major changes to area that affect intangible cultural heritage activities or associations or visual links and cultural appreciation.</p>
Some	<p>Changes to many key archaeological materials, such that the resource is clearly modified.</p> <p>Considerable changes to setting that affect the character of the asset.</p> <p>Change to many key historic landscape elements, parcels or components; visual change to many key aspects of the historic landscape; noticeable differences in noise or sound quality; considerable changes to use or access; resulting in moderate changes to historic landscape character.</p> <p>Considerable changes to area that affect intangible cultural heritage activities or associations or visual links and cultural appreciation.</p>

Negligible	<p>Changes to key archaeological materials, such that the resource is slightly altered. Slight changes to setting.</p> <p>Change to few key historic landscape elements, parcels or components; slight visual changes to few key aspects of historic landscape; limited changes to noise levels or sound quality; slight changes to use or access; resulting in limited change to historic landscape character.</p> <p>Changes to area that affect intangible cultural heritage activities or associations or visual links and cultural appreciation</p>
No change	<p>No change to fabric or setting.</p> <p>No change to elements, parcels or components; no visual or audible changes; no changes in amenity or community factors.</p>

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4.1.18. The significance of the impact of the Proposed Development is therefore evaluated by assessing the degree of change caused by the Proposed Development (the action) on an attribute of the WHP. Categories of impact significance is presented in paragraph 4.1.15 above.

7. Mitigation and enhancement/ Principle 5/ Principle 8

4.1.19. Chapter 3 of the EIAR provides a description of the reasonable alternatives considered. Section 3.6.2 of Chapter 3 presents the design evolution process and details the mitigation measures taken to reduce the Proposed Development’s overall environmental impact. This is also detailed in Chapter 20 Appendix 20.1 Summary of Mitigation Measures of the EIAR.

4.1.20. Steps taken which are considered to have mitigated any predicted adverse impacts on OUV are described in Section 9 of this report. Mitigation of adverse effects has been achieved through design evolution which entailed the removal of three of the originally proposed turbines.

8. Reporting/ Principle 6

4.1.21. Section 9 of this report addresses the potential impacts of the Proposed Development on OUV as per UNESCO’s guidance (page 28).

4.2. Field Visit and Visualisations

4.2.1. A field visit was carried between 21st – 23rd May 2025 during which the WHP, its Buffer Zone, the wider setting of the WHP, and relevant viewpoints (as outlined below) were visited. Representatives from the National Monuments Service (NMS) and the World Heritage Unit (WHU) were present on the field visit to Knowth, Newgrange, Dowth and Dowth Henge which took place on the 23rd May 2025. The ways in which wider setting contributes to OUV and the potential impact of the Proposed Development on this were assessed during the field visit and are presented in this report.

4.2.2. Visualisations to support this assessment have been produced from locations included in the Meath County Development Plan which are specified as being ‘Protected Views’ which relate specifically to the WHP. The viewpoints selected are those which contribute to our experience and appreciation of the WHP and which would undergo visual change as a result of the Proposed Development. These are presented in Table 2 in Section 7 below and are summarised here using the ‘PV’ references assigned to them in the Meath County Development Plan²:

² Table 2 presents the viewpoint numbers assigned to these ‘Protected Views’ for the purposes of this HIA. The viewpoint numbers are not always the same as the ‘PV’ numbers presented here.

- PV30 (Hill of Slane)
- PV31 (Country road between Boyne Canal and Roughgrange)
- PV34 (N2 between Slane and Balrath at McGruder's Cross Roads)
- PV59 Knowth
- PV63 (View N county road between Donore and Redmountain)
- PV87b Newgrange
- PV88 Dowth

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- 4.2.3. PV93b (Local Road L16002 0.7 km west of Rossnaree) Visualisations from additional viewpoints identified by Headland Archaeology which fit the criteria noted above were also produced to assist in assessing the potential impact of the Proposed Development on OUV (VP1 and VP3 Illus 1 and 2).
- 4.2.4. The selected viewpoints are considered to be relevant to the experience and appreciation of the World Heritage Property and are thus appropriate for assessing the potential impact of the Proposed Development on OUV. These viewpoints were presented to the WHU via email on 23/04/2025 and agreed during a subsequent meeting held on 24/04/2025. The heritage photomontages are included with this submission in Appendix 15.4a of the RFI EIAR revision.
- 4.2.5. No other 'Protected Views' specified in the Meath County Development Plan have been retained as viewpoints for this assessment as they are considered either to not materially contribute to our experience and understanding of the WHP or would undergo no visual change as a result of the Proposed Development.
- 4.2.6. There are no protected views relating to the WHP in the Louth County Development Plan.

4.3. *Cumulative Effects*

- 4.3.1. The potential for significant cumulative impacts on the OUV of the WHP relates to the ways in which development in the setting of the WHP can change the appearance and character of valued views and therefore the way in which we experience the WHP. As outlined in Section 7 of this HIA, the essentially rural and agricultural character of the landscape surrounding the WHP supports its OUV so changes in the character of views due to development could diminish OUV.
- 4.3.2. An assessment of the impact of the Proposed Development in isolation, assuming a baseline of no existing development (i.e. assuming existing development is removed from the current baseline conditions), on the OUV of the WHP is provided in Section 10. It is considered this is a useful starting point from which the cumulative impact of the Proposed Development in combination with existing developments can be assessed, ensuring that the impact of existing development on OUV is accounted for. Having established this, an assessment of the impact of future developments when added to the Proposed Development and existing development can be made. This then allows for an assessment of the potential impact
- 4.3.3. The following staged approach to cumulative impacts has therefore been followed:
- Cumulative impacts on OUV as a result of developments since 1993
- 4.3.4. As a first step, it is necessary to establish the extent to which the OUV of the WHP has already been impacted by developments since its inscription in 1993 before establishing the extent to which the Proposed Development would further impact OUV when added to that baseline.
- 4.3.5. Any development in the setting of the WHP could, in principle, affect OUV but in practice it is a relatively small number of large-scale developments that could have a material impact on OUV. The cumulative impact assessment will therefore seek to analyse to what extent large-scale development in the setting of the WHP, since its inscription in 1993, has changed our experience of the WHP and the impact this has had on OUV.

- 4.3.6. Six developments since 1993 have been identified that fall into this category, all of which either include large skyline structures or, in the case of the residential developments, involve a loss of rural landscape character:
- M1 Boyne Bridge (Mary McAleese Boyne Valley Bridge)
 - Residential developments at Cruicerath/Stalleen, Donore
 - Platin Irish Cement Works
 - Indaver Ireland Incinerator, Carranstown, Duleek
 - Residential development at Ledwidge Hall, Slane
 - Dunmore / Leaby Cross Wind Turbines. Collon, Co. Louth
- 4.3.7. Of these the Dunmore/Leaby Cross developments were considered as part of the cumulative baseline assessment in Chapter 12: Landscape and Visual of the EIAR.
- 4.3.8. EIAR Figure 12.14 also identifies Meade Farm: a single turbine development which was considered as part of the cumulative baseline assessment in Chapter 12: Landscape and Visual Amenity. This development is not visible from any of the viewpoints relevant to this HIA and is not visible on any supporting visualisations for this HIA. This development is therefore not considered as part of the cumulative assessment of the impact of post-1993 developments.
- 4.3.9. The cumulative impact assessment takes the situation in 1993 as its baseline and examines the effect of the six developments, approved since that date, which are considered to be of sufficient scale to materially change the setting of the WHP.
- 4.3.10. The degree of change in the setting of the WHP as a whole is measured by assessing change at viewpoints considered relevant to this assessment of the OUV of WHP. These are the viewpoints that have been identified as important to the experience and appreciation of the WHP in the context of this HIA and are listed in Table 2.
- Cumulative impacts on OUV as a result of developments since 1993 plus the Proposed Development
- 4.3.11. Having established the impact of development since 1993 on OUV, conclusions on the extent to which the Proposed Development would further impact OUV when added to the baseline developments will be presented.
- Cumulative impacts on OUV as a result of developments since 1993 plus the Proposed Development and future developments
- 4.3.12. Having established how the Proposed Development would impact OUV if added to the existing post-1993 baseline developments, the impact of the Proposed Development and these existing developments on OUV when combined with approved, yet to be constructed, or 'in planning' developments are assessed. The future developments that will form this assessment include those which have the potential to materially change the appearance of the WHP, its Buffer Zone or wider setting, due to their scale (i.e. height/extent) but do not yet form part of the baseline environment.
- 4.3.13. In this case, the recently consented N2 Slane Bypass is the only future development considered to fall into this category due to its proximity to the WHP and its predicted level of visibility. Figure 12.14 of the EIAR identifies one wind farm development that has received planning consent: WuXi Biologics, a single turbine development located approximately 19 km north of the Proposed Development. This development would not be visible in any of the views from or towards the WHP. It has therefore not been considered as part of the assessment of cumulative impacts on OUV as a result of future developments in combination with the Proposed Development and the post-1993 developments.

5. Outstanding Universal Value of Brú na Bóinne World Heritage Property

5.1 *Definition of Terms*

- 5.1.1. UNESCO defines OUV as *'Cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity. As such, the permanent protection of this heritage is of the highest importance to the international community as a whole'* (UNESCO 2022, page 60).
- 5.1.2. A Statement of OUV summarises the reason why a particular property is deemed to be of Outstanding Universal Value, how it satisfies relevant criteria, its conditions of integrity and authenticity as well as the protection and management arrangements required to protect the property and preserve its OUV. Statements of OUV also include descriptions of the values and attributes of the WHP for which it was inscribed on the World Heritage List.
- 5.1.3. Values are defined by UNESCO as *'what makes a heritage place special, and a particular combination of heritage/conservation values will explain why one specific place is of particular importance. In the case of a World Heritage property, the value that is considered to be 'of importance for present and future generations of all humanity' is its OUV'* (Ibid, page 12). UNESCO also note that a WHP may also have other values in addition to those which contribute to OUV, including *'...other aspects of the place which, while not sustaining OUV, are nevertheless of aesthetic, historic, scientific, social or other value.'* (Ibid, page 60).
- 5.1.4. These attributes are defined by UNESCO as *'...the elements of a heritage place that convey its values and makes them understandable. They can be physical qualities, relating to the material fabric and other tangible features, but can also be intangible aspects such as processes, social arrangements or cultural practices, as well as associations and relationships which are reflected in physical elements of the property. For cultural heritage places, attributes can be buildings or other built structures and their forms, materials, design, uses and functions but also urban layouts, agricultural processes, religious ceremonies, building techniques, visual relationships and spiritual connections.'* (Ibid, pages 12-13).

Brú na Bóinne Statement of OUV

- 5.1.5. The Statement of Outstanding Universal Value (SOUV) is a key document for all World Heritage Properties as it is the formal statement of values embodied in the property that justify its international designation. The text for the WHP was drafted in 2011 and approved by UNESCO in 2013. The original UNESCO documentation, endorsing the SOUV is reproduced at Appendix 9 of the current Brú na Bóinne World Heritage Property Management Plan. Appendix 9 contains the full text of the SOUV (Management Plan, page 119) but this text is also reproduced in Annexe 1 of this HIA for ease of reference.
- 5.1.6. Referring to the SOUV, Brú na Bóinne WHP is identified as a Neolithic funerary landscape of great ritual significance that continued to attract later activity, resulting in the construction of monuments up to the medieval period. The property has met three of the six criteria for the inscription of cultural World Heritage Properties. This reflects the presence of the largest and most important expression of prehistoric megalithic plastic art in Europe (Criterion i), the concentration of social, economic and funerary monuments with long continuity from prehistory to the late medieval period (Criterion iii) and the finest passage graves in Europe (Criterion iv).
- 5.1.7. In 2023, the National Monuments Service commissioned a report which sought to extract and distil from the SOUV for Ireland's two WHPs (one of which is Brú na Bóinne) a summary list of the attributes of the two properties. As noted above, attributes of a WHP convey the OUV of a property and enable an understanding of that value. Using the SOUV for Brú na Bóinne the following attributes for Brú na Bóinne

are listed under the headings of 'Landscape', 'Archaeological Features' and 'Intangible' (The Department of Housing, Local Government and Heritage 2023):

'Landscape'

1. *An extensive funerary landscape of great ritual significance in a bend of the River Boyne with a concentration of social, economic and funerary monuments including 40+ passage graves*
2. *Views into and out of the property*

'Archaeological features'

3. *The time depth of Brú na Bóinne from the Neolithic to late medieval periods*
4. *The finest expression of passage graves in prehistoric Europe*
5. *Largest and most important expression of prehistoric megalithic plastic art in Europe*
6. *The design of the passage graves in relation to the skies and astronomy*
7. *The three great burial mounds of Knowth, Newgrange and Dowth and the sites surrounding them*
8. *Knowth group with use spanning from the Neolithic to the late medieval periods, including passage graves, enclosures, occupation sites and field systems*
9. *Newgrange group of prehistoric sites including passage graves, henge, cursus, and stone circle*
10. *Dowth group of prehistoric and Iron Age, early Christian and late medieval sites including the great burial mound, megalithic tombs, many smaller burial mounds, henge, standing stone, and medieval church and tower house*
11. *Other prehistoric, Iron Age, early Christian and medieval sites spread across the landscape*

'Intangible'

12. *Part of an area rich in stories of Ireland's ancient past*
13. *Ambiance of the ritual centre'*

5.1.8. Of these attributes, number 6, relating to the design of the passage graves in relation to the skies and astronomy, is not mentioned in the SOUV for Brú na Bóinne but was included in the list of attributes owing to '*...the need to protect and manage the astronomical aspects of the property... an important factor which needs to be taken into account. Because of its operational significance in future management, it is suggested that the astronomical links should be added as a further attribute since they are such an integral part of the complex.*' (The Department of Housing, Local Government and Heritage 2023, 23).

5.1.9. The extent to which wider setting forms part of any of these attributes and ultimately supports OUV is assessed in this HIA.

