Planning and Environmental Consultants

Response to Observations Received

Coole Wind Farm (ABP-309770-21

DOCUMENT DETAILS

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1. INTRODUCTION

MKO have been instructed by the applicant, Coole Wind Farm Limited of Unit C, Building 4200, Cork Airport Business Park, Cork to prepare a response to the request issued by An Bord Pleanála (the Board) on the 24th March 2023 in respect of the live Strategic Infrastructure Development (SID) planning application before them for consideration (ref: ABP-309770-21) in relation to the proposal for a wind farm development located in the townlands of Coole and others in County Westmeath. The Board did not request responses to specific submissions made to the planning application; rather they invited the applicant to make a submission on the observations received to the application.

As such, this submission sets out the applicant's response to the observations received from statutory consultees followed by thematic responses to observations received from third parties.

This submission is therefore structured as follows:

- Section 1 – Introduction and background to the Proposed Development
- Section 2 – Response to Observations: Statutory Bodies and Third Parties
- Section 3 – Summary and Conclusions

1.1 Background

The applicant sought planning permission from the Board in 2021 for the following Proposed Development, set out in the public notices as follows:

i. *Up to 15 No. wind turbines with a tip height of up to 175 metres and all associated foundations and hardstanding areas;*
ii. *1 no. onsite electrical substation including a control building, associated electrical plant and equipment, welfare facilities and a wastewater holding tank;*
iii. *1 no. temporary construction compound;*
iv. *Provision of new site access roads, upgrading of existing access roads and hardstand areas;*
v. *Excavation of 1 no. borrow pit;*
vi. *All associated underground electrical and communications cabling connecting the turbines to the proposed onsite substation;*
vii. *Laying of approximately 26km of underground electricity cabling to facilitate the connection to the national grid from the proposed onsite substation located in the townland of Camagh to the existing 110kV Mullingar substation located in the townland of Irishtown;*
viii. *Upgrade works to the existing 110kV Mullingar substation consisting of the construction of an additional dedicated bay to facilitate connection of the cable;*
ix. *Construction of a link road between the R395 and R396 Regional Roads in the townland of Coole to facilitate turbine delivery;*
x. *Junction improvement works to facilitate turbine delivery, at the N4 junction with the L1927 in the townland of Joanstown, on lands along the L1927 in the townland of Culvin, the L1927 and L5828 junction in the townland of Boherquill and the L5828 and R395 junction in the townland of Corralanna;*
xi. *Site Drainage;*
xii. *Forestry Felling;*
xiii. *Signage, and;*
xiv. *All associated site development works.*
xv. *This application is seeking a ten-year planning permission and 30-year operational life from the date of commissioning of the entire wind farm.*

An Environmental Impact Assessment Report (EIAR) and Natura Impact Statement (NIS) were prepared for the project to accompany the planning application.

The planning application was lodged with An Bord Pleanála on the 22nd March 2021 where it was assigned the case reference ABP-309770-21. On the 21st April 2022, An Bord Pleanála issued a request in accordance with Section 37(F)(1) of the Planning and Development Act 2000 (as amended) which sought Further Information on 6 items. A Response to Further Information Request was issued to An Bord Pleanála on the 01/11/2022.

Copies of observations on the Response to Further Information were issued to the applicant on the 8th of March 2023. The Board subsequently requested a submission to observations be made by the 14th of April 2023, however this was extended in agreement with the Board to the 5th of May 2023.

It is the case that the matters raised in observations have been carefully considered by the project team and applicant. The documentation submitted to date demonstrates that the Proposed Development is appropriately located and designed. This submission and information provided in the accompanying appendices necessary to satisfactorily address the maters raised in the observations received, build on the information lodged to date and should be read in conjunction with the information previously lodged.

2. RESPONSE TO ITEMS RAISED

The planning application lodged included a robust Environmental Impact Assessment Report (EIAR), Natura Impact Statement (NIS) and suite of technical drawings in support of the Proposed Development. In addition, A comprehensive response was provided to An Bord Pleanála regarding the Further Information request. Where necessary, additional clarification has been provided here in response to observations made on the planning application.

This section comments firstly on observations from statutory bodies, and then common themes prevailing in observations received from third parties.

2.1 Statutory Bodies

2.1.1 Transport Infrastructure Ireland

Impacts on National Road Network

Transport Infrastructure Ireland (TII) has identified implications for TII and road authorities in the management and maintenance of the strategic national road network resulting from the laying of high voltage electricity cabling.

TII outlined their opinion in their observation on the Response to Further Information (RFI) that matters impacting the future maintenance and improvement of the existing N4, national primary road, as well as providing for the National Development Plan (NDP) Investment Objective N4 Mullingar to Longford Scheme, remain relevant and largely unaddressed.

Comment: High voltage underground grid connections are a common method of constructing grid network infrastructure in Ireland, and for connecting renewable energy power generation and other infrastructure to the power network. It is common practice for underground services and utilities to be laid underground within roads and along public road corridors. It would be common for road engineering projects to have to address technical and programme challenges associated with the presence of underground utilities within a roadway, when planning or carrying out maintenance or upgrade works.

Coole Wind Farm Ltd. will be available to engage with TII as required on such matters.

In response to TII's concern, the applicant recognises concerns regarding the management and maintenance of the strategic national road network resulting from the laying of high voltage electricity cabling. It is considered that these concerns do not warrant a refusal of planning permission for the Proposed Development as it is a common approach to install high voltage electricity cables on strategic paths throughout the country. This aligns with the preferred approach, as outlined in the Wind Energy Guidelines 2006 which sets out that underground grid connections for wind energy projects are considered the most appropriate environmental and/or engineering solution (e.g. default approach), particularly in sensitive landscapes.

Chapter 14 of the EIAR provided an assessment of the effects on traffic and transport of the traffic movements that will be generated during the construction, operational and decommissioning phases of the Proposed Development. This included a detailed assessment of the Grid Connection Route including: receiving environment, existing traffic volumes on the route, traffic volumes that will be generated during cable construction (including the upgrade required to the existing substation in Mullingar), proposed methods of traffic management together with an estimate of the likely and significant impacts of the cable route construction. All relevant TII guidelines and policies were taken into account in the preparation of the assessment, including;

- PE-PDV-02045, Transport Assessment Guidelines, Transport Infrastructure Ireland, May 2014
- PE-PAG-02017, Project Appraisal Guidelines, Unit 5.3, Travel Demand Projections, Transport Infrastructure Ireland, May 2019
- DN-GEO-03060, Geometric Design of junctions, Transport Infrastructure Ireland, April 2017

The specifications for cables and cable installation and future maintenance will be in accordance with Eirgrid/ESB requirements as detailed in the Construction and Environmental Management Plan, provided at Appendix 4-8 of the EIAR.

The applicant will be required to obtain a road opening license which will involve verifying the trench construction detail with further ground investigation which will provide Westmeath County Council roads department with complete surety that the technical specification of all in-road works meets all requirements and standards prior to the commencement of development. The applicant will also be required to pay a bond and charges as part of the road opening license to safeguard the condition of the road post construction. The bond is usually retained for a period of 2 years post construction at which stage potential defects are usually visible.

The Boards attention is drawn to case ABP 304056-19 for a grid connection from a consented wind farm in Co Offaly, refused by Offaly County Council on grounds of risk of differential settlement on the N62. The Board Order concluded that the potential for adverse impacts on the N62 arising from differential settlement could be addressed through the agreement of the detailed construction and reinstatement methodology following a programme of pre-construction site investigations between the developer and the planning authority which could be satisfactorily addressed by condition. This is the approach outlined here in the case of the Coole Wind Farm and Grid Connection planning application.

The Board's attention is further drawn to ABP 311157-21 for a grid connection from a consented wind farm in Co. Mayo, refused by Mayo County Council on grounds of negative impact on the structural integrity of the N59. The Board concluded that the proposed development *"would not have an unacceptable impact on the road network of the area"* and imposed a condition requiring all works impacting national roads structures to be carried out in compliance with TII Publications (Standards) and for details for the construction and reinstatement works on the National and local road network to be submitted and agreed in writing with the Planning Authority prior to the commencement of development. Furthermore, the Board imposed a condition that prior to the commencement of development, the developer shall lodge with the planning authority a cash deposit, a bond of an insurance company, or other security to secure the reinstatement of the national road. Again, this mirrors the approach being taken here by the applicant in the case of the proposed Coole Wind Farm and Grid Connection.

In summary, it is considered that potential impacts for TII and the road authority in managing and maintaining the national road network due to the installation of high voltage electricity cabling can be resolved through appropriate conditions, ensuring that any concerns can be adequately addressed, prior to commencement of development. In the event that planning permission is granted, the applicant is agreeable to accepting similar wording of conditions imposed by the Board for the Proposed Development.

N4 Mullingar to Longford Scheme

As previously outlined in the RFI response, the N4 Mullingar to Longford Scheme is at an early stage with no preferred route yet established. The latest update on the Project Website was in November 2021 which indicated that a preferred route would be selected and published at a third public consultation in early 2022, MKO requested updates on the project in April 2023, but no update was provided. The current status of the preferred route is therefore unknown.

As part of the RFI Response, Ionic Consulting Limited in their TII Submission included as part of Appendix 9 have outlined 2 potential scenarios to examine the impact caused by the presence of the HV cable on future upgrade works to the N4 as follows:

Scenario A: Major Road Resurfacing, no road realignment required - In this scenario, if a full or partial resurfacing is required, no movement of the HV cable would be required. For many road upgrade works involving underground HV cables, the works do not involve movement or removal of the cable/ducting. This is partly due to the depth of burial (approximately 1.2m) and partly due to the material used to construct the cable trench (cement bound granular material [CBGM] around the ducting with graded stone [Cl. 804] within the upper section of the trench).

Scenario B: Major road upgrade involving both vertical and horizontal re-alignment - In this scenario the HV cable is located in the same position as per Scenario A, however the major road upgrade would require a vertical and horizontal re-alignment of the existing road (an online upgrade), this scenario imagines that the cable must move location from the southbound lane to the northbound extended lane. It should also be noted that the road widening is not the only configuration of a road upgrade. However, Scenario B generally holds true for upgrades as the principal will be the same. The methodology of the upgrade for Scenario B is outlined in Section 3.21 of Ionic's RFI Response referenced above.

In their response, TII outlined what they consider to be a number of significant implications for road authorities in the management and maintenance of the strategic national road network resulting from the laying of high voltage electricity cabling in the national road reservation. Please refer to Section 5 of Ionic's FI response at Appendix 9 of the RFI Report for a full response to this item

The applicant's position remains that any refusal on grounds related of impact on the proposed N4 Mullingar to Longford Scheme without a preferred route and a timeline for its implementation or construction is unjustified.