6. Contribution of Wider Setting to OUV

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6.1 Overview

Definition of Terms

- 6.2.1. The Proposed Development lies outside the limits of the WHP and its designated Buffer Zone but will be visible from within both these areas and from the wider setting of the WHP. The relationship between the nominated property (i.e. the World Heritage Property itself), its Buffer Zone and wider setting, and their collective role in the protection of OUV, may be understood by reference to the current UNESCO Operational Guidelines for the Implementation of the World Heritage Convention (2023).
- 6.2.2. For the nominated property:
- 'Boundaries should be drawn to incorporate all the attributes that convey the Outstanding Universal Value and to ensure the integrity and/or authenticity of the property.'* (paragraph 99)
- 'For properties nominated under criteria (i) - (vi) [including Brú na Bóinne], boundaries should be drawn to include all those areas and attributes which are a direct tangible expression of the Outstanding Universal Value of the property, as well as those areas which, in the light of future research possibilities, offer potential to contribute to and enhance such understanding.'* (paragraph 100)
- 6.2.3. The nominated property may be surrounded by a Buffer Zone:
- 'This should include the immediate setting of the nominated property, important views and other areas or attributes that are functionally important as a support to the property and its protection'* (paragraph 104)
- 6.2.4. UNESCO also recognises a 'wider setting' beyond the Buffer Zone:
- 'The wider setting, may relate to the property's topography, natural and built environment, and other elements such as infrastructure, land use patterns, spatial organization, and visual relationships. It may also include related social and cultural practices, economic processes and other intangible dimensions of heritage such as perceptions and associations. Management of the wider setting is related to its role in supporting the Outstanding Universal Value.'* (paragraph 112)
- 6.2.5. It is clear from these quotations that the OUV of a WHP is primarily embodied and expressed in attributes within the nominated property itself. The buffer zone protects the OUV, containing views and other attributes that are functionally important to supporting OUV. The wider setting of a WHP is important only in so far as it provides additional support for the OUV of the property. Therefore, for proposed developments which would feature within the wider setting of a WHP the starting point for any assessment is an understanding of OUV and how it is supported by the wider setting.
- 6.2.6. Further guidance on 'setting' is provided by ICOMOS in the Xi'an Declaration (2005). The range of considerations that fall within the term is usefully defined at Paragraph 1 of the Declaration:
- 'The setting of a heritage structure, site or area is defined as the immediate and extended environment that is part of, or contributes to, its significance and distinctive character.'*
- Beyond the physical and visual aspects, the setting includes interaction with the natural environment; past or present social or spiritual practices, customs, traditional knowledge, use or activities and other forms of intangible cultural heritage aspects that created and form the space as well as the current and dynamic cultural, social and economic context.'*

Documentary Sources on the Wider Setting of Brú na Bóinne

- 6.2.7. It is clear from the preceding section that defining what constitutes a WHP's 'wider setting' relies on an understanding of how the wider area outwith the WHP Core Area and Buffer Zone supports the property's OUV.
- 6.2.8. There is no document that explicitly defines the wider setting of the Brú na Bóinne World Heritage Property and the various ways in which it supports OUV. However, there are several documentary sources which contain information relevant to our understanding of the OUV of the Brú na Bóinne WHP and the role played by its wider setting in supporting OUV.
- 6.2.9. These sources include published academic research and policy or management documents issued by planning and heritage bodies. Collectively, they provide the basis for our understanding of the ways in which the wider setting of the Brú na Bóinne WHP supports OUV.
- 6.2.10. This evidence base is the starting point for the drafting of a Statement of Significance for the area around the WHP outwith the Buffer Zone, defining how this part of the wider setting to the WHP supports its OUV. This is presented in Section 7 of this HIA.

Academic Research

- 6.2.11. Stout's 2002 publication 'Newgrange and the Bend of the Boyne' (2002) provides a comprehensive overview of the evolution of the prehistoric and historic landscape of this area. Stout's book does not seek to explicitly describe the setting of the WHP but its geographical scope is sufficient to take in the wider setting of the WHP, albeit this does not extend as far as the area of the Proposed Development. Instead, where wider setting is considered, this extends only as far as the area just outwith the Buffer Zone such as the area around Slane, approximately 2 km north-west of the WHP Buffer Zone. The emergence of the town Slane as an important ecclesiastical centre in the early medieval period is covered in Stout's book which also notes that there was a smaller ecclesiastical centre at Dowth (Stout 2002, 75), with secular power focussed on a contemporary royal centre at Knowth. It is therefore clear that Slane, Knowth and Dowth were linked in the early medieval period. In this sense, the wider setting of the WHP which includes Slane supports OUV by highlighting the continued use and importance of the WHP in the early medieval period and the interrelationship between the WHP and Slane as an ecclesiastical centre.
- 6.2.12. In terms of research published after Stout's 2002 the 'Excavations at Knowth' series further emphasise the relationship between Knowth and Slane in the first millennium AD and its relationship to Knowth, focussing on historical sources in Volume 4 and the archaeological evidence from Knowth in Volumes 3 and 5. The continuing but changing use of passage graves, illustrated by the early medieval re-use of Knowth is also explored in the 2015 paper by Cooney.
- 6.2.13. Also within the WHP, Condit and Keegan (2018) report the results of aerial reconnaissance and the discovery of multiple major Neolithic ritual sites. These cropmark sites add greatly to our understanding of the nature of the wider ritual landscape of Brú na Bóinne albeit the newly discovered sites lie within the existing Core Area of the WHP instead of within its wider setting. The findings therefore reinforce our existing understanding of the extent of the ritual landscape within the WHP itself.
- 6.2.14. The work by Prendergast (2019) on dark skies highlights the importance of the night sky to our understanding of the major passage grave landscapes, including Brú na Bóinne, and the negative impact of light pollution. This study draws attention to the relevance of archaeoastronomy to Brú na Bóinne, beyond the well-known midwinter sunrise at Newgrange. The potential significance of the east-west orientation of the tomb passages in Knowth are discussed by Prendergast and Ray (2017) in an appendix to Volume 6 of the 'Excavations at Knowth' publication. They conclude that there is no precise relationship with the spring and autumn equinox but cannot exclude a more general appreciation of the phenomenon by the building of the passage graves. This is relevant to an appreciation of views west from Knowth, up the valley of the River Boyne.
- 6.2.15. Finally, the report by Davis et al (2010) presents the results of Phase 3 of a diverse programme of research into the Boyne Valley landscape with the overall ambition of producing 'an integrated, comprehensive

landscape archaeological model of the evolution of the Boyne catchment.' One aspect of the research programme is relevant to the present study; this is Objective 4 which was 'to undertake viewshed analysis for monuments in the World Heritage Property and assess the importance of monument intervisibility'.

- 6.2.16. The results of the viewshed analysis, presented in the report as a series of maps showing theoretical visibility from different locations, seeks to answer various questions regarding the visibility and intervisibility of the main monuments of the WHP. This provides useful data regarding the way in which the monuments can be experienced both within the WHP and over much greater distances, including intervisibility with the Hill of Tara, located approximately 12 km to the south-west of the WHP Buffer Zone and the passage grave cemetery at Loughcrew located approximately 40 km to the west. The viewshed analysis thus assists with an understanding that wider setting can support OUV through highlighting that the area outwith the WHP Buffer Zone was also an important landscape in prehistory in which the WHP area played an important role. How this wider prehistoric landscape contributes to OUV is summarised in the second bullet point of the 'Statement of Significance of Contribution of Wider Setting to OUV' in paragraph 7.1.6 below.

Policy and Management Documents

Brú na Bóinne World Heritage Site Research Framework, The Heritage Council (2009)

- 6.2.17. This major project, led by the Heritage Council, sought to bring together the current knowledge and understanding of the WHP to better protect and manage this resource.
- 6.2.18. Phase 1 of the project produced a state-of-knowledge summary of the archaeology of the WHP (the Resource Assessment). Phase 2 involved seeking a series of critical position papers from a range of specialists to determine the gaps in research carried out to date and to identify a series of key questions for investigation (the Research Agenda). Phase 3 of the Research Framework focused on formulating a Research Strategy, i.e. a list of research priorities that would tackle the issues identified in Phase 2.
- 6.2.19. For the purposes of this HIA, Objective 15 of the Research Strategy is a key reference point (page 98). Objective 15 is: "Develop a setting and landscape use strategy for the protection and management of the WHS." The "WHS" quoted in the Research Framework means "World Heritage Site" and is the equivalent term to "World Heritage Property" (WHP) which is the preferred term used in this HIA.
- 6.2.20. Quoting from the explanatory text for Objective 15 of the Research Strategy:

"The current boundaries of the WHS were set out in the Boyne Archaeological Park report (O'Neill 1989). The core area is defined in part by the location of three main passage tombs and the prominent bend in the River Boyne, while the northern and southern buffer zones were established in large part to protect views into and out of the core area, particularly along the ridgeline from which the midwinter sun rises. The report also included a chapter on views and prospects within the WHS (Fig. 4.8). This work should be revisited and built upon to provide a robust setting and landscape use strategy to aid future planning and management within the WHS. This should be informed by an examination of definitions in existing policy documents, legislation and planning inquiry case studies from Ireland and abroad. A 2008 report commissioned by Historic Scotland to provide an objective description of the setting of the Heart of Neolithic Orkney World Heritage Site could be a useful comparative document. While the setting of each World Heritage Site is of course unique, some of the critical setting elements established for Orkney are of direct relevance to Brú na Bóinne:

- *an undeveloped ridgeline providing a direct visual link back to the landscape that the builders of the monuments probably experienced*
- *the strong rural but working character of the landscape in which the monuments are situated*
- *the view from the entrance of Maeshowe chambered tomb and its midwinter solstitial alignment*
- *visual linkages between the monuments within the WHS and modern views from roads, paths and settlements around the WHS that structure people's experience of the WHS and often parallel the visual archaeological links*

- *the links (both tangible and intangible) evidenced through archaeological research.* "

- 6.2.21. The first, second and fourth of these bullet points are of particular relevance here as they emphasise how setting and indeed wider setting can support OUV through allowing a visitor to draw parallels between the modern, relatively undeveloped landscape and the landscape that may have existed in prehistory. This may allow a visitor to speculate as to the extent to which their experience of the WHP reflects that of those who used the monuments in prehistory and, in relation to the 'undeveloped ridge line' noted in the first bullet point, allow them to experience the topographic setting of the WHP. It follows, therefore, that a development which adversely impacts the rural landscape character or interferes with the ability of a visitor to interpret the topographic setting of the WHP and experience it from roads, paths and settlements around the WHP has the potential to adversely impact OUV.
- 6.2.22. Such an impact arising from a development within the wider setting of the WHP is alluded to in page 86 of the Research Framework where it is stated that in relation to the landscape outwith the WHP's Buffer Zone "Some of the more unforeseen impacts on the character of the area can come from large-scale developments outside the site, such as the cement factory at Platin". This highlights that development within the wider setting of the WHP can adversely impact OUV, in this case through the introduction of a large scale cement factory located approximately 2 km south-east of the WHP Buffer Zone.
- 6.2.23. Objective 15 as outlined above is reinforced in Section 5 of the Research Framework (page 108) where the 18 objectives of Research Strategy are reduced to six recommendations. These include the following:
"The critical setting elements of the Brú na Bóinne WHS are currently under researched and vulnerable in the face of ongoing development pressure. Aspects of this were addressed in the 1989 O'Neill report on the Boyne Valley Archaeological Park, which formed the basis for the existing WHS. The rationale and decision making process behind the O'Neill report needs to be re-stated and a robust setting and landscape use strategy put in place to ensure that the living landscape of the WHS can be managed in a mutually beneficial way."
- 6.2.24. To summarise the position in 2009, the Research Framework considered that the setting of the WHP was an important but under-researched topic. In this respect, the Research Framework focussed on what we do not understand about the setting. In the final recommendations, it expressed the hope that the proposals for action on this and other matters would "feed into the forthcoming review of the Brú na Bóinne Management Plan." The revised management plan was issued in 2017 and is discussed below.
Brú na Bóinne World Heritage Site Retrospective Statement of Outstanding Universal Value, UNESCO (2013)
- 6.2.25. The SOUV refers to the WHP's Buffer Zone and the definition of its outer boundary in relation to important views but the role that the wider setting plays in supporting the OUV is not addressed. However, the statement of integrity includes the following text:
"Since inscription in 1993, views out of the property have been impacted by the M1 bridge crossing the River Boyne to the east of the property; the addition of a third chimney and other structures to the cement factory on the skyline to the east south-east near Duleek; the addition of an incinerator stack to the skyline at Carranstown and a housing development. The ambiance of the ritual centre is vulnerable to such disturbances which could potentially threaten the integrity of the property"
- 6.2.26. The SOUV therefore reflects the Research Framework by suggesting that changes in the wider setting of the WHP can and do affect the character of the nominated property, with potential for negative impacts on OUV.
Brú na Bóinne World Heritage Site Management Plan, January 2017, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs
- 6.2.27. The significance of the Brú na Bóinne World Heritage Property is dealt with in Chapter 3 of the current Management Plan. A general Statement of Significance at the start of the chapter reads as follows:
"The scale of passage tomb construction within Brú na Bóinne, the important concentration of megalithic art (Fig.20), as well as the range of sites and the long and continuous duration of activity, were cited as

reasons for the site's inscription as a WHS. Significantly, the OUV of Brú na Bóinne is linked not only with the Neolithic monuments, but includes all monuments in the WHS, which testify to the longevity of settlement." (section 3.1 page 27)

6.2.28. The chapter then goes on in section 3.5 (page 29) to describe in greater detail the various attributes of the WHP that contribute to the Statement of Significance and hence to OUV. This text provides a detailed statement of how the attributes of the WHP express the OUV of the property and is a key source for the analysis of the wider setting of the WHP and the ways in which it supports OUV. Section 3.5 is quoted here in full for ease of reference:

"The general approach to assessing the significance of Brú na Bóinne is adapted from the principles set out by James Semple Kerr (2013). It relies on an understanding of the physical attributes, uses, relationships and associations of the place up to and including the present day which make a place of value to us and our society.

As attested by its inscription on the UNESCO World Heritage List, the complex at Brú na Bóinne is of exceptional significance for the following reasons:

- *The presence and scale of a series of megalithic tombs dating from the Neolithic period within the Bend of the Boyne, the important concentration of megalithic art and the landscape setting of this within the Bend of the Boyne. The importance of this complex is in the context of the wider European megalithic phenomenon.*
- *The views from most locations within Brú na Bóinne, in particular at the key monuments, are broad ones that take in many other key cultural and natural features, e.g. the River Boyne and the surrounding hills, which enable the visitor to share a sense of awe. This sense of awe undoubtedly played a role in establishing order among the ancient societies that lived in these landscapes.*
- *Brú na Bóinne provides an outstanding example of a monumental landscape associated with the adaptation of agriculture.*
- *The Neolithic passage tomb was constructed so that the rays of the rising sun would shine into the inner sanctum of the tomb at the winter solstice, demonstrating a high level of human knowledge, ingenuity and creativity.*
- *The longevity of settlement in this location is of particular significance. From early prehistory, through to the early medieval and medieval periods, and including more recent times, the landscape of the WHS contains a large concentration of settlement and ritual sites and vernacular heritage. These remains contain considerable information about life, ritual, economy, environment and settlement, and more discoveries will be made through future research and investigation (Fig. 24).*
- *The site of the Battle of the Boyne (1690) has relevance and meaning beyond the boundaries of the Irish State and was a battlefield of European significance during the wars of grand alliance against the French Sun King. In the 20th century during World War II, the River Boyne was equipped with a series of military structures (pillboxes and other structures) to enable it to operate as a defensive line of the Irish Free State. These structures still exist within the buffer zone and the WHS.*
- *The navigable River Boyne is a prime example of 18th century river navigation. Its construction commenced in 1748 and it consists of a series of bypass canals, locks, bridges and other associated structures such as mill complexes and quarries with their attendant workers' dwellings. The presence of these underlines the role of the river as a primary route of international trade and influence for millennia since the earliest settlements took place along its banks."*

6.2.29. The Management Plan does not attempt to describe how the wider setting of the WHP supports OUV, but it does state that "The important landscape setting of the monuments is also a key issue that needs to be acknowledged and valued" (page 31). One way in which the landscape setting is acknowledged and valued is through the Protected Views in the Meath County Development Plan ('Meath CDP,' see below)

and the Management Plan identifies 18 of these views that include the World Heritage Property. These are listed in Appendix 8 of the Management Plan (page 111).