Alternative Grid Route

TII notes that the initial SID application outlined an alternative cable routing proposal, Option B, to the west of Lough Owel which has significantly less interactions with the strategic national road network than the preferred grid route, Option A. TII is of the opinion that Option B represents less implications for the management, maintenance and improvement of the strategic national road network.

Response: Chapter 3 'Alternatives' of the EIAR contains a description of the reasonable alternatives that were considered by the applicant, which are relevant to the Proposed Development and its specific characteristics in terms of site location and other renewable energy technologies as well as site layout incorporating size and scale of the project, connection to the national grid and transport route options to the site. This section also outlines the design considerations in relation to the wind farm, including the associated substation, grid connection, construction compound and borrow pit. It provides an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.

The EIAR and wind farm design process was an iterative process, where findings at each stage of the assessment were used to further refine the design, always with the intention of minimising the potential for environmental impacts. The final development layout was the result of feedback from the various studies and assessments carried out.

An assessment of alternative grid connections was completed as part of the EIAR in Section 3.7. This section also contains comparative environmental effects for each piece of infrastructure. Following this study and ongoing consultation with EirGrid, it was proposed to connect the development to the 110 kV substation at Mullingar via underground cable using route option A. This route is approximately 4.2 kilometres shorter in length and has fewer water crossing points than route option B. This minimises the potential for additional environmental effects. Furthermore, it is considered that the road works associated with the installation of the cable will be easily accommodated along the relevant public road corridors. Full details in relation to the 110kV Grid Route including impacts on the strategic national road network are outlined in the reports provided by Ionic and included at Appendix 9 of the RFI response document.

The proposed grid connection route avoids large urban centres and uses the shortest length of single carriageway roads to minimise road closures and the potential impacts to local residents and traffic. In Summary, the Proposed Grid Connection achieves the following:

- Represents the most environmentally robust route
- Achieves access with minimum need for new roads/tracks
- Minimises green-field works
- Maximises use of existing and permitted infrastructure, where works can be carried out almost entirely within existing (in the case of public road corridors and the Mullingar substation) infrastructure.

A further assessment of the potential environmental effects of the alternative grid connection option compared against the chosen option of the onsite connection was included in Section 3.7 of the EIAR and is included again in Table 1 below for reference:

Table 1 Comparison of environmental effects when compared against the proposed project (Option A: Grid Connection)

Environmental Consideration	Grid Connection Option B
Population & Human Health (incl. Shadow Flicker)	Potential for increased disturbance to road users and occupants of dwellings located along roads, due to works associated with laying underground cabling along a longer grid connection route.
Biodiversity & Ornithology	Increased potential for impacts on roadside habitats. Increased potential for impacts on watercourses at grid connection crossing points.
Land, Soils & Geology	Increased volume of spoil and tar to be excavated due to longer route.
Geotechnical	Neutral
Water	This route requires more watercourse crossings which would increase the potential for silt-laden runoff and hydrocarbons to enter receiving watercourses.
Air & Climate	Potential for increased vehicular and dust emissions associated with grid connection works.
Noise & Vibration	Potential for increased noise and vibration nuisances during construction phase on sensitive receptors (residential dwellings) located along the public road sections of the grid connection route.
Landscape & Visual	Neutral
Cultural Heritage & Archaeology	Increased potential for impacts on features of architectural heritage, for example bridges.
Material Assets	Potential for greater traffic volumes during construction phase due to a longer grid connection route along the public road. Increased potential for impacts on existing underground services and utilities.

To conclude, the Proposed Grid Connection remains the preferred option as it has been comprehensively considered and no alternative options were found to be more suitable, as set out in Chapter 3 'Alternatives'. It is maintained that there is no cause to alter the proposals and no relocation of works are proposed.

2.2 Response to Third Party Submissions

This section deals with non-statutory third-party submissions. Due to large number of third-party submissions, which generally have recurring themes, the responses outlined below are grouped by matter of topic.

2.2.1 Landscape & Visual

2.2.1.1 Overview of RFI Response Appendix 6 and Submissions Pertaining to LVIA

Item 6 of the Request for Further Information for the proposed Coole Wind Farm requested a response in relation to all topics raised in submissions made on the planning application and EIAR for the Proposed Development. Appendix 6 of the RFI response submitted by the applicant responded to submissions made in relation to the topic of landscape and visual impact and the landscape and visual assessments made in the EIAR (Chapter 12). Appendix 6 of the RFI is hereafter referred to in this document as the 'LVIA RFI Appendix'.

The contents of the LVIA RFI Appendix included items relating to the presentation of a turbine range as requested by the board, as well as responding to 3rd party and private submissions. The responses in the LVIA RFI Appendix primarily focussed on key topics which were raised in the submissions relating to landscape and visual effects and the accuracy of photomontages.

This Section responds to submissions made on the RFI response submitted by the applicant, with focus on submissions relating to the contents of the LVIA RFI Appendix as well as the Landscape and Visual Chapter of the EIAR – Chapter 12 (and associated Appendices).

All observations and questions included in submissions relating to landscape and visual and the production of photomontages are addressed in the following Sections:

- Accuracy of the Photomontages Produced;
- Visual Impact Assessment Methods;
- LVIA & Presentation of the Turbine Range

2.2.1.1.1 *Accuracy of Photomontages Produced*

Photomontages were submitted as part of the EIAR in the Volume 2 Photomontage Booklet. This booklet was further updated to include a turbine range as part of the RFI response under Item 6 requested by the board. Contrary to the submissions made, the photomontages are accurately produced and follow best practice guidance for production of photomontage visualisations for wind energy developments. A description of the methodology used to produce the photomontages (including their limitations) and the layout of the photomontage booklet is reported in Section 1.4.2 of *Appendix 12-1 - LVIA Methodology* included in the EIAR. The following two guidance documents are considered the industry benchmark for producing photomontages (SNH, 2017 specifically for wind energy developments) and were the standards adhered to during the production of photomontages for the EIAR and RFI Response:

- Visual Representation of Development Proposals (Landscape Institute Technical Guidance Note 06/19, 2019)
    - Hereafter referred to as: (LI TGN 06/19, 2019)

- Visual Representation of Wind Farms: Version 2.2 (Scottish Natural Heritage, 2017)
  - Hereafter referred to as: (SNH, 2017)

The following text addresses some of the topics raised by third party submissions in relation to the accuracy of photomontages produced.

Scale and Proportion of Proposed Turbines

The proposed turbines modelled in the photomontages are proportionately scaled within a topographic model from the specific locations where the photographic imagery is captured. The turbines and topographic model are then carefully positioned and scaled within the landscape view presented in each photomontage (to 90° and 53.5° horizontal fields of view – as prescribed by Guidance (SNH, 2017; LI TGN 06/19, 2019)). The modelling of turbines in the topographical model (wire grid) is generated by software using input co-ordinates of the turbine locations, viewpoint locations and the specific turbine specifications of the turbines presented. The photomontages have not been manipulated to make the turbines appear smaller in the landscape. This is clearly demonstrated by the wireframe views for each viewpoint, where the turbines are positioned within the topographic model which aligns with the landscape in view in the photomontages. Discussion of depth perception and scaling of turbines within the photomontages is comprehensively addressed in Section 11.3 of the LVIA RFI Appendix (Appendix 6) with the aid of visual illustrations.

Rendering of Turbines Within Visualisations

The views presented in the photomontage booklet include a range of different distances and geographic perspectives and the images used for photomontages represent a range of differing atmospheric conditions. Although it is not reasonable to control the weather, all images were captured when weather was sufficient to enable clear and long-ranging visibility in the direction of the Proposed Development from selected viewpoints.

The proposed turbines can appear differently in the landscape depending on factors like time of day, weather conditions, and observer location. The photomontages produced aim to realistically represent the Proposed Development while considering the turbines' contrast against the backdrop of the sky and landscape. One 3rd party submission suggest that the photomontages have been 'blended' to minimise the visual impact of the Proposed Development. The turbines presented in the photomontages have been coloured in such a way that ensures sufficient contrast for purposes of visual impact assessment whilst balancing the intention to present the photomontages as life like visualisations.

Presentation of Photomontages & Inclusion of Data

One specific submission on the RFI photomontages stated:

> *"The wireframes and photomontages are produced in landscape format hardcopy on A3 paper. A3 paper is roughly 40cm wide by 30cm high."*

This statement is incorrect, the photomontages and wireframes are panoramas presented on banner sheets of paper at A1. More specifically, the horizontal field of view presented in the photomontages are spread across 84.1cm, the equivalent of the maximum horizontal field of an A1 sheet of paper. In line with best practice guidance for the production of photomontages (SNH, 2017 and LI TGN, 06/19, 2019) the A1 banners present the Proposed Development enlarged to fit within a 53.5° horizontal field of view.

2.2.1.1.2 *Visual Impact Assessment Methods*

Two 3rd party submissions relate to the visual impact assessment of photomontages. The methodology used for the Landscape and Visual Impact Assessment in Chapter 12 is comprehensively detailed in Appendix 12-1 of the EIAR – *LVIA Methodology Appendix.* This assessment methodology follows the

documented methods specified in guidance for LVIA, with most specific focus on the *Guidelines for Landscape and Visual Impact Assessment 3rd edition* (Landscape Institute & IEMA, 2013) also known as the GLVIA3. For clarity, a summary of this methodology is provided below.

Summary of Landscape and Visual Impact Assessment Methodology

The landscape and visual assessment methodology used includes clearly documented methods based on the GLVIA3 guidance. This includes consideration of landscape and visual 'sensitivity' balanced with the 'magnitude of change' to determine the significance of effects. Mitigating factors are then taken into consideration to arrive at residual landscape and visual effects. Residual landscape and visual effects are graded upon an 'impact assessment classification of significance' scale, as defined by the Environmental Protection Agency of Ireland (EPA, 2017*)

**Since submitting the EIAR and planning application for the Proposed Development the EPA 2017 guidance has been superseded by a 2022 EPA Guidance Document, changes in the guidance are not material to the impact assessment definitions of significance included in the EIAR LVIA methodology.*

Assessment of potential impacts uses photomontages, whereby the potential effects arising as a result of the proposed turbines are assessed from viewpoint locations representative of prominent and sensitive receptors located within the LVIA Study Area. A comprehensive assessment of each photomontage viewpoint is included in Appendix 12-3 – *Photomontage Assessment Tables* included in the EIAR.

Photomontages are useful visualisation tools supporting an LVIA. However, it is worth noting that the overall visual impact assessments included in Chapter 12 of the EIAR does not rely entirely on photomontages alone, but also considers information gathered during site visits and visibility appraisals conducted on the ground, as well as other tools such as ZTV mapping and a Route Screening Analysis.