Meath County Development Plan 2021-2027

- 6.2.30. The Meath CDP 2021-2027 deals with the WHP briefly in Sections 8.6.1 to 8.6.3 and primarily relies on the Brú na Bóinne World Heritage Site Management Plan, January 2017 to provide more detailed information. The management plan is reproduced as Appendix 8 of the Meath CDP 2021-2027 and has already been discussed above.
- 6.2.31. Council policies relating to the WHP are set out in Section 8.6.3 (HER POL 6-11) but none of these have any direct relationship with our understanding of setting.
- 6.2.32. Section 8.6.3 also sets out the Council's objectives in relation to the WHP (HER OBJ 7-12). None of these are relevant to our understanding of setting with the exception of Objective HER OBJ 11 which is:
- "To protect the ridgelines which frame views within and from the UNESCO World Heritage Site of Brú na Bóinne from inappropriate or visually intrusive development."*
- 6.2.33. This objective clearly recognises the potential for development in the wider setting to change views and, as a result, affect OUV. The ridgelines noted in HER OBJ 11 are interpreted in this HIA to include the northern ridgeline referenced in Policy Objective BHC 16 of the Louth County Development Plan (see below), and the ridgeline to the east/ south-east running roughly from the village of Donore at the east of the Buffer Zone following a minor road continuing south-west through Redmountain before meeting Longford Road.
- 6.2.34. Provision for protecting these ridgelines from "inappropriate or visually intrusive development" is perhaps recognition of the 2009 Research Framework's reference to the importance of an "undeveloped ridgeline providing a direct visual link back to the landscape that the builders of the monuments probably experienced" to the setting of the WHP (Heritage Council 2009, 98) albeit it is likely that the "ridgeline" referred to in the Research Framework refers to the ridgeline on which the three principal monuments of the WHP sit.
- 6.2.35. The principal contribution that the Meath CDP makes to our understanding of setting is in the designation of Protected Views (shortened to 'PV' in the Meath CDP) (Meath CDP 2021-7, Section 8.18). The views are listed in Appendix 10 of the CDP and their locations are shown in Map 8.6 of the CDP. Quoting from Section 8.18:
- "The landscape of the County has many vantage points which offer attractive views from hilltops and upland areas, along river valleys and the coast. Many of these views are associated with heritage and tourism sites and provide vantage points over high quality landscapes. These scenic views are of an amenity and tourism value and contribute to our quality of life."*
- 6.2.36. Nineteen of the Protected Views listed in Appendix 10 of the CDP have been explicitly designated, at least in part, for the contribution that they make to our experience and appreciation of the WHP. These are shown in a detailed plan (Map 8.6.1 of the CDP) where it is clear that there are an additional five Protected Views that contribute to our experience of the WHP but not described as such in Appendix 10 (PV 29, 30, 31, 62, 74).
- 6.2.37. Three different relationships can be described between the WHP and its wider setting in the Protected Views:
- Views out from monuments within the WHP that extend into the wider setting (PV59 Knowth, 87a-d Newgrange, 88 Dowth);
 - Views of the WHP from locations within the property or Buffer Zone that extend into the wider setting (PV31, 58, 62, 63, 64, 74, 89a-c, 90, 91, 92, 93a-c); and
 - Views from the wider setting towards the WHP (PV29, 30, 34).

- 6.2.38. It may be noted that 21 of these Protected Views provide views out into the wider setting, which therefore appears in the background beyond the WHP. Only three Protected Views are located within the wider setting itself:
- PV29 in the car park at the Hill of Slane, where it provides an extensive view eastward across the WHP;
 - PV30 higher on the Hill of Slane, with a panoramic view that includes the WHP; and
 - PV34 at Cullen Hill on the local road between McGruder's Cross Roads and Rossnaree, where it provides a view looking north-east to Knowth and Newgrange.
- 6.2.39. Not all of these viewpoints are directly relevant to this HIA as many would either undergo no visual change as a result of the Proposed Development or there would be no in-combination views of the Proposed Development and the WHP. The viewpoints included in the Meath CDP that have been used to inform this HIA are presented in Table 2 in Section 7 below.
- Louth County Development Plan 2021-2027
- 6.2.40. The Louth County Development Plan deals with the WHP in Policy Objectives BHC14-16 and Policy Objective 18. Of these Policy Objectives BHC14³ and BHC18 are not relevant to our understanding of how wider setting contributes to OUV. Policy Objectives BHC15 and BHC16, do, however, provide a degree of recognition as to the role played by wider setting in supporting OUV.
- 6.2.41. Policy Objectives BHC15 seeks:
- "To ensure no development which might have significant deleterious impacts upon the character of the World Heritage Site is permitted."*
- 6.2.42. Policy Objective BHC 16 seeks:
- "To protect the northern ridgeline (Chapter 13, Map 13.1) which frames the views within and from the World Heritage Site of Brú na Bóinne from visually intrusive and inappropriate development, subject to the Development Management Assessment Criteria detailed in Chapter 13 [of the CDP] and using view-shed analysis as a tool to guide and inform development management."*
- 6.2.43. The wording of Policy Objectives BHC15 makes clear that the character of the WHP is sensitive to change. "Character" is not defined in the Louth CDP but it is reasonable to assume that the character of the landscape of the WHP Core Area, Buffer Zone and wider setting contribute to this.
- 6.2.44. Policy Objective BHC 16 seeks to protect the "northern ridgeline" from "visually intrusive and inappropriate development". The northern ridgeline lies outwith the WHP Buffer Zone to the north-east within the wider setting of the WHP. It is clear from the wording of this policy that this northern ridgeline is considered to make at least some contribution to the experience of the WHP and is a component part of the largely rural, undeveloped landscape which characterises the WHP Core Area, Buffer Zone and wider setting. The Louth CDP's therefore recognises that changes to views of this northern ridgeline (which forms part of the WHP's wider setting) may affect OUV.

³ This policy was referred to in the Louth County Council Further Information Request and contains the following text: *"To work in partnership with Meath County Council, relevant agencies and the public to promote, understand, conserve and sustainably manage the UNESCO World Heritage Site of Brú na Bóinne to maintain its Outstanding Universal Value (OUV)."*

7. Wider Setting of Brú na Bóinne World Heritage Property

- 7.1.1 As outlined in the preceding section there is no published document that provides a comprehensive analysis of the ways in which the OUV of the WHP is supported by its wider setting.
- 7.1.2 The scope of this HIA does not require a detailed understanding of how the setting of the WHP in its entirety relates to OUV. For the purposes of this HIA, it is, however, necessary to define the ways in which wider setting supports OUV and in particular how the area of the WHP's wider setting that would undergo visual change as a result of the Proposed Development supports OUV. This is set out below in a Statement of Significance (see paragraphs 7.1.6-7.1.16 below).
- 7.1.3 The Statement of Significance is based on information in the available documents that address the OUV of the WHP, its Buffer Zone and wider setting (as presented in Sections 5 and 6). This existing information has been supplemented by the results of field visits which explored the relationship between the WHP and its wider setting.
- 7.1.4 All viewpoints relevant to the Statement of Significance are listed in Table 2 below with a summary of the ways in which they support OUV and the way in which the WHP is experienced from these locations. This list includes Protected Views from the Meath CDP 2021-2027 which are labelled 'Meath CDP VP' with their associated number from the list at Appendix 10 of the CDP. Two additional viewpoints were identified during research for this HIA which were considered to contribute to our understanding and appreciation of the WHP. These additional viewpoints are VPs 1 and 3. VP1 is from Dowth Henge and was selected to illustrate the potential impact of the Proposed Development on later prehistoric monuments which play an important role in supporting OUV through demonstrating the continued importance of the WHP in later prehistory. VP3 is a viewpoint from Rossnarree Car Park immediately south-west of the WHP Core Area; this viewpoint was selected as it features views of Newgrange and supports OUV by allowing an appreciation of the landscape setting of the monument.
- 7.1.5 For clarity, it should be noted that the locations of the following viewpoints have been moved slightly from the locations shown on Map 8.6.1 of the current Meath CDP (2021-2027) as follows:
- Meath CDP VP31: location moved 68 m north-east to allow for a representative viewpoint from this location which was within the ZTV for the Proposed Development
 - Meath CDP VP34: location moved 16 m south-west to allow a safer location from which photography for the photomontage could be gathered
 - Meath CDP VP63: location moved 220 m north-east to allow a clearer view of the WHP
 - Meath CDP VP93b: location moved 370 m north-east to allow a clearer view of the WHP

Table 2. Viewpoints Relevant to Understanding and Experiencing WHP and its OUV

Meath CDP Protected View Ref	HIA/EIAR Visualisation Viewpoint Ref	Support for OUV of World Heritage Property
VP30 (Hill of Slane)	EIAR VP 21	<p>The open summit of the Hill of Slane provides an elevated open view looking east over the WHP, its setting and wider setting.</p> <p>This view from the wider setting of the WHP allows appreciation of:</p> <ul style="list-style-type: none"> • Historical associations between Slane and Knowth in the early medieval period • The landscape of Brú na Bóinne, including the setting of Knowth and Newgrange • The landscape setting of Brú na Bóinne including the WHP's wider setting which features in the foreground of views looking towards the WHP from the Hill of Slane and provides the wider rural, agricultural character of the WHP. The "strong rural but working character of the landscape in which the monuments are situated" (Heritage Council 2009) is likely at least to some degree to reflect the character of the landscape in prehistory and in the medieval period when the WHP monuments were in use and thus provides an appropriate setting within which the WHP is understood as an important prehistoric ritual and funerary centre with later medieval use.
VP31 (Country road between Boyne Canal and Roughgrange)	Meath CDP VP31 (Country road between Boyne Canal and Roughgrange)	<p>The southern extent of the WHP at the bend of the Boyne including open views of Newgrange and a later prehistoric barrow (ME00995) can be experienced from the path running adjacent to the Boyne Navigation canal. None of the other WHP monuments are visible from this viewpoint.</p> <p>This view allows an appreciation of:</p> <ul style="list-style-type: none"> • The landscape of Brú na Bóinne, including the setting of Newgrange in relation to the River Boyne • The interrelationship between Newgrange and later prehistoric monuments and the time depth of the WHP
VP34 (N2 between Slane and Balrath at McGruder's Cross Roads)	Meath CDP VP34 (N2 between Slane and Balrath at McGruder's Cross Roads)	<p>The minor road from McGruder's Cross Roads to Rosnaree provides an elevated view, looking north-east, of the west end of the WHP including limited views of the mounds at Knowth and Newgrange (albeit vegetation obscures any clear view of these monuments from this location). Dowth is not visible from this viewpoint.</p> <p>This view allows a limited appreciation of:</p> <ul style="list-style-type: none"> • The landscape of Brú na Bóinne, including the setting of Knowth and Newgrange • The wider rural, agricultural setting and character of the WHP
VP59 Knowth	VP2	<p>The top of the mound at Knowth provides the most extensive views of the WHP's wider setting from within the WHP, taking in the northern ridgeline noted in the Louth CDP to the north with extensive views out over lower lying agriculture land to the east and south. Views to the west take in the River Boyne and the Hill of Slane, with the Hill of Tara visible to the south-west. Closer range views take in Newgrange to the south-east and the later prehistoric and medieval monuments around Knowth. There are no views of Dowth from Knowth.</p> <p>These views allow an appreciation of:</p> <ul style="list-style-type: none"> • Historical associations between Slane and Knowth in the early medieval period • The historical relationship of Brú na Bóinne and Knowth with the River Boyne • The interrelationship between Knowth and Newgrange and the later prehistoric and medieval monuments around Knowth • The landscape setting of Brú na Bóinne including its wider setting which includes wider prehistoric context as evidenced by the Hill of Tara • The role played by the northern ridgeline noted in the Louth CDP as part of the WHP's wider setting. Compared to the more open views of the wider setting to the south and west, the northern ridgeline is topographically more elevated, limiting any distant views beyond the ridgeline itself. This results in this part of the landscape feeling physically closer to the WHP itself and creates a clear sense of connection between the WHP and this rural, agricultural part of its wider setting. • The wider rural, agricultural setting and character of the WHP
VP63 (View N county road between Donore and Redmountain)	Meath CDP VP63 (View N county road between Donore and Redmountain)	<p>This VP to the south of the WHP theoretically provides views looking north-west over large parts of the WHP and its setting albeit these views are currently obscured by a hedgerow.</p> <p>These views allow a limited appreciation of:</p> <ul style="list-style-type: none"> • The landscape of Brú na Bóinne, including the setting of Knowth, Newgrange and Dowth • The landscape setting of Brú na Bóinne including the wider rural, agricultural setting and character of the WHP
VP87b Newgrange	EIAR VP24	<p>Outward views from the top of the mound at Newgrange largely reflect those from the top of Knowth albeit these are not views which are commonly experienced as this part of the monument is restricted to the public.</p> <p>The west side of the mound at Newgrange (which has been selected as an appropriate viewpoint from which to assess the impact of the Proposed Development) provides a view looking west towards Cullen, Fennor and Slane, including the mound at Knowth which features in the foreground looking towards the Hill of Slane. Views north towards the wider setting of the WHP including the northern ridgeline noted in the Louth CDP are possible from this location, with views to the east and south from the east side of the monument taking in the wider, rural agricultural setting of the WHP and the ridgeline to the south-east over which the winter solstice sun rises.</p> <p>These views allow an appreciation of:</p> <ul style="list-style-type: none"> • The landscape setting of Brú na Bóinne including the setting of Knowth

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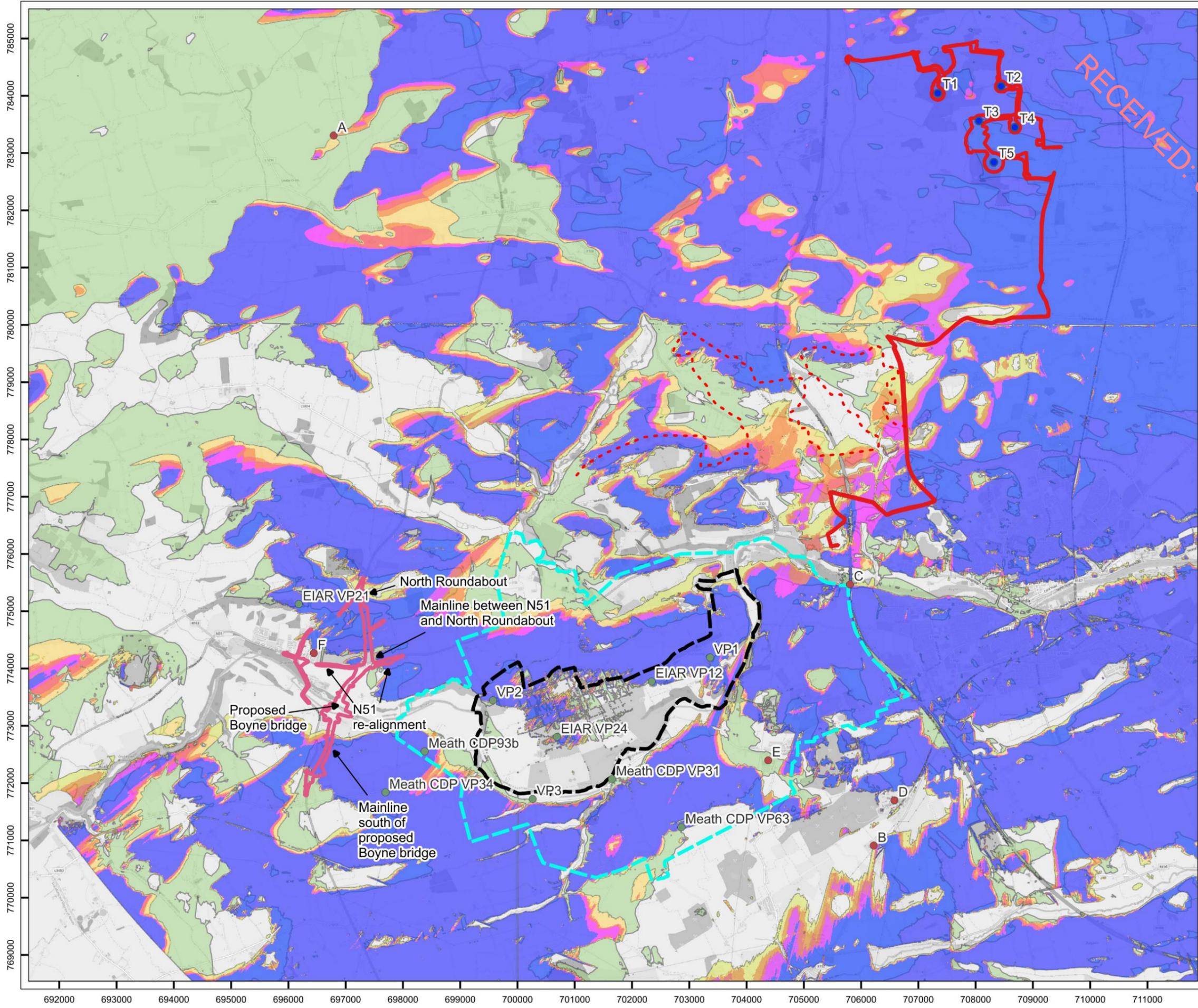
Meath CDP Protected View Ref	HIA/EIAR Visualisation Viewpoint Ref	Support for OUV of World Heritage Property
		<ul style="list-style-type: none"> • The historical associations between Knowth and Slane in the early medieval period • The role played by the northern ridgeline noted in the Louth CDP as part of the WHP's wider rural, agricultural setting • The astronomical alignment of Newgrange to the winter solstice sun • The wider rural, agricultural setting and character of the WHP
VP88 Dowth	EIAR VP12	<p>The top of the mound at Dowth provides open views looking north, east and south taking in the northern ridgeline noted in the Louth CDP, the wider setting of the WHP and, in the foreground of views looking east, the remains of the medieval Dowth Parish Church.</p> <p>This view allows an appreciation of:</p> <ul style="list-style-type: none"> • The landscape of Brú na Bóinne including its wider setting • The role played by the northern ridgeline noted in the Louth CDP as part of the WHP's wider setting • The continued use of the WHP in the medieval period • The wider rural, agricultural setting and character of the WHP
VP93b (Local Road L16002 0.7 km west of Rossnaree)	Meath CDP VP93b (Local Road L16002 0.7 km west of Rossnaree)	<p>From Rossnaree Road there are opportunities to view the mounds of Knowth and Newgrange in views looking north-east and east albeit trees and hedges screen views of the monuments from much of the road. The wider rural agricultural setting of the WHP backdrops Newgrange in views from this road.</p> <p>Where it is possible to see the monuments, these views allow an appreciation of:</p> <ul style="list-style-type: none"> • The landscape settings of Newgrange and Knowth and their interrelationship as two of the principal monuments of the WHP • The wider rural, agricultural setting and character of the WHP
Other viewpoints		
N/A	VP1 (Dowth Henge)	<p>Dowth Henge is a later prehistoric monument within the WHP Core Area, located approximately 1 km to the north-east of Dowth passage grave. It is located towards a summit at the eastern end of a ridge above the River Boyne. It supports OUV as an expression of the continued importance of Brú na Bóinne as a ritual landscape in the prehistoric period. Henge monuments are generally understood as being ritual in function and it has been speculated that rituals taking place within henge enclosures were intended to be separate from the outside world. It has been suggested that the entrances of Dowth Henge are aligned on the summer solstice sunrise and winter solstice sunset. However, it is possible that both entrances may have been modified and may not reflect the original entrances to the henge. The authenticity of these astronomical alignments therefore remains a matter of academic debate.</p> <p>Notwithstanding the theory that henge monuments were inwardly focussed and intended to exclude the outside world and the potential modification of Dowth henge's entrances, it is reasonable to suggest that there would have been views in and out of the monument through its entrances which, at least in views to the north-east, would have included views of the wider landscape. This remains the way in which the monument is experienced in the present day and allows a visitor to relate the monument to its wider landscape setting.</p> <p>Outward views from Dowth Henge from its banks and from its south-western entrance take in long range views to the north, north-east and east overlooking lower lying agricultural land, with higher ground beyond. This higher ground to the north and north-east is the northern ridgeline noted in the Louth CDP. Whilst it is not currently understood that the banks of henges were intended to be stood on and used as a means of looking out over the landscape, this is a way in which the Dowth henge can be experienced in the present day and allows the visitor to appreciate the monument's topographic position overlooking nearby agricultural land and, beyond that to the north more elevated ground.</p> <p>To the south-west there are views of Dowth Hall, an 18th century country house, which was likely positioned in order to absorb the henge as a feature of its designed landscape.</p> <p>Views from Dowth Henge therefore allow an appreciation of:</p> <ul style="list-style-type: none"> • The landscape setting of Dowth Henge and its role as a later prehistoric site within the WHP • The role played by the northern ridgeline noted in the Louth CDP as part of the WHP's wider setting • The wider rural, agricultural setting and character of the WHP • The incorporation of Dowth Henge into the designed landscape which served Dowth Hall demonstrating the changing use of the monument into the later post-medieval period
N/A	VP3 (Rossnaree Car park)	<p>From Rossnaree Car Park at the south-west of the WHP there are partial views towards Newgrange and the south-western area of the Core Area of the WHP.</p> <p>This allows a limited appreciation of:</p> <ul style="list-style-type: none"> • The landscape of Brú na Bóinne, including the setting of Newgrange

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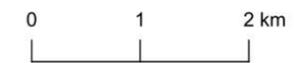
Scotland

65 Sussex Street
Glasgow
G41 1DX
t: 0141 418 0471
www.headlandarchaeology.com

- Key
- Kellystown Wind Farm Site Boundary
 - Proposed Turbine
 - Viewpoints
 - Brú na Bóinne WHP Boundary
 - Brú na Bóinne WHP Buffer Zone
 - Northern Ridgeline (as shown on Louth County Development Plan)
 - Post-1993 Developments
 - A: Dunmore, Leaby Cross Wind Turbines. Collon
 - B: Indaver Incinerator, Carranstown
 - C: M1 Boyne
 - Mary McAleese Bridge
 - D: Platin Irish Cement
 - E: Residences at Cruicerath Stalleen, Donore
 - F: Residences at Ledwidge Hall, Slane
 - Proposed N2 Slane Bypass
- Cumulative ZTV
- Visibility of existing, permitted or in-planning turbines only
 - Visibility of proposed turbines only
 - Visibility of proposed turbines as well as existing, permitted or in-planning turbines only



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Illus 2: Viewpoint Locations, post-1993 Developments and Location of Proposed N2 Slane Bypass

Statement of Significance of Contribution of Wider Setting to OUV

7.1.6 Having described how the wider setting of the WHP is experienced from relevant viewpoints both outside and within the WHP Core Area and its Buffer Zone, it can be concluded that the wider setting of the WHP supports OUV in the following ways:

1. Attributes of both the built and natural environment within the wider setting of the WHP have functional and contextual associations with the WHP and its individual monuments. Appreciation of these associations supports the OUV of the property.

- Knowth and Slane are both associated with the early medieval Kingdom of Brega. Knowth is believed to be a royal centre based on excavation evidence and contemporary documentary references. Documentary references also confirm that Slane was an important ecclesiastical centre, although at least the majority of visible medieval structures on the Hill of Slane are considerably later in date. Reciprocal views between Knowth and the Hill of Slane (EIAR VP21) inform our understanding of the close links between these two sites in the early medieval period and support this aspect of the OUV of the WHP. Links between Brú na Bóinne and the Hill of Slane in prehistory are much more tenuous and currently rely on the speculative identification of the motte on the summit as a modified passage grave.
- The role played by the WHP as part of an important wider prehistoric and early medieval landscape can be understood through visibility of the Hill of Tara in outward views from Knowth (VP2). The Hill of Tara contains numerous prehistoric monuments dating from the Neolithic to the Iron Age and is one of the royal sites of Ireland where the early Kings of Ireland were crowned in the late prehistoric and early medieval periods. Visibility of the Hill of Tara from Knowth furthers our contextual understanding of the WHP's wider setting being an important landscape from prehistory into the medieval period.
- Views of the River Boyne as experienced from Knowth, which extend beyond the Buffer Zone into the WHP's wider setting to the west allows for an appreciation of the River Boyne as a significant routeway in prehistory. This assists in our understanding of the development of the monumental landscape of WHP around the Boyne. Whilst not within the wider setting of the WHP as defined in this HIA, this understanding is reinforced through views from the Boyne Navigation Canal (VP31), within the WHP's Buffer Zone, where the relationship between the river and Newgrange can be experienced.
- Views of the ridgeline to the south-east (EIAR VP24) over which the winter solstice sun rises allows an appreciation of the astronomical alignment of Newgrange.

2. Viewpoints from within the WHP's wider setting provide opportunities to experience the monumental landscape of the WHP and the landscape setting of individual monuments within the property. These opportunities enhance our appreciation of the landscape setting and therefore support the OUV of the property.

- Views from the Hill of Slane (EIAR VP21) provide panoramic views looking to the south-east over the entire landscape of the WHP including views of Knowth and Newgrange.
- Views from VP34 allow limited views of the elevated landscape setting of Knowth and Newgrange.
- Whilst within the Buffer Zone of the WHP instead of its wider setting, views from VP93b, VP31, and VP63 provide views of the topographic setting of the WHP including its wider setting (albeit such views are largely theoretical given the extent of screening from trees and vegetation).

3. The wider setting of the WHP features in outward views from the WHP, its Buffer Zone and from the wider setting itself. In these views, the WHP is part of the modern rural agricultural landscape that forms an appropriate green setting for the Neolithic monuments within the WHP Core Area and which may

be seen as a suitable, largely undeveloped, proxy for the landscape which existed in the prehistoric and medieval periods. Experience of the monuments in this agricultural, rural setting supports the OUV of the property by contributing to its ambience.

- o From within the WHP Core Area the wider rural, agricultural setting can be experienced from Knowth (VP2), Newgrange (EIAR VP24), Dowth (EIAR VP12) and from Dowth Henge (VP1). The northern ridgeline noted in the Louth CDP can be experienced in outward views from these locations. This northern ridgeline, which reflects the overall rural, agricultural character of the WHP, feels physically closer to the WHP monuments than other part of the landscape and plays a role in contributing to the WHP's ambience. Lower lying land to the south and west support OUV by providing a largely undeveloped rural, agricultural backdrop to outward views from the WHP.
- o From within the Buffer Zone and wider setting, the rural, agricultural setting of the WHP can be experienced from VPs 3, 30, 31, 34, 63, 93b.

7.1.7 This Statement of Significance has identified the various ways in which wider setting supports the OUV of the WHP. However, in order to assess the predicted impact of the Proposed Development, it is also necessary to understand the degree to which these various factors support OUV within the context of the protection provided by the WHP's Core Area and Buffer Zone.

7.1.8 The OUV of the WHP resides primarily in the physical attributes of the inscribed property itself. As already noted in Section 3, the UNESCO (2021) guidelines state that:

"Boundaries should be drawn to incorporate all the attributes that convey the Outstanding Universal Value and to ensure the integrity and/or authenticity of the property." (paragraph 99)

7.1.9 Beyond the boundaries of the WHP, the Buffer Zone is designed to provide an added layer of protection to the OUV of the property. Referring again to the UNESCO guidelines:

"This should include the immediate setting of the nominated property, important views and other areas or attributes that are functionally important as a support to the property and its protection." (paragraph 104)

7.1.10 It follows from these quotations that the OUV of the WHP will be preserved under most circumstances if inappropriate development is excluded from the property's Core Area and its Buffer Zone. This conclusion may be reasonably applied in the case of Brú na Bóinne.

7.1.11 UNESCO also recognises that there is not necessarily a sudden cut-off at the outer edge of the Buffer Zone, beyond which the setting of a WHP has no role at all in the support of OUV. This is clearly the case in the wider setting of Brú na Bóinne where it remains possible to experience the WHP from its wider setting from where functional and contextual relationships with attributes of the WHP can be identified (as summarised in Items 1 and 2 of the Statement of Significance). As demonstrated in Table 2, it is also possible to experience this wider setting beyond the Buffer Zone in outward views from within the WHP Core Area from Knowth, Newgrange, Dowth and Dowth Henge and from the Buffer Zone itself.

7.1.12 The northern ridgeline, which the Louth CDP specifically seeks to protect from "visually intrusive and inappropriate development", forms part of the wider setting of the WHP and provides a more immediate sense of the wider rural, agricultural setting of the WHP, which, as outlined previously, provides an appropriate landscape character in which the WHP is experienced and is thus supportive of OUV. It is views towards this part of the landscape that would experience visual change as a result of the Proposed Development. It should, however, be borne in mind that this is only one factor of the WHP's wider setting; the wider setting as a whole extends beyond the Buffer Zone in all directions, not just to the north. The extent to which wider setting as a whole supports OUV should also be borne in mind in this case; as noted above, it is the WHP Core Area and Buffer Zone that protect the key elements of setting of the WHP that support its OUV. As such wider setting, which the northern ridgeline is only one component part of, is on the whole comparatively weaker in supporting OUV.