Contrary to the submissions made on the RFI response, the methods and processes used for Landscape and Visual Impact Assessments included in Chapter 12 follow a range of standard best practice guidance (with focus on the GLVIA3). These methods and processes are clearly implemented and laid out in tables in the impact assessment Appendices accompanying Chapter 12 of the EIAR:

- Appendix 12-2 - LCA Assessment Appendix;
- Appendix 12-3 Photomontage Assessment Tables

The assessments in these impact assessment appendices are guided by definitions (receptor 'Sensitivity' and 'Magnitude of Change') and matrices included in Section 1.5 of Appendix 12-1. Given the naturally subjective nature of the significance determination process, the impact assessment tools (definitions and tabular matrices) provide a transparent and logical structure to the impact assessment process. The fundamental structure of these impact assessments (Sensitivity x Magnitude of Change = Effect) are clearly laid out in the impact assessment tables included in Appendix 12-2 and Appendix 12-3. However, in alignment with the guidance (see section 3.36, GLVIA3, 2013), the final impact assessment is supported by clear text narrative. In relation to the determination of visual effects using photomontages, the impact assessment tables (Appendix 12-3) ensure that the rationale for the overall judgement is clear (see sections 3.28-3.29, GLVIA3, 2013) and that the final residual visual effects considers the sensitivity, magnitude of change and mitigating factors.

Photomontage Viewpoint Selection

Several 3rd party submissions relate to the selection of photomontage viewpoints. A total of 22 No. Viewpoints are included in the EIAR Photomontage Booklet (and RFI Booklet including visualisations of the turbine range). The photomontages present a range of views representing prominent landscape and visual receptors identified in the LVIA Study Area. Selection of viewpoints went through a rigorous process including identification of sensitive receptors during the landscape and visual baseline exercises, with particular attention to landscape and visual designations in local planning policy. Selection of viewpoints considered thematic visual receptors such as designated scenic views; local population centres

(settlements); Recreational Routes; Tourism and Recreational Destinations; and, sites of Cultural Heritage Importance.

During the selection of viewpoints it was also considered that a variety of views should be presented, as is stated in Chapter 12 of the EIAR:

> *"The SNH Guidance (2017) also advises that a range of views should be shown at a range of distances and aspects, as well as at varying elevations and showing both where the Proposed Development will be completely visible as well as partially visible, and these are reflected in the choice of viewpoint locations. Views are taken from different landscape character areas in the vicinity of the site. A considerable proportion of the views (11) are taken within 5 kilometres of the Wind Farm Site, where visual effects are likely to be greatest."*

As detailed in Section 2.5.1 of Chapter 2 of the EIAR, a planning application was lodged for the Permitted Coole Wind Farm (Pl Ref. No. 17/6292/ABP-300686). An EIAR was submitted as part of this planning application which contained a Landscape and Visual Impact Assessment and a Photomontage Booklet Comprising photomontages from 22 No. viewpoints. The selection of viewpoint locations for this planning application (Permitted Coole Wind Farm) underwent a comprehensive scoping exercise with Westmeath County Council including requests for specific viewpoint locations. Considering the permitted Coole Wind Farm is sited in the same landscape as the Proposed Development, it is considered that the viewpoints selected for the Permitted Coole Wind Farm were fit for purpose of Landscape and Visual Impact Assessment. For purposes of consistency, selection of viewpoints for the EIAR Volume 2 Booklet was guided by the locations selected for the Permitted Coole Wind Farm Development. It is also noted that additional viewpoints were added to incorporate viewpoints requested by Meath County Council during scoping for the Proposed Development.

2.2.1.1.3 LVIA & Presentation of the Turbine Range

Item 1 of the RFI requested clarifications in relation to the turbine range proposed for the Proposed Development. Section 2 of the LVIA RFI Appendix 6 discusses the turbine range in relation to Landscape and Visual Impacts, as well as the addition of the 'Turbine Envelope Range' to 3 No. Viewpoints included an amended Photomontage Booklet included as Appendix 7 of the RFI Response. Two 3rd Party submissions have made substantial commentary on the following text included in the RFI LVIA Appendix:

> *"It is emphasised that irrespective of which turbine model (combination of hub height and rotor diameter) within the range outlined above is installed on site, the significance of residual landscape and visual effects will not be altered".*

The applicant believes that the 3rd party submissions have mis-interpreted the meaning and context of this statement. For clarity, this statement is in relation to the visual impact assessments conducted and reported for each viewpoint in the EIAR. The applicant would like to draw the attention of the board to the full impact assessment tables reported for Viewpoints 07, 14 and 21 contained in Appendix 13-3 of the EIAR. It is recommended that the board read the relevant viewpoint assessment tables in Appendix 13-3 in conjunction with the updated photomontage booklet submitted with the RFI response (Appendix 7) which demonstrates the range of turbine dimensions proposed.

In terms of arriving at a residual visual impact, the alterations arising by a change in turbine specification will only alter the 'magnitude of change' as determined in the impact assessment tables. It is very clear from the 'turbine range' visualisations included for Viewpoints 07, 14 and 21 that the discernible difference between the ranges is only possible with the aid of comparative wireframe visuals. For viewpoints 14 and 21 the discernible difference is only possible with the aid of magnification of the comparative wireframe visuals. Ultimately, the differences between the range (e.g. 6 metre difference in rotor diameter) will not alter the 'Magnitude of Change' as determined in the visual impact assessment tables (See tables in Appendix 13-3 and 'Magnitude of Change' definitions in Appendix 13-1 of the

EIAR). Consequently, following the visual impact assessment methodology (Magnitude of Change X Sensitivity), the significance of the residual visual impact is not altered compared with what was previously determined for the EIAR.

2.2.2 Archaeology & Cultural Heritage

Tobar Archaeological Services have addressed all concerns relating to Archaeology and Cultural Heritage raised in the submissions in their response document, which is included at **Appendix 2** of this overall response document.

2.2.3 Ecology/Biodiversity

Downstream Water Quality and Connection with Natura 2000 Sites.

Several submissions relate to the potential for the proposed development to result in the pollution of downstream watercourses and make particular reference to the presence of Natura 2000 Sites that have the potential to be affected by such pollution.

This potential impact was identified, and is fully and comprehensively considered, in the Environmental Impact Assessment Report that was submitted with the application.

The proposed development has been designed from the outset to avoid impacts on water quality, with all major infrastructure being specifically designed to be over 50m from any major watercourse (EPA named watercourses) and 10m from identified main drains. In addition, mitigation and best practice that is specifically designed to prevent any run off of pollution to any watercourses is provided in full in Chapters 4, 6 and 9 of the EIAR and all associated appendices including the CEMP (Appendix 4-8 to the EIAR).

In addition to the above, the potential for impacts on downstream Natura 2000 Sites is fully considered in the AASR and NIS that accompany the application (and were revised as part of the Further Information Response). These documents and associated appendices identify the connection between the site and the Natura 2000 Sites, fully describe all potential effects and put in place robust mitigation and best practice to prevent any such effects.

Polluting effects of previous activities on the site.

A submission states that there has been no independent survey on the amount of pollution present in waterways of the area, following previous activities that have been undertaken on the site.

In response, the baseline water quality in the watercourses that are downstream of the site were assessed in the original EIAR as submitted and additionally in the revised NIS that was submitted as part of the further information response (Appendix 3b to that document). These assessments provide an assessment of the baseline water quality at the present time and against which, any changes that may occur can be measured.

Loss of Virgin Bog

A submission refers to the loss of virgin bog to facilitate the proposed development.

In response, it is confirmed that all areas of uncut bog on the site have been avoided and there will be no impact on uncut, virgin bog as a result of the proposed development.

2.2.4 Ornithology

Timing of Surveys and Nocturnal Bird Surveys

Concerns were raised in the submissions relating to the timing and contradiction of surveys. There is no contradiction in paragraph 2.2.2.2.6 of the Further Information Response. As outlined in the Further Information Response, the survey approach is in line with best practices and follows the recommendation of SNH (2017). SNH (2017) states in Table 1.3 that vantage point surveys targeting swans and geese should be undertaken "*between and including dawn and dusk*." This includes the hour before sunrise, the diurnal daylight hours and the dusk period. In practise this is achieved, as is noted in Appendix 7-2 of the EIAR, by starting/finishing a six-hour winter vantage point survey the hour before/after sunrise/sunset.

Furthermore, nocturnal flights have been taken into account and included in the calculation of collision risk[1], notwithstanding this, the analysis did not predict significant levels of collision risk for any species. Please refer to Section 7.8.2 of the EIAR for further detailed discussion and Further Information Response Appendix 5 which includes an updated collision risk analysis.

Barn Owls

Concerns were raised in relation to the lack of barn owl observations. Barn owl was recorded during surveys and as outlined in Section 7.4.23 of the EIAR, there were two incidental recordings of barn owl between April 2018 and March 2020 (see Appendix 7-4, Table 1-54 and Confidential Appendix 7-7, Figure 7-7-1). On the 8th of August 2019, barn owl was heard but not seen during a Vantage Point Survey at VP5. An adjacent building has been identified as a probable breeding site for the species. It is situated approximately 1.2km from the closest turbine (T15) and 100m from the Site boundary.

Furthermore, specially designed mitigation measures are proposed to avoid impacting the species. As outlined in Section 7.9.2.1 of the EIAR, in line with best practice, no construction works are permitted between the 1st of March to the 31st of August inclusive within a 500m radius of the barn owl breeding site, as provided in Confidential Appendix 7-7. The presence of this breeding site will be resurveyed pre-Construction, as per Section 7.10.1 of the EIAR.

Whooper Swan

Concerns were raised in relation to the likelihood of whooper swans following the river along the western margin of the site, whooper swan collision risk and whether there would be any effect on the movement of whooper swan due to the presence of turbines.

It is considered likely that the whooper swan will continue to follow the river along the western margin of the site, as this is what the evidence of surveys has shown them to do locally. It is noted in Section 7.8.2.1 of the EIAR that whooper swan were rarely recorded flying over the Proposed Development area (2015 to 2020). During the most recent surveys (2021/22) there were 16 flights recorded during the migratory period (in this case October 2021), however, the majority of these flights (Map ref: WS01-WS016 in Appendix 5 of the RFI Response) are associated with the Inny River along the western margin of the site and the peatland offsite and still further west of the wind farm site.

[1] *As is noted in Table 3-3 of Appendix 7-5 of the EIAR, it is assumed that whooper swan and Greenland white-fronted goose were active for 25% of the night as well as the daylight hours as per SNH guidance on accounting for swan/goose and wader flight activity. This 25% of the night is calculated as a portion of the length of the night for the survey period (provided by www.timeanddate.com) and is added to available hours of activity for these species per year.*

All flight activity (including the descending flights) recorded during the flight activity surveys (these are the vantage point surveys) was incorporated into the collision risk analysis. As is noted in Section 4.3.5 of Further Information Response Appendix 5 no significant collision risk effects were predicted.