7.1.13 The functional relationships between the WHP and its wider setting are also weaker than those within the Buffer Zone. For example, a relationship between Slane and Knowth in the early medieval period has been identified

but this is not relevant to an appreciation of the prehistoric attributes that are the principal expression of OUV at Brú na Bóinne. These prehistoric attributes are not clearly expressed in functional relationships between the WHP and the land around Slane. The early medieval use of Knowth is of greater relevance as one expression of the continuity of use of this monument (relevant to Inscription Criterion iii), but this expression of OUV is separate from any potential connections between Knowth and Slane in the early medieval period.

7.1.14 The general conclusion is that the wider setting of the WHP has, compared to the protection provided by its Core Area and Buffer Zone, a rather limited role in the protection of OUV. It is considered that wider setting contributes to two of the attributes of the WHP that convey OUV as presented in Table 3 below:

- Views into and out of the property
- Ambiance of the ritual centre

7.1.15 However, in the case of large-scale and tall developments, such as the Proposed Development, issues of visual prominence may arise even at long distances from the WHP. These large-scale or tall developments within the wider setting of the WHP have the potential to appear as prominent features in the background of valued views from within the WHP, its Buffer Zone and in views from the wider setting itself (Item 3 in the Statement of Significance). In these situations, the fact that the development site is at a relatively distant location in the wider setting is less relevant compared to a smaller scale development as it will be viewed as part of the valued landscape of the WHP. As a result, there is the potential for impacts on OUV as a result of large-scale developments distracting from views of and from the WHP and the potential for them to adversely impact the current prevailing landscape character of the WHP which supports OUV.

7.1.16 It is therefore necessary, in the context of this HIA, to bear in mind these two contrasting conclusions of the Statement of Significance:

- the limited role that the wider setting of the WHP plays in supporting OUV in the context of the protection provided by its Core Area and Buffer Zone; but this is in the context of-
- the general sensitivity of the WHP to visually prominent new features in that wider setting.

8. Proposed Development

8.1 A description of the Proposed Development is provided in Chapter 2 of the EIAR but can be summarised as comprising the following:

- The construction of five turbines with total tip height range of 179.5 m – 180 m
- Construction of turbine foundations, crane hardstand areas and assembly areas
- All associated wind farm underground electrical and communications cabling connecting the turbines and meteorological mast to the proposed onsite electrical substation including cabling in the public road corridor in the townlands of Gallstown and Kearneystown
- Construction of 1 no. permanent 38kV electrical substation compound including a single-storey control building with welfare facilities
- A Battery Energy Storage System within the 38kV electrical substation compound
- All works associated with the connection of the proposed wind farm to the national electricity grid which includes 5 no. of water crossings (3 no. bridges and 2 no. culverts)
- Reinstatement of all road and track surfaces above cabling trench along existing roads and tracks in public lands
- Provision of new site access tracks and upgrade of existing site tracks/roads to facilitate access to all onsite infrastructure this includes 3 no. water crossings, passing bays and all associated drainage;
- The provision of 2 no. new permanent site entrances for construction and operational access from the local road L6274 in the townlands of Kearneystown and Gallstown

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9. Mitigation

- 9.1 Section 3.6.2 of Chapter 3 of the EIAR presents the design evolution process and details the mitigation measures taken to reduce the Proposed Development's overall environmental impact. This is also detailed in Chapter 20 Appendix 20.1 Summary of Mitigation Measures of the EIAR.
- 9.2 The design evolution can be summarised as follows:
- An initial seven turbine layout was brought forward for consideration by all environmental disciplines in 2023 (the First Layout); the number of proposed turbines was subsequently increased from seven to eight (the Second Layout);
 - Following review by all technical disciplines, the number of proposed turbines was reduced from eight to five (the Third Layout) following concerns regarding potential impacts on a telecommunications link engineering and ecological concerns. The project red-line boundary was reduced to encompass only the area of the site that confirmed as viable for development;
 - Minor amendments were subsequently made to address ecological concerns. These included re-location of Turbine 2 and the re-location of Turbine 5 further south.
- 9.3 The design changes made has reduced the lateral spread of turbines in views from the WHP and in views towards it from the viewpoints used to inform this HIA. This has mitigated the impact of the Proposed Development on the rural character of the WHP's wider setting and its impact on the WHP's OUV. The reduction in turbine numbers has reduced the Proposed Development's overall visual prominence and thus mitigated the potential for visual distraction away from the WHP in views from and towards it.
- 9.4 Taking into account all other environmental constraints, all possible mitigation has been achieved during the design evolution.

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10. Predicted Impacts of Proposed Development

10.1 *Construction Phase*

- 10.1.1. During the construction phase, construction works could potentially be visible in views from the WHP towards its wider setting and from within the Buffer Zone and wider setting of the WHP. This may take the form of visibility of cranes used to erect the proposed turbines or potentially dust generated from excavation works.
- 10.1.2. However, any changes in terms of views from the WHP towards its wider setting or views towards the WHP from the Buffer Zone and wider setting due to these works would result in an impact of no higher than minor significance, ; the impact would be of short duration and entirely reversed at the end of the construction works. As a result of their temporary nature, it is concluded that they would not have any material impact on OUV.
- 10.1.3. Construction-phase impacts are not considered any further in this assessment.

10.2 *Operational Phase*

- 10.2.1. The Proposed Development would be located within the wider setting of the WHP, approximately 7.6 km to the north-east of the Buffer Zone. It would be visible to varying degrees from the wider setting of the WHP, the Buffer Zone and Core Area of the WHP. The viewpoints chosen for this assessment (illustrated by wireline and photomontages as shown in Appendix 15.4a II) are considered sufficient for demonstrating the extent to which visibility of the Proposed Development would impact OUV. An assessment of the impact of the Proposed Development in isolation on OUV is presented below using relevant viewpoints which support our understanding of OUV as the basis of the impact assessment.

Outward Views from the WHP Core Area

- 10.2.2. VP1 illustrates that in outward views looking from the top of the bank of Dowth Henge at its western side that five of the proposed turbines would be visible; four of the proposed turbines would be visible to hub height with the blades of one proposed turbine visible. None of the turbine bases would be visible. A similar view would be possible from the south-western entrance of the henge which includes views of the henge interior and beyond towards the ridgeline on which the Proposed Development would be located. It should be noted, however, that the proposed turbines would be at least partially screened by the ridgeline and would not appear to full height.
- 10.2.3. EIAR VP22 illustrates that in outward views from the top of the mound at Dowth that five of the proposed turbines would be visible; two of the proposed turbines would be visible to hub height with the blades of three proposed turbines visible.
- 10.2.4. EIAR VP24 illustrates that in outward views from the western side of Newgrange that five of the proposed turbines would theoretically be visible; three of the proposed turbines would be visible to hub height with the blades of two proposed turbines visible.
- 10.2.5. VP2 illustrates that in outward views from the top of the mound at Knowth that five of the proposed turbines would be visible; four of the proposed turbines would be visible to hub height with the blades of one proposed turbine visible.
- 10.2.6. In terms of outward views from the three principal monuments of the WHP and from the later Dowth Henge, the Proposed Development would introduce visual change above the northern ridgeline which forms part of the wider setting of the WHP. The extent of this visual change would be most pronounced in outward views from Dowth Henge but would be broadly comparable in outward views from the top of Dowth passage grave and Knowth from where it is possible to experience open views of the surrounding landscape. The northern ridgeline forms part of the WHP's wider setting and contributes to the rural,

agricultural landscape within which the WHP's prehistoric monuments are experienced. This part of the landscape is largely free from any large scale development and contributes to the ambience of the WHP as a group of monuments which may have functioned within a comparably undeveloped/agricultural landscape setting in prehistory. The relative proximity of the northern ridgeline to the WHP Core Area compared to the WHP's wider setting to the west and south increases a visitor's awareness of the character of this part of the landscape which forms the WHP's wider setting. It is in this way that wider setting supports OUV when viewed from within the WHP Core Area as per Point 3 of the Statement of Significance.

- 10.2.7. The projection of the proposed turbines above the northern ridgeline may present an element of visual distraction from the rural character of the WHP's wider setting and to a limited extent detract from the visitor's ability to appreciate the WHP's largely undeveloped wider setting as a working agricultural landscape similar to the one which likely existed in prehistory.
- 10.2.8. At Dowth Henge, the presence of the proposed turbines in outward views from the henge's bank and from its south-western entrance would present a degree of visual distraction away from the prominence of the monument itself. Henges can be interpreted as monuments which were designed to exclude the outside world, with activities taking place within the area enclosed by the henge the primary way in which these monuments functioned. The presence of the proposed turbines projecting above the northern ridgeline beyond the banks of the henge from its south-western entrance may introduce a distracting visual element to the experience of the monument and divert focus from the interior of the henge, which is understood as the point of ritual activity.
- 10.2.9. It should however be noted that at Newgrange the proposed turbines would only be visible from the western side of the monument and from the north, assuming that the trees which occupy the area just north of the monument were felled. Whilst there would be clearer views of the proposed turbines from the top of the mound at Newgrange, this is not, unlike Knowth and Dowth, how the monument is commonly experienced as there is no public access to the top of the mound. Opportunities to see the proposed turbines at ground level at Newgrange would therefore be limited to the west of the monument, and theoretically to the north. At ground level it is the experience of the mound of Newgrange and the associated monuments around it that dominate the visitor's experience of this part of the WHP rather than of longer range views out towards its wider setting to the north. As such, it is considered that the proposed turbines would have a more limited impact on the wider, rural, agricultural setting at the north of the WHP from Newgrange as there are fewer opportunities to experience this part of the landscape at this monument.
- 10.2.10. Similarly, outward views from the top of Dowth and Knowth form only one part of the experience of these monuments. From ground level, it is the monuments themselves which dominate a visitor's experience and this would not be materially altered by the presence of the proposed turbines.
- 10.2.11. There would be no visual change to outward views towards Slane, the Hill of Tara and the River Boyne from Knowth; views of the south-eastern ridgeline over which the winter solstice sun rises and illuminates the passage of Newgrange would also undergo no change. Views towards these parts of the landscape from the Core Area all provide an understanding of the functional and contextual associations between the WHP and the wider landscape, as outlined in Point 1 of the Statement of Significance. There would therefore be no impact on this element of the WHP's wider setting which supports its OUV.

Views towards the WHP from the Buffer Zone and Wider Setting

- 10.2.12. VP3 illustrates that from the south-western extent of the Buffer Zone at Rosnaree car park there would be no visibility of the proposed turbines in views looking north-east towards this part of the WHP which includes views of Newgrange.
- 10.2.13. Meath CDP VP63 illustrates that all five of the proposed turbines would theoretically be visible to hub height when looking north from the county road between Donore and Redmountain, located at the south-eastern area of the Buffer Zone. Dowth Henge would be offset from the proposed turbines from this viewpoint although vegetation currently obscures any views of this part of the landscape.

- 10.2.14. Meath CDP VP31 illustrates that from the footpath along Boyne Canal, Roughgrange at the southern central area of the Buffer Zone there would be no visibility of the proposed turbines in views looking north-east towards the WHP. Dowth passage grave is theoretically visible looking in this direction but is obscured by trees and vegetation.
- 10.2.15. Meath CDP VP93b illustrates that from the western extent of the Buffer Zone on local road L16002, five of the proposed turbines would theoretically be visible; four of the proposed turbines would be visible to hub height with the blades of one proposed turbine visible. Knowth, Newgrange and Dowth passage graves would be offset from the turbines in this view (i.e. the turbines would not appear directly behind the monuments) although views of this monument are currently obscured by a hedgerow.
- 10.2.16. Meath CDP VP34 illustrates that from the wider setting of the WHP to the west, from the N2 between Slane and Balrath at McGruder's Cross Roads that five of the proposed turbines would theoretically be visible; four of the proposed turbines would be visible to hub height with the blades of one proposed turbine visible. Knowth, Dowth and Newgrange would all be offset from the proposed turbines from this viewpoint although Dowth is obscured from view by trees from this viewpoint.
- 10.2.17. EIAR VP21 illustrates that from the Hill of Slane, which forms part of the wider setting of the WHP to the west, all five of the proposed turbines would be visible to hub height.
- 10.2.18. In the case of Meath CDP VP63 and VP93b it is acknowledged that views from these locations are currently screened by hedgerows which precludes views of the WHP monuments and would also screen views of the proposed turbines; from Meath CDP VP34 there are relatively clear views of Newgrange and partial views of Knowth but the area of the landscape in which the proposed turbines would be located are screened by a hedgerow. Should these hedgerows be lowered or removed, however, the proposed turbines would become visible.
- 10.2.19. In terms of views from Meath CDP VP63, Dowth is the only one of the principal WHP monuments which would theoretically be visible when looking north-east from this location and would be offset from the proposed turbines (i.e. the proposed turbines would not appear directly behind the monument). Dowth is however largely screened from long range views by a tree belt just north of the Boyne and by trees to the west of the monument itself. The impact would therefore be limited to an adverse impact on the wider rural, agricultural landscape character of the WHP at least in terms of the limited way in which the WHP can potentially be experienced from this viewpoint.
- 10.2.20. From Meath CDP VP93b, Knowth, Dowth and Newgrange are theoretically visible albeit Dowth would be screened by trees located immediately west of the monument. The proposed turbines would appear offset but relatively close to Knowth from this viewpoint. There would be an adverse impact on the wider rural, agricultural landscape character of the WHP in terms of how the WHP is potentially experienced from this viewpoint. The relative proximity at which the proposed turbines would be located to Knowth may also present a degree of visual distraction away from this monument as one intended to be a focal point as an important prehistoric funerary monument in views from lower lying ground near the Boyne. The proposed turbines may to a degree challenge this intended prominence.
- 10.2.21. From Meath CDP VP34, Knowth and Newgrange are both currently visible above a hedgerow although Dowth is screened from view by trees located immediately west of the monument. The proposed turbines would appear offset but relatively close to Knowth from this viewpoint although the monument is only partially visible from here due to the presence of a hedgerow. There would be an adverse impact on the wider rural, agricultural landscape character of the WHP in terms of how the WHP is experienced from this viewpoint. The relative proximity at which the proposed turbines would be located to Knowth may also present a degree of visual distraction to this monument as one of the principal WHP monuments which was intended to be a focal point from the surrounding landscape. The presence of the proposed turbines may to a degree challenge this intended prominence albeit the monument is only partially visible from this viewpoint.
- 10.2.22. From EIAR VP21 from the Hill of Slane, Knowth and Newgrange and the general landscape setting of the WHP can be experienced in views looking south-east. Dowth is not visible from this viewpoint. The proposed turbines would not feature in views looking towards Knowth and Newgrange and the WHP

Core Area but would be visible when looking north-east appearing within the wider setting of the WHP. Their presence would therefore to an extent adversely impact on the wider rural, agricultural landscape character of the WHP at least in terms of how this is experienced from this viewpoint. It should, however, be noted that from this viewpoint, it is the wider setting which features in in-combination views of the WHP monuments which is more informative in terms of being able to relate the WHP monuments to their wider landscape and appreciate them as funerary monuments that functioned within a comparable landscape character in prehistory. The area of the landscape in which the proposed turbines would be located is offset from the WHP monuments and is less relevant to this experience.

- 10.2.23. Historical associations between Slane and Knowth in the medieval period (as outlined in Point 1 of the Statement of Significance) would also remain fully appreciable as the proposed turbines would not feature in views towards Knowth from this viewpoint and would offer no visual distraction.

Operational Impact – Summary and Conclusions

- 10.2.24. The assessment of predicted operational impacts has considered the contribution made to OUV by the wider setting of the WHP.
- 10.2.25. It is concluded that the aspects of OUV that would be adversely affected by the operation of the Proposed Development would be the rural, agricultural landscape character which defines the wider setting of the WHP and contributes to its ambience. This relates to Points 2 and 3 of the Statement of Significance and Attributes 2 and 13 of the SOUV for Brú na Bóinne.
- 10.2.26. It is concluded that visibility of the proposed turbines as illustrated by the viewpoints discussed above would to a limited extent alter the rural, agricultural landscape character of the WHP's wider setting. The position of the proposed turbines would also to a limited extent present a degree of visual challenge to the intended prominence of Knowth when viewed from Meath CDP VP93b and Meath CDP VP34. In addition, the proposed turbines would visually distract from Dowth Henge as a prominent prehistoric ritual site and would present a degree of visual distraction from the interior of the henge as the intended focus of ritual activity.
- 10.2.27. There would, however, be no impact on all other attributes that allow for an understanding of the WHP's OUV as outlined in the SOUV nor would there be any impact on the functional or contextual associations between the WHP and the built and natural environment as outlined in Point 1 of the Statement of Significance. The proposed turbines would occupy a relatively limited area of the WHP's wider setting; their presence would not materially change informative outward views to the east, west or south from the WHP. Such views allow a visitor to experience the WHP's relationship to its nearby and wider setting, its relationship to the Boyne and interrelationships with other associated monuments within the WHP Core Area, Buffer Zone and wider setting. It is also considered that the rural, agricultural landscape character of the WHP's wider setting would remain identifiable as such despite the presence of the proposed turbines. The proposed turbines would be at least partially screened by topography, lessening their visual prominence and would not materially detract from a visitor's experience at ground level at Knowth, Newgrange and Dowth. Even from the top of the mounds at Knowth and Dowth, the level of topographic screening is such that the proposed turbines would not form a dominant part of how a visitor experiences these monuments.
- 10.2.28. Taking into account the generally limited contribution that wider setting makes to OUV, and using the categories of impact defined by UNESCO in their 2022 guidance, it is considered that there would be an overall **negligible degree of change** to two attributes of the WHP resulting in a **minor negative impact** on OUV as whole as a result of the Proposed Development in isolation. The two attributes that would be impacted are:
- Views into and out of the property
 - Ambiance of the ritual centre

- 10.2.29. All other values and attributes which contribute to OUV as outlined in Table 3 below would experience no change. The impact of the Proposed Development on the attributes of the WHP which convey OUV is summarised in Table 3 below.

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Table 3. Impact of Proposed Development in Isolation on Attributes of WHP (adapted from UNESCO 2022, page 86)

ELEMENT OF PROPOSED ACTION	ATTRIBUTE	DESCRIPTION OF POTENTIAL IMPACT	FREQUENCY OF ACTION	DURATION OF ACTION	REVERSIBILITY OF ACTION	REVERSIBILITY OF CHANGE TO THE ATTRIBUTE	LONGEVITY OF CHANGE TO THE ATTRIBUTE	DEGREE OF CHANGE TO THE ATTRIBUTE	QUALITY OF CHANGE TO THE ATTRIBUTE	EVALUATION OF IMPACT
			<i>Once/ intermittent/ continuous</i>	<i>Short-term (i.e. days/weeks)/ long-term (i.e. years/ decades)</i>	<i>Reversible/ irreversible</i>	<i>Reversible/ irreversible</i>	<i>Temporary / permanent change</i>	<i>None/ negligible/ some/large change</i>	<i>Positive/ negative change</i>	<i>Neutral/minor/ moderate/major impact (negative and positive)</i>
Operational wind farm phase	An extensive funerary landscape of great ritual significance in a bend of the River Boyne with a concentration of social, economic and funerary monuments including 40+ passage graves	Full visibility of proposed turbine hubs and partial visibility of proposed turbine blades and towers within wider setting of WHP.	Continuous	Long term	Irreversible but limited to the lifespan of the Proposed Development. The action would be reversed after the Proposed Development is decommissioned.	N/A, no change to attribute predicted	N/A, no change to attribute predicted	None	No change predicted	Neutral
Operational wind farm phase	Views into and out of the property	Full visibility of proposed turbine hubs and partial visibility of proposed turbine blades and towers. Presence of turbines within wider setting may distract from wider rural setting of WHP.	Continuous	Long term	Irreversible but limited to the lifespan of the Proposed Development. The action would be reversed after the Proposed Development is decommissioned.	Irreversible (although limited to the lifespan of the Proposed Development and the change would be reversed when the Proposed Development is decommissioned)	Permanent (but limited to the lifespan of the Proposed Development)	Negligible	Negative	Minor negative impact

Operational wind farm phase	The time depth of Brú na Bóinne from the Neolithic to late medieval periods	Full visibility of proposed turbine hubs and partial visibility of proposed turbine blades and towers	Continuous	Long term	Irreversible but limited to the lifespan of the Proposed Development The action would be reversed after the Proposed Development is decommissioned.	N/A, no change to attribute predicted	N/A, no change to attribute predicted	None	No change predicted	Neutral
Operational wind farm phase	The finest expression of passage graves in prehistoric Europe	Full visibility of proposed turbine hubs and partial visibility of proposed turbine blades and towers	Continuous	Long term	Irreversible but limited to the lifespan of the Proposed Development The action would be reversed after the Proposed Development is decommissioned.	N/A, no change to attribute predicted	N/A, no change to attribute predicted	None	No change predicted	Neutral
Operational wind farm phase	Largest and most important expression of prehistoric megalithic plastic art in Europe	Full visibility of proposed turbine hubs and partial visibility of proposed turbine blades and towers	Continuous	Long term	Irreversible but limited to the lifespan of the Proposed Development The action would be reversed after the Proposed Development is decommissioned.	N/A, no change to attribute predicted	N/A, no change to attribute predicted	None	No change predicted	Neutral
Operational wind farm phase	The design of the passage graves in relation to the skies and astronomy	Full visibility of proposed turbine hubs and partial visibility of proposed turbine blades and towers	Continuous	Long term	Irreversible but limited to the lifespan of the Proposed Development The action would be reversed after the Proposed Development is decommissioned.	N/A, no change to attribute predicted	N/A, no change to attribute predicted	None – the Proposed Development would not interfere with the astronomical alignments of the passage graves.	No change predicted	Neutral
Operational wind farm phase	The three great burial mounds of Knowth, Newgrange and Dowth and the sites surrounding them	Full visibility of proposed turbine hubs and partial visibility of proposed turbine blades and towers	Continuous	Long term	Irreversible but limited to the lifespan of the Proposed Development The action would be reversed after the Proposed Development is decommissioned.	N/A, no change to attribute predicted	N/A, no change to attribute predicted	None	No change predicted	Neutral

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Operational wind farm phase	Knowth group with use spanning from the Neolithic to the late medieval periods, including passage graves, enclosures, occupation sites and field systems	Full visibility of proposed turbine hubs and partial visibility of proposed turbine blades and towers	Continuous	Long term	Irreversible but limited to the lifespan of the Proposed Development The action would be reversed after the Proposed Development is decommissioned.	N/A, no change to attribute predicted	N/A, no change to attribute predicted	None	No change predicted	Neutral
Operational wind farm phase	Newgrange group of prehistoric sites including passage graves, henge, cursus, and stone circle	Full visibility of proposed turbine hubs and partial visibility of proposed turbine blades and towers	Continuous	Long term	Irreversible but limited to the lifespan of the Proposed Development The action would be reversed after the Proposed Development is decommissioned.	N/A, no change to attribute predicted	N/A, no change to attribute predicted	None	No change predicted	Neutral
Operational wind farm phase	Dowth group of prehistoric and Iron Age, early Christian and late medieval sites including the great burial mound, megalithic tombs, many smaller burial mounds, henge, standing stone, and medieval church and tower house	Full visibility of proposed turbine hubs and partial visibility of proposed turbine blades and towers	Continuous	Long term	Irreversible but limited to the lifespan of the Proposed Development The action would be reversed after the Proposed Development is decommissioned.	N/A, no change to attribute predicted	N/A, no change to attribute predicted	None	No change predicted	Neutral
Operational wind farm phase	Other prehistoric, Iron Age, early Christian and medieval sites spread across the landscape	Full visibility of proposed turbine hubs and partial visibility of proposed turbine blades and towers	Continuous	Long term	Irreversible but limited to the lifespan of the Proposed Development The action would be reversed after the Proposed Development is decommissioned.	N/A, no change to attribute predicted	N/A, no change to attribute predicted	None	No change predicted	Neutral

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Operational wind farm phase	Ambiance of the ritual centre	Full visibility of proposed turbine hubs and partial visibility of proposed turbine blades and towers. Presence of turbines within wider setting may distract from wider rural setting of WHP.	Continuous	Long term	Irreversible but limited to the lifespan of the Proposed Development. The action would be reversed after the Proposed Development is decommissioned.	Irreversible (although limited to the lifespan of the Proposed Development and the change would be reversed when the Proposed Development is decommissioned)	Permanent (but limited to the lifespan of the Proposed Development)	Negligible	Negative	Minor negative impact
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10.3 Cumulative Impact Assessment

Combined Impact of Existing Development, 1993 - present

10.3.1 As outlined in Section 4.3 of the Methodology section, it is necessary to understand the extent to which the OUV of the WHP has already been impacted as a result of developments constructed since the inscription of the WHP in 1993. Having established this, conclusions on the impact that the Proposed Development would have when added to this baseline scenario are presented. This section therefore outlines the extent of visibility of each of the post-1993 developments from the viewpoints relevant to this HIA to provide a conclusion on the cumulative impact of this on OUV. The locations of the post-1993 developments are shown on Illus 2 above.

M1 Boyne Bridge (Mary McAleese Boyne Valley Bridge)

10.3.2 The M1 crosses the River Boyne on a 3.7 km span bridge opened in 2003. Elements of the bridge are up to 96 m high and it is illuminated at night. The bridge is located in the wider setting of the WHP, just outside the eastern edge of the Buffer Zone.

10.3.3 The bridge can be seen from three of the viewpoints relevant to this assessment: Hill of Slane (EIAR VP21), Dowth passage grave (EIAR VP22) and Dowth Henge (VP1). The bridge is visible looking east over the WHP at a range of over 9 km from the Hill of Slane (EIAR VP21). The bridge is viewed against the backdrop of Drogheda with the sea visible beyond it. This greatly reduces any prominence it may otherwise have on the horizon. It is not distracting and tends to blend into the overall landscape view. This is further assisted by the relatively small scale of the bridge at this distance and in such an expansive view.

10.3.4 From within the WHP Core Area, the monuments that the bridge is visible from are Dowth passage grave and Dowth Henge. From Dowth passage grave the bridge is currently screened by trees to the north-east, but would theoretically be visible in the winter months or if the trees were felled. The bridge is most prominently visible from Dowth Henge where it appears both in views looking towards the monument on approach from the west, from its south-western entrance and from its western bank. Although located at a distance of approximately 2.5 km, the scale of the bridge and its projection above the ridgeline which backdrops it increases its perceived prominence when viewed from Dowth Henge. This creates a visual distraction from the henge as the intended focal point of views on approach and detracts from the rural, agricultural character of the landscape in which it is located.

Residential Development at Cruicerath/Stalleen, Donore

10.3.5 Between 2000 and 2004 there have been various residential developments in Cruicerath and Stalleen on the edge of Donore village, within the Buffer Zone and roughly 1 km from the southern edge of the WHP Core Area. Donore is sited in a gap in the Redmountain ridge that forms the southern edge of the Buffer Zone.

10.3.6 At least part of these developments can be seen from four of the fifteen protected viewpoints. Housing is visible looking east over the WHP at a range of 8 km from Hill of Slane (EIAR VP21). The development is visible but not prominent or distracting, the result of the relatively small scale of the development at this distance and in such an expansive view.

10.3.7 The housing development is also partially visible from the three principal monuments of the WHP, Knowth (VP2), Newgrange (EIAR VP24) and Dowth (EIAR VP12). Dowth is the closest of the three (c.2 km away) and the view from the top of the mound includes the upper floors of two-story houses and their roofs. From Newgrange (3.5 km) and the top of the mound at Knowth (4.5 km) only roofs are visible and are not visually intrusive. The colour of the grey roof slates allows the development to blend into the surrounding countryside. The housing development is not clearly visible from Dowth Henge due to the presence of mature trees at the south of the monument. The henge's lower topographic positioning compared to Dowth passage grave is also such that the development is likely to be at least partially screened by topography.

Platin Irish Cement Works

- 10.3.8 The Platin Irish Cement Works is located in the wider setting of the WHP, 1.3 km south-east of the Buffer Zone. The works existed at the time of inscription in 1993, including the two tall red and white stacks, but there have been substantial additions to the works since that date. These include an additional third chimney stack (24.2 m) and scrubber, two silos (49.5 m) and most recently a 40 m high cement silo at Kiln 3.
- 10.3.9 The cement works are located on the far side of the Redmountain ridge which forms the south-eastern extent of the Buffer Zone but the higher parts of the complex are visible from four of the viewpoints relevant to this HIA.
- 10.3.10 From Hill of Slane (EIAR VP21) the cement works are prominent on the skyline in the view over the WHP at a range of 11 km, creating a distraction from the view of the WHP. The additional elements, post-inscription, have increased the scale of the works and make them a more conspicuous presence on the horizon.
- 10.3.11 The cement works are also partially visible from the three principal monuments of the WHP, Knowth (VP2), Newgrange (EIAR VP24) and Dowth (EIAR VP12) as well as from Dowth Henge (VP1). Dowth is the closest of the three (c.4.5 km) and the view towards the south-east from the top of the mound is dominated by the works. The works are equally visible from the top of the mound at Knowth but at a range of 7 km.
- 10.3.12 The works appears on the skyline close to Newgrange where it draws the eye and creates a distraction in this important view between the two mounds. From Newgrange, only the highest parts of the cement works show above the ridge to the west of Donore and the level of visual distraction is much less than that experienced at Dowth or Knowth.
- 10.3.13 The works are not currently visible from Dowth Henge (VP1) due to the presence of mature trees at the south of the monument. Given the height of the works, however, it is likely that should these trees be felled that they would be visible, at least from the banks of the henge.
- 10.3.14 In all cases, it appears that the cement works would have already been visible in 1993 but the expansion of the works since that date has tended to increase the prominence and degree of visual distraction.