It is noted in Section 7.8.2.1 of the EIAR that whooper swan were rarely recorded flying over the Proposed Development area (2015 to 2020). During the most recent surveys (2021/22) there were 16 flights recorded during the migratory period (in this case October 2021), however, the majority of these flights (Map ref: WS01-WS016 in Appendix 5) are associated with the Inny River along the western margin of the site and the peatland offsite and still further west of the wind farm site. If the wind farm were present in the landscape the swans could continue to follow the river along the western margins of the site without the development acting as a barrier. It is considered likely that the whooper swan will continue to follow the river along the western margin of the site, as this is what the evidence of surveys has shown them to do when present locally.

Whooper Swan and the Band Model

A further concern was raised in relation to the use of the Band Model in the collision risk analysis, a suggestion was made that the refinement to the model as outlined in Christie and Urquhart (2015)[2] is required. The analysis compared the white tailed eagle as an example of a large, comparatively slow, gliding species and used the South Island pied oystercatcher as an example of a smaller, faster, flapping species. The analysis found that the collision risk predicted by the traditional Band Model underestimated the predicted rate of collisions for the large eagle with its comparatively slow gliding flight behaviour. This characteristic flight behaviour of the eagle is not directly comparable to the whooper swan with its faster, flapping flight.

The Band Model remains the industry best practice method to assess collision risk. As is noted in Section 4.3.5 of Further Information Response Appendix 5 following this approach no significant whooper swan collision risk effects were predicted.

Impacts on Golden Plover

Impacts on Golden Plover

Concerns were raised in relation to the sources used in the review of golden plover avoidance rates.

The Coole Wind Farm and wider surroundings are located in an area of lowland, similar in terms of topographic elevation and in having a resident wintering population of golden plover with the UK wind farms included in the review. They are therefore comparable for the purpose of deriving an avoidance estimate, as this analysis is only concerned with how a golden plover in flight manoeuvres around an encountered turbine. The collision monitoring methodologies of the UK wind farm included in the review are robust and generally comply with best practice guidance, so the collision fatality estimates can be regarded as reliable. Please refer to Further Information Response Appendix 5 for further discussion.

The site-specific information, such as the presence of bogland lakes and local SPAs in north Westmeath will influence the amount of flight activity at the Coole Wind Farm. This is why the data collected during the comprehensive suite of surveys undertaken at the proposed Coole Wind Farm was included in the collision risk analysis. As outlined in the Further Information Response the number of golden plover collisions was predicted to decrease in the updated collision risk analysis when compared to the rate predicted in the EIAR. Please refer to Section 2.2.2.2.6 of the Further Information Response for further discussion.

Further concerns were raised in relation to golden plover collision risk,

[2] *A refinement of the Band spreadsheet for wind turbine collision risk allowing for oblique entry. New Zealand Journal of Zoology, 2015*

This matter was previously addressed in Section 2.2.2.2.6 of the Further Information Response. As previously outlined, whilst the number of likely collisions is an important part of predicting the magnitude of any impact, it is not the only part (Percival 2003). As populations remain viable despite ongoing sources of mortality the significance of the predicted collision rate should be determined in the context of the background mortality rate for that species. The aim is to establish if there is a significant change to the background mortality rate as a result of the likely collisions. The rate of collisions were predicted to decrease in the updated collision risk analysis included in the Further Information Response. This industry best practice is the approach that has been taken in the collision risk analysis as provided in Further Information Response Appendix 5.

Concerns were raised in relation to the impact on golden plover in relation to the objectives of the Westmeath County Development Plan 2021-2027.

This point is noted and it is recognised that the NIS has concluded that:

> *Following an examination, evaluation and analysis, in light of best scientific knowledge and the conservation objectives of the site, and, on the basis of objective information, having taken into account the relevant mitigation measures, it can be concluded that the Proposed Development will not have an adverse impact on any European Sites, either alone or in combination with other plans or projects.*

The project is therefore in accordance with the above objective.

2.2.5 Hydrology

Impacts on Water Quality

A full and comprehensive response on issues relating to Hydrology/Hydrogeology is addressed by HES at FI Stage and is included at Appendix 2 of the overall RFI Response. The potential effects on downstream receptors such as the River Inny, River Glore and Lough Derravaragh has been assessed in detail in Sections 9.4.1.1 to 9.4.1.10 of the EIAR. Robust and effective mitigation measures have been included within the EIAR which will break the pathway between source and receptor. Through the implementation of these mitigation measures. there will be no significant effects on surface water quality as a result of the proposed development, including the River Inny, River Glore, and Lough Derravaragh. In Summary, we reiterate the following:

- A robust and detailed EIAR for the proposed wind farm development was submitted with the SID application.
- A detailed drainage plan outlining the location of drainage mitigation measures has been submitted (Appendix 4-9 and 9-3 of EIAR).
- There is significant water related mitigation outlined in the EIAR to ensure that water quality protection is upheld.
- All (water-related) mitigation as outlined in the EIAR will be included in the CEMP and implemented on-site.
- The submitted EIAR concludes, and HES continue to assert, that through the implementation of the proposed groundwater and surface water protection related mitigation measures, this proposed development will not have significant impacts on the hydrology/hydrogeology of the Wind Farm Site, nor the Grid Connection Route, nor any downstream receptors such as the River Inny, River Glore and all nearby designated sites.