Indaver Ireland Incinerator, Carranstown, Duleek

- 10.3.15 The incinerator at Carranstown is located in the wider setting of the WHP, c. 1.5 km south-east of the buffer zone close to the Platin Irish Cement Works. Like the cement works it is beyond the Redmountain ridge so only the one tall element of the facility (a 65 m stack) is visible from the WHP. However, as it is located further west than the cement works, this stack can only be seen from Dowth passage grave (EIAR VP12). Redmountain (c.90 m higher than the site of the incinerator) obstructs any views from Newgrange, Knowth and the Hill of Slane.
- 10.3.16 From the top of the mound at Dowth, most of the stack can be seen at a range of 4.5 km, immediately adjacent to the tall elements of the cement works, adding to the visual distraction in this view towards the south-east.

Residential development at Ledwidge Hall, Slane

- 10.3.17 This housing estate, built in 2007 on the eastern edge of Slane, is located in the wider setting of the WHP, 800 m from the Hill of Slane and 1.8 km from the western edge of the Buffer Zone.
- 10.3.18 The estate is visible from two of the viewpoints relevant to this HIA, Hill of Slane (EIAR VP21) and Cullen Hill (Meath CDP VP34). From the southern edge of the graveyard on the Hill of Slane, this development is a prominent feature in the foreground of the view out over the World Heritage Property, distracting by virtue of its proximity and the white painted facades of the houses in an area that was formerly fields. The houses are also visible but much less prominent looking north from PV34 where they are experienced as part of Slane village. They have no effect on the actual protected view, which is east facing towards Knowth and Newgrange.

Dunmore / Leaby Cross Wind Turbines, Collon, Co. Louth

- 10.3.19 There are five wind turbines (75-120 m to blade tip) at Dunmore and Leaby Cross, west of Collon in Co. Louth, 7.5 km north of the northern edge of the Buffer Zone which have been operational since at least 2011 according to information available online. From the wider setting of the WHP, they can be seen on the skyline from the

Hill of Slane (EIAR VP21). From within the WHP Core Area they can be seen from Knowth (VP2), Newgrange (EIAR VP24) and Dowth (EIAR VP12) as well as from Dowth Henge (VP1)

- 10.3.20 In all cases where the wind turbines are visible, the slender towers and blades are not visually prominent and can be hard to locate under varying lighting conditions. They are not visually distracting in views across WHP from the Hill of Slane as they do not feature within any direct view of the WHP monuments from this location. Their presence does detract from the wider rural, agricultural landscape character of the WHP, however, their lack of prominence is such that this impact is rather less than more legible developments.

Cumulative impact on OUV

- 10.3.21 Six of the viewpoints relevant to this HIA have visibility of at least one of the post-1993 development. Only one (EIAR VP21 on the Hill of Slane) has views to all six. This reflects the fact that the Hill of Slane provides an exceptionally open and elevated viewpoint and is also close to the Ledwidge Hall residential development, which is invisible from all but one of the other viewpoints.
- 10.3.22 The other viewpoints from which the existing developments considered in the cumulative assessment tend to be visible are the three main passage graves (Knowth, Newgrange and Dowth) and Dowth Henge which all occupy relatively elevated positions within the Core Area of the WHP.
- 10.3.23 Turning to the potential for the six developments to affect OUV, in all cases there is at least some impact caused by these developments through adversely impacting the rural, agricultural landscape character of the WHP's wider setting. Beyond this, however, it is concluded the Dunmore / Leaby Cross Wind Turbines have no further impact on OUV. Although visible, the turbines are not considered to be visually distracting and do not materially detract from the experience of the WHP.
- 10.3.24 A combination of the post-1993 extensions to the Platin Irish Cement Works, Carranstown Incinerator stack and housing in Donore form a particularly prominent cluster of modern development in the view looking south-east from Dowth (PV88) which materially detracts from the rural agricultural character of the landscape setting of the WHP at this location. It is important to note again that the cement works was operational pre-1993 and therefore parts of it featured as a detracting element in the setting of the WHP from the outset. This must be excluded from the cumulative assessment as it formed part of the baseline conditions under which the WHP was inscribed.
- 10.3.25 A combination of the cement works and Donore housing also adversely affects views out from Newgrange, Knowth and the Hill of Slane, albeit to a lesser degree than at Dowth. As the main publicly accessible monuments in the WHP, Dowth, Newgrange and Knowth are considered to be locations particularly sensitive to change in the rural character of their settings.
- 10.3.26 The M1 Boyne Bridge detracts from the rural, agricultural character of the WHP when viewed from Dowth Henge (VP1) and presents a degree of visual distraction away from the monument as a prominent ritual site in views looking towards and from the monument.
- 10.3.27 The Ledwidge Hall housing at Slane has introduced a prominent area of housing into what is otherwise a rural landscape view with the remainder of Slane village hidden by the landform in outward views from the Hill of Slane (EIAR VP21).
- 10.3.28 Overall, it is concluded that cumulatively there has been **some degree of change** to two attributes of the WHP which express OUV resulting in a **moderate negative impact** on OUV as a result of the combined impact of the six major post-1993 developments in the wider setting of the WHP. The two attributes of the WHP which convey OUV that have been impacted are the "Views into and out of the property" and "Ambiance of the ritual centre." These are the same attributes which would be impacted by the Proposed Development in isolation.
- 10.3.29 This impact is primarily due to the major developments at Platin / Carranstown / Donore and the M1 Boyne Bridge, all of which adversely affect the rural character of the WHP's wider setting as experienced from Knowth, Newgrange, Dowth, Dowth Henge and the Hill of Slane. In the case of the M1 Boyne Bridge, this development visually distracts away from Dowth Henge as a prominent prehistoric ritual monument.

Combined Impact of Existing Development, 1993 - present plus the Proposed Development

- 10.3.30 Having reached a conclusion regarding the cumulative impact of the post-1993 developments on OUV, it is now necessary to consider the predicted cumulative impact if the Proposed Development was added to these existing major developments within the setting of the WHP.
- 10.3.31 The impacts identified for the Proposed Development primarily relate to visibility of the proposed turbines in outward views from Knowth, Newgrange, Dowth and Dowth Henge and the resultant impact on the rural, agricultural landscape which forms the wider setting of the WHP and contributes to its ambience. In addition, the proposed turbines have the potential to visually compete with Knowth in views towards it from Meath CDP VP93b and Meath CDP VP34. The proposed turbines also have the potential to visually compete with Dowth Henge in views towards it and distract from the henge interior as an enclosed space within which ritual activity took place.
- 10.3.32 This has been assessed as an overall **negligible degree of change** to two attributes of the WHP resulting in a **minor negative impact on OUV** as whole as a result of the Proposed Development in isolation.
- 10.3.33 Of the existing developments considered to have already had a material impact on OUV, only the M1 Bridge would be visible in broadly the same field of view as the Proposed Development and this would only be the case at Dowth Henge from where the bridge is most visible. Here, the proposed turbines and the M1 Bridge combined would further detract from the rural, agricultural landscape character of the WHP's wider setting and would visually compete with the henge on approach to it. The cumulative impact of the Proposed Development in combination with other existing developments would therefore be most pronounced at Dowth Henge.
- 10.3.34 In all other cases, the proposed turbines would not feature in combination with or within the same field of view as any of the other existing post-1993 developments either in outward views from the WHP monuments themselves or in views towards them.
- 10.3.35 It should, however, be noted that the Proposed Development would occupy a comparatively limited extent of the WHP's wider setting. The Proposed Development would in combination with the post-1993 developments, further detract from the rural, agricultural character of the WHP's wider setting. The physical extent of the Proposed Development and these post-1993 developments would not, however, be so extensive as to fundamentally remove the ability of a visitor to perceive this wider setting as one which is rural and agricultural, nor would they prevent a visitor from experiencing this landscape as a suitable proxy for the conditions within which the WHP monuments functioned in prehistory.
- 10.3.36 It is concluded that there would be a material incremental addition to the cumulative impact on OUV as a result of the Proposed Development. This is considered to result in **some degree of change** to two attributes of the WHP ("Views into and out of the property" and "Ambiance of the ritual centre") resulting in a **moderate negative impact**.
- 10.3.37 It is considered that a significant amount of this impact is a result of the existing post-1993 developments. It is acknowledged that this conclusion is the same as that reached for the post-1993 developments by themselves; however, whilst acknowledging that there would be an increase in cumulative impact, the addition of the Proposed Development to these developments is not considered sufficient to increase the predicted degree of change from 'some' to 'large' (using the terminology for categories of impact used on page 6 of the 2022 UNESCO guidance and outlined in paragraph 4.1.15). It is considered that the landscape would absorb the Proposed Development with no significantly increased cumulative impact.

Combined impact of development from 1993, the Proposed Development and future proposed developments

- 10.3.38 Having reached a conclusion regarding the cumulative impact of the post-1993 developments and the Proposed Development on OUV, it is now necessary to consider the predicted cumulative impact if future developments were added within the setting of the WHP.
- 10.3.39 As outlined in paragraph 4.3.13, there is only one future cumulative scheme identified in the EIAR which has been consented but does not yet form part of the baseline environment: WuXi Biologics, a single turbine development located approximately 19 km north of the Proposed Development. This scheme would not be

visible in any of the views from or towards the WHP and has therefore not been considered as part of this cumulative assessment.

10.3.40 In addition to the future cumulative scheme considered in the EIAR, there is one major development within the wider setting of the WHP which has the potential to materially increase cumulative impact: the proposed N2 Slane Bypass.

10.3.41 The proposed N2 Slane Bypass is shown on Illus 2. The proposed scheme would comprise the following elements:

- Approximately 3.5 km of mainline N2 bypass Type 2 dual carriageway;
- Approximately 1.4 km of realigned N51 National Road;
- Reconfiguration of The Square junction in Slane, including removal of traffic light control;
- Public Realm improvement and traffic management measures in Slane village;
- Approximately 2.7 km of accommodation works and maintenance access tracks;
- 3 at-grade roundabouts at N2 South, N51 and N2 North;
- 1 major bridge crossing of River Boyne;
- 1 new road overbridge to allow the proposed N2 to pass under Rosnaree Road;
- 2 farm accommodation overbridges;
- 3 No. new culverts on the Mattock (Mooretown) Stream1 and removal of existing culvert under existing N2;
- Provision of shared footway/cycleway facilities, including a pedestrian/cyclist bridge to the existing Boyne Canal towpath;
- Utility diversions;
- Drainage system, including attenuated outfalls; and
- Landscaping and environmental mitigation measures.

10.3.42 A HIA carried out by Headland Archaeology (2023) to support the planning application for the N2 Slane Bypass identified that five elements of the scheme would be visible from two of the VPs relevant to this HIA as presented in Table 3. These elements are shown on Illus 2 above.

Table 4. Elements of N2 Slane Bypass visible from viewpoints relevant to this HIA

	Mainline South of Proposed Boyne Bridge	Proposed Boyne Bridge	N51 alignment re-	Mainline between N51 and North Roundabout	North Roundabout
EIAR VP21 (Hill of Slane)	Y	x	Y	Y	Y
VP2 (Knowth)	Y	Y	x	x	Y

10.3.43 The 2023 N2 Slane Bypass HIA states:

"The cutting for the mainline south of the Boyne Bridge would be partially visible from Knowth...in Year 1 of the scheme but entirely screened by Year 10. It would also be seen in the periphery of views towards the WHP from the Hill of Slane...in Year 1 and Year 10.

The south end of the Boyne Bridge would be visible from Knowth...in Year 1 and Year 10...

The mainline between the Boyne Bridge and the N51 would be visible in the periphery of views looking east towards Knowth...in Year 1 and Year 10.

The re-aligned section of N51 east of the roundabout would be partially visible from the Hill of Slane.

The mainline north of the N51 and the north roundabout would be partially visible from the Hill of Slane... in Year 1, with the north roundabout in the periphery of views towards the World Heritage Property. All of these road elements and most vehicles would be entirely screened by Year 10."

- 10.3.44 No elements of the proposed Slane Bypass would have the same degree of visual prominence as the Proposed Development or, of the post-1993 developments, the Platin Irish Cement Works or the M1 Bridge. Whilst the N2 Slane Bypass would to a limited extent detract from the rural, agricultural landscape character of the WHP's wider setting, this would be experienced from within only two areas from where the Proposed Development would also be visible. It is considered that the N2 Slane Bypass in addition to the Proposed Development and the post-1993 developments would lead to only a very small incremental addition to the cumulative impact on OUV.
- 10.3.45 This is considered to result in **some degree of change** to two attributes of the WHP ("Views into and out of the property" and "Ambiance of the ritual centre") resulting in a **moderate negative impact**. This is not considered to result in a materially higher impact than that concluded cumulatively for the Proposed Development and the post-1993 developments.

11. Summary and Conclusions

- 11.1.1. This report presents the results of a heritage impact assessment of the predicted impact of the proposed Kellystown Wind Farm on the OUV of the Brú na Bóinne World Heritage Property.
- 11.1.2. The Proposed Development would lie within the wider setting of the WHP. Operation of the Proposed Development would change this wider setting and this could affect the OUV of the WHP. Change to this setting would not automatically affect OUV as this depends on the nature of the proposed changes and the ways in which part of the WHP's wider setting which would undergo change supports OUV.
- 11.1.3. This HIA has therefore analysed how the wider setting of the WHP currently supports OUV and has encapsulated this in a Statement of Significance in Section 7. The HIA has assessed the extent to which the construction and operation of the Proposed Development would impact this wider setting, and thus as a result could potentially impact OUV.

Mitigation of Predicted Negative Impacts on OUV

- 11.1.4. Three of the originally proposed eight turbines were removed during the design evolution, reducing the potential for negative impacts on OUV. The design changes made has reduced the lateral spread of turbines in views from the WHP and in views towards it from the viewpoints used to inform this HIA. This has mitigated the impact of the Proposed Development on the rural character of the WHP's wider setting and its impact on the WHP's OUV. The reduction in turbine numbers has reduced the Proposed Development's overall visual prominence and thus mitigated the potential for visual distraction away from the WHP in views from and towards it.

Assessment of Predicted Impacts on OUV

- 11.1.5. Assessment of the predicted impact of the Proposed Development is presented in Section 10 of this HIA. Separate conclusions are reached regarding construction-phase impacts, operational impacts and cumulative impacts.
- 11.1.6. *Construction-phase impacts:* the construction works for the Proposed Development would be visible from within the wider setting of the WHP and in views towards it from viewpoints that support OUV. Any changes in the visual or noise environment due to these works would result in an impact of no higher than minor significance, would be of short-duration and entirely reversed at the end of construction works. As a result of their temporary nature, it is concluded that they would not have any long-term or permanent adverse effect on the wider setting of the WHP and therefore no impact on OUV.
- 11.1.7. *Operational impacts:* The assessment of predicted operational impacts has considered the aspects of OUV that are supported by elements of the wider setting of the WHP.
- 11.1.8. It is concluded that the operation of the Proposed Development in isolation would to a limited extent adversely affect the rural, agricultural character of the WHP's wider landscape which provides a suitable setting for experience of the WHP OUV. This largely undeveloped landscape may be seen as a suitable proxy for the landscape that existed in prehistory. Experience of the monuments in this agricultural, rural setting supports the OUV of the property by contributing to its ambience. The proposed turbines may also visually compete with Knowth in views looking towards this monument and also in views towards and from Dowth Henge.
- 11.1.9. It is concluded that in isolation the Proposed Development would result in a **negligible degree of change** to two attributes of the WHP as presented in the SOUV ("Views into and out of the property" and "Ambience of the ritual centre") resulting in a **minor negative impact** on OUV. All other attributes of the WHP that convey OUV as presented in Table 2 of this HIA would remain unaffected.
- 11.1.10. *Cumulative impacts:* The starting point for assessing the potential for cumulative impacts on the OUV of the WHP has been to determine the cumulative impact of the post-1993 developments on OUV. It is concluded that the post-1993 developments would result in **some degree of change** to two attributes of

the WHP as presented in the SOUV (“Views into and out of the property” and “Ambiance of the ritual centre”) resulting in a **moderate negative impact** on OUV.

- 11.1.11. It is considered that the addition of the Proposed Development to the post-1993 developments would materially increase the cumulative impact on OUV. On balance, however, taking into account all other elements of OUV that would remain unaffected, it is concluded that the assessment of the impact of the post-1993 developments of **some degree of change** to two attributes of the WHP as presented in the SOUV (“Views into and out of the property” and “Ambiance of the ritual centre”) resulting in a **moderate negative impact** on OUV remains an appropriate conclusion in relation to this cumulative assessment. It is concluded that a significant amount of the cumulative impact derives from the post-1993 developments.
- 11.1.12. In terms of cumulative impacts of the post-1993 developments, the Proposed Development, and the proposed N2 Slane Bypass, it is considered the proposed N2 Slane Bypass would result in only a very small incremental increase to the cumulative impact on OUV. It is concluded that cumulatively, the post-1993 developments, the Proposed Development and the proposed N2 Slane Bypass would result in **some degree of change** to two attributes of the WHP as presented in the SOUV (“Views into and out of the property” and “Ambiance of the ritual centre”) resulting in a cumulative **moderate negative impact** on OUV.

Acceptability of the Proposed Development

UNESCO Guidance

- 11.1.13. UNESCO guidance (2022) on the assessment of impacts on OUV gives the following advice regarding the acceptability of proposed actions:
- ‘The evaluation should result in a clear conclusion about whether the likely impacts of a proposed action on OUV overall are acceptable or not. If the proposed action would have negative impacts on OUV, the report should give one of three conclusions:*
- *The negative impact would be negligible and raises no concerns*
 - *The negative impact would be significant, but with avoidance and mitigation measures it could be eliminated or minimized to an acceptable level*
 - *The negative impact would be significant and could not be avoided or mitigated, so the proposed action should not proceed.’ (UNESCO 2022, s.6.9, page 44)*
- 11.1.14. Section 6.8 of the UNESCO guidance states:
- “Impact evaluation determines whether the predicted impacts of the proposed action are significant or not on the basis of the characteristics of the predicted impacts... Significant negative impacts on the wider heritage will generally be unacceptable, and on a World Heritage property’s OUV they will always be unacceptable.”*
- 11.1.15. This HIA has concluded that operation of the Proposed Development in isolation would result in a **minor negative impact** (caused through a negligible degree of negative change to two attributes of the WHP) on the OUV of the WHP. In isolation, it is considered that whilst the Proposed Development would not, using UNECO’s terminology ‘raise no concerns’, the negative impact would be **negligible** and would not significantly impact OUV.
- 11.1.16. On this basis, using the terminology presented in section 6.8 of UNESCO’s 2022 guidance the Proposed Development in isolation would not result in a significant negative impact and is therefore acceptable. Cumulatively, **moderate negative impacts** are predicted though it is concluded that much of this impact is caused through the existing post-1993 developments. The Proposed Development would to a limited extent increase the cumulative impact on OUV when added to the post-1993 developments.
- 11.1.17. On this basis, it is considered that the Proposed Development would not significantly increase the baseline of cumulative moderate negative impacts from existing developments. It is also concluded that the

proposed N2 Slane Bypass would not, in combination with the Proposed Development, significantly increase the cumulative moderate negative impacts from existing developments.

11.1.18. Cumulatively, it is therefore concluded that whilst the Proposed Development would not, using UNECO's terminology 'raise no concerns', the predicted increase in cumulative negative impact would be **negligible** and would not significantly impact OUV. On this basis, using the terminology presented in section 6.8 of UNESCO's 2022 guidance, it is concluded that the Proposed Development would not result in significant negative cumulative impacts on OUV and is therefore acceptable⁴.

11.1.19. It is considered that the mitigation measures introduced at the design and siting stage have minimised negative impacts on OUV to an acceptable level.

Louth County Development Plan

11.1.20. The Louth Development Plan contains the following policy objectives relevant to the WHP:

Policy Objective BHC 15

To ensure no development which might have significant deleterious impacts upon the character of the World Heritage Site is permitted.

Policy Objective BHC 16

To protect the northern ridgeline (Chapter 13, Map 13.1) which frames the views within and from the World Heritage Site of Brú na Bóinne from visually intrusive and inappropriate development, subject to the Development Management Assessment Criteria detailed in Chapter 13 [of the CDP] and using view-shed analysis as a tool to guide and inform development management.

11.1.21. In the context of Policy Objective BHC 15, it is considered that whilst the proposed turbines would have a limited impact upon the wider setting of the WHP (which forms part of its character) this would not constitute a "significant deleterious impact".

11.1.22. In the context of Policy Objective BHC 16, it is considered that whilst the proposed turbines would result in visual change to the northern ridgeline, which forms part of the WHP's wider setting, this would not be so visually intrusive as to materially prevent a visitor from understanding the role this ridgeline plays as part of the WHP's wider setting. Taking into account the overall small area of the northern ridgeline within which the proposed turbines would be visible, it is considered that the Proposed Development would not constitute a visually intrusive development. Whilst there would be a negligible negative impact on views towards the northern ridgeline from the WHP, it is considered this would not be significant enough for the Proposed Development to be considered as "inappropriate".

11.1.23. Whilst not directly relevant to this HIA, Policy Objective BHC 14 was referred to by Louth County Council in their Request for Information and is considered here. This policy aim is:

"To work in partnership with Meath County Council, relevant agencies and the public to promote, understand, conserve and sustainably manage the UNESCO World Heritage Site of Brú na Bóinne to maintain its Outstanding Universal Value (OUV).

11.1.24. The Proposed Development would not materially prevent the WHP from being promoted, understood, conserved or managed and would not significantly impact its OUV.

Louth County Development Plan

11.1.25. The Louth County Development Plan contains the following policies relevant to the WHP:

HER POL 6

⁴ This HIA has been carried out on the basis of the maximum turbine parameters as outlined in paragraph 1.5 of Chapter 1 of the EIAR i.e tip heights of 180 m, rotor diameter of 163 m and hub heights of 105 m. The relatively limited range of turbine dimensions presented in paragraph 1.5 of Chapter 1 are such that the conclusions presented here would apply regardless of which dimensions were ultimately used.

To protect the Outstanding Universal Value of the UNESCO World Heritage Site of Brú na Bóinne in accordance with the relevant guidelines and national legislation, so that its integrity, authenticity and significance are not adversely affected by inappropriate development or change.

HER OBJ 11

To protect the ridgelines which frame views within and from the UNESCO World Heritage Site of Brú na Bóinne from inappropriate or visually intrusive development.

- 11.1.26. In the context of HER POL 6, it is considered that the Proposed Development would not result in a significant adverse impact on the OUV of the WHP and its integrity, authenticity and significance would be retained. Whilst the proposed turbines would result in visual change to the northern ridgeline, which forms part of the WHP's wider setting, this would not be so visually intrusive as to materially prevent a visitor from understanding the role this ridgeline plays as part of the WHP's wider setting. Taking into account the overall small area of the northern ridgeline within which the proposed turbines would be visible, it is considered that the Proposed Development would not constitute a visually intrusive development. Whilst there would be a negligible negative impact on views towards the northern ridgeline from the WHP, it is considered this would not be significant enough for the Proposed Development to be considered as "inappropriate".
- 11.1.27. In the context of HER OBJ 11 it is considered that whilst the proposed turbines would result in visual change to the northern ridgeline (which is only one of the ridgelines which frame views within and from the WHP), this would not be so visually intrusive as to materially prevent a visitor from understanding the role this ridgeline plays as part of the WHP's wider setting. Views of the ridgeline to the south-east of the WHP, which forms part of its wider setting, would remain unaltered.
- 11.1.28. It is therefore considered that the Proposed Development would not be contrary to policies to the WHP outlined in the Meath and Louth County Development Plans. This conclusion applies regardless of which turbine dimensions (as presented in paragraph 1.5 of Chapter 1 of the EIAR) are ultimately used for the proposed turbines.

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RECEIVED: 07/08/2025

Annexe 1 – Brú na Bóinne Statement of Outstanding Universal Value

Brief synthesis

Bounded on the south by a bend in the River Boyne, the prehistoric site of Brú na Bóinne is dominated by the three great burial mounds of Knowth, Newgrange and Dowth. Surrounded by about forty satellite passage graves, they constitute a funerary landscape recognised as having great ritual significance, subsequently attracting later monuments of the Iron Age, early Christian and medieval periods.

Located about 40 km north of Dublin on a ridge between the rivers Boyne and Mattock, within several kilometres of other prehistoric mounds, the site is part of an area rich in stories of Ireland's ancient past. Predominantly agricultural at the present time the area has been extensively explored for more than a hundred years by archaeologists and historians, with excavations revealing many features.

The Knowth group, where the earliest features date from the Neolithic period and the latest from the Anglo-Norman period, has produced thirty monuments and sites that figure on the official inventory; these include passage graves adorned with petroglyphs, enclosures, occupation sites and field systems. The Newgrange group is purely prehistoric, with a ringfort, cursus, passage graves and a henge. The Dowth group is similar to that at Newgrange but there is medieval evidence in the form of a church and a castle.

Criterion (i): The Brú na Bóinne monuments represent the largest and most important expression of prehistoric megalithic plastic art in Europe.

Criterion (iii): The concentration of social, economic and funerary monuments at this important ritual centre and the long continuity from prehistory to the late medieval period make this one of the most significant archaeological sites in Europe.

Criterion (iv): The passage grave, here brought to its finest expression, was a feature of outstanding importance in prehistoric Europe and beyond.

Integrity

The 780 ha area of the World Heritage property Brú na Bóinne encapsulates the attributes for which the property was inscribed on the World Heritage List. In addition to the large passage tombs of Knowth, Newgrange and Dowth, 90 recorded monuments – as well as an unknown quantity of as yet unrecorded sites – remain scattered across the ridge above the Boyne and over the low-lying areas and floodplain closer to (the present course of) the rivers.

The buffer zone is comprised of 2,500 hectares, the boundary lines respecting carefully mapped views into and out of the property. Since inscription in 1993, views out of the property have been impacted by the M1 bridge crossing the River Boyne to the east of the property; the addition of a third chimney and other structures to the cement factory on the skyline to the east south-east near Duleek; the addition of an incinerator stack to the skyline at Carranstown and a housing development. The ambiance of the ritual centre is vulnerable to such disturbances which could potentially threaten the integrity of the property. The local authority (Meath County Council) has in place planning policies and procedures to deal with applications for developments which may either incrementally or individually have potential impact on the integrity of the World Heritage property.

Authenticity

The archaeological remains on the site, both above and below ground are wholly authentic.

Major excavations have been carried out at Newgrange and Knowth and have been fully published. Many small excavations and surveys have been carried out in the area. The main conservation works have concentrated on the two main passage tombs at Newgrange and Knowth subsequent to the excavations undertaken at these sites. All conservation and restoration work has been carried out by skilled professional staff.

At Newgrange, there has been comprehensive anastylosis of the kerbstones and the revetment wall, though the latter has been curtailed to allow access by visitors. The passage roof was completely dismantled to allow the orthostats to be returned to the vertical, with the introduction of reinforcement, and a cowl has been constructed over the chamber area. The cairn itself has been stabilised by means of thin revetments of cairn stones.

At Knowth, structures from all periods are being conserved. In some passage tombs outer support walls have been built for the burial chambers, involving the use of modern materials such as cement and plastic. Where such new additions are visible they are clearly distinguished in appearance from original materials, but in other cases they are completely concealed.

The restoration work on these monuments, the result of close collaboration between archaeologists and conservation architects, conforms with the principles enunciated in Article 7 of the International Charter for Archaeological Heritage Management of 1990.

Protection and management requirements

The protection and conservation of Brú na Bóinne is provided by a range of national legislation, international guidelines, statutory and non-statutory guidance. These provisions include the National Monuments Acts of 1930-2004, the Wildlife Acts of 1976 and 2000, the Planning and Development Acts, various EU Directives and international charters. The national monuments legislative code makes provision for the protection and preservation of national monuments and for the preservation of archaeological objects in the State. The Planning and Development Acts provide a framework to protect against undesirable development.

Most of the 780 hectare site is in private ownership. At the time of inscription only 32 hectares, largely around Knowth and Newgrange, were in State ownership (in 2011, 42.75 hectares are in State ownership). The State-owned part of the property has been under the direct management of the Office of Public Works. This State Office uses its professional staff of conservation architects, engineers, land managers and craftsmen in the day to day management activities. Archaeological input to the conservation and presentation of the property is provided by the National Monuments Service of the Department of Arts, Heritage and the Gaeltacht. The State Exchequer provides the funding needed for maintenance, management and conservation.

The local authority development plan (Meath County Development Plan) for the area in which Brú na Bóinne is situated seeks to protect the archaeological and cultural landscape and to enhance views within and adjacent to the World Heritage property. The protection of views within and out of the property is a major factor contributing to retention of the property's integrity.

The Brú na Bóinne Visitor Centre opened to the public in June 1997. Its primary purpose is to manage the flow of visitors to the megalithic tombs of Newgrange and Knowth. Education, public awareness and an emphasis on local engagement are also central to the role of the Centre. The number of visitors to these monuments each day is limited to the maximum that can be accommodated with due regard to the protection of the monuments. Access to the monuments is by guided tour only.

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Headland Archaeology Scotland
13 Jane Street
Edinburgh EH6 5HE
t 0131 467 7705
e scotland@headlandarchaeology.com

Headland Archaeology Yorkshire & North
Units 23–25 & 15 | Acorn Business Centre | Balme
Road Cleckheaton BD19 4EZ
t 0127 493 8019
e yorkshireandnorth@headlandarchaeology.com

Headland Archaeology South & East Building
68C | Wrest Park | Silsoe Bedfordshire MK45
4HS
t 01525 861 578
e southandeast@headlandarchaeology.com

Headland Archaeology Midlands & West
Unit 1 | Clearview Court | Twyford Rd
Hereford HR2 6JR
t 01432 364 901
e midlandsandwest@headlandarchaeology.com

Headland Archaeology North West
Fourways House | 57 Hilton Street
Manchester M1 2EJ
t 0161 236 2757
e northwestern@headlandarchaeology.com

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