Watercourses

A submission raised concerns regarding the location of T1, T5 and T15 in relation to watercourses. T1 and T15 are depicted as being located on watercourses in the submission. It is also stated that a 19th century bridge will need to be replaced by a flat new bridge to provide access over a stream to T15.

There will be 3 no. watercourse crossings within the wind farm site. The first crossing comprises the replacement of an existing timber bridge with a 5m clear span bridge which will form part of the internal site road network, connecting Turbines T5-T12 to Turbines T1-T4. A second crossing will be required to provide access to Turbine T1 located to the north of an OPW drain and will comprise a 3m clear-span bridge. The third crossing will comprise a new 5m clear-span bridge to provide access to T15. The 19th Century Stone Bridge referred to in the submission is extant and comprises a stone built single-arched structure with some concrete additions to the parapet walls as well as modern steel railings. The bridge is located c. 41m north-west of the proposed access to T15 and will not be replaced (See **Figure 1** below).

Figure 1 Unnamed bridge on 2nd edition 25 inch OS map in relation to proposed access road to T15.

There will be no in-stream works required as part of the Proposed Development. Additional control measures will be undertaken at the proposed watercourse and drain crossing locations. Further details relating to control measures for water crossings are provided in Chapter 6 of the EIAR.

2.2.6 Shadow Flicker

Concerns were raised in relation to shadow flicker mitigation proposals.

As identified in Section 2.5.1 in Chapter 2 of the EIAR and further clarified in Chapter 5 of the EIAR: Population & Human Health, in line with the commitment made for the permitted Coole Wind Farm and following continuing engagement with the local community, Coole Wind Farm Ltd. continues to commit to zero shadow flicker at occupied residential receptors within 10 rotor diameters of the Proposed Development.

Section 5.9.3.9 in Chapter 5 of the EIAR details the proposed mitigation measures which is presented below:

> *'Where shadow flicker exceedances are experienced at buildings, a site visit will be undertaken firstly to determine the level of occurrence, existing screening and window orientation. If annoyance is found, suitable mitigation measures such as wind turbine control measures including turbine shutdown and/or screening will be employed to eliminate the exceedance to zero shadow flicker at the affected property. In event of an exceedance the procedure for logging public complaints is outlined in the CEMP at Appendix 4-8.*
>
> *As the shadow flicker assessment is based on a "bare-earth" scenario, a screening assessment which accounts for features such as undulations in local topography, built structures such as sheds or walls, or vegetation, may find that there is no requirement for further mitigation strategies. In the absence of screening features as described above, a number of screening measures will be proposed to the affected property owner, including the installation of window blinds or curtains in affected rooms, planting of screening vegetation or other site-specific measures agreeable to the affected party.*

Whilst a number of screening measures have been identified for proposal to affected property owners, if annoyance is found suitable mitigation measures such as wind turbine control measures including turbine shutdown and/or screening will be employed to eliminate the exceedance to zero shadow flicker at the affected property.

2.2.7 Equine Industry

Concerns were raised in relation to impacts on horses in the local area.

Section 5.2.7.1 in Chapter 5 of the EIAR, identifies that:

> '*In the absence of national policy or guidance in relation of the development of wind farms near stud farms/equestrian centres, MKO have reviewed the British Horse Society's Advice on Wind Turbines and Horses – Guidance for Planners and Developers. A copy of the guidance document is included in Appendix 5-1.*
>
> *The British Horse Society policy statement states the following in relating to the siting of wind turbines in the vicinity of equine businesses:*
>
> *The BHS strongly recommends that the views and concerns of local equestrians should be recognised and taken into account when determining separation distances and that normally a minimum separation distance of 200m or three times blade tip height (whichever is greater) will be required between a turbine and any route used by horses or a business with horses.*

As mentioned previously, there is no stud farm/equestrian facility within 1 kilometre from the nearest proposed turbine location and is therefore exceeds the BHS recommended separation distance as noted above.'

2.2.8 Noise

Concerns were raised in relation to noise exceedances at sensitive receptors including houses no. 13 and 14.

As identified in Section 1.0 in Appendix 10 of the Further Information Response, predicted noise levels at houses no. 13 & 14 show exceedances and as such, in order to mitigate these exceedances, a curtailment scheme is presented in Table 11-25 and Table 11-26 of the EIAR. Taking this into account, the predicted noise levels at house no. 13 and house no. 14 are within the noise criteria.

2.2.9 Carbon Calculations

Concerns were raised in relation to carbon release and calculations for carbon loss for manufacturing, construction and decommissioning the turbines.

Section 10.3.3 in Chapter 10 of the EIAR details that

'*The Scottish Government on-line carbon calculator was used to assess the impacts of the Proposed Development in terms of potential carbon losses and savings taking into account peat removal, drainage, habitat improvement, forestry felling and site restoration. A copy of the outputs is provided as Appendix 10-1 of this EIAR.'*

The main CO_2 losses due to the Proposed Development is detailed Appendix 10-1 of the EIAR and summarised in Table 10-10 in Chapter 10: Air & Climate, shown below:

Table 2 CO2 losses from the Proposed Development

Origin of Losses	CO_2 Losses (tonnes CO_2 equivalent)	
	Expected	Maximum
Losses due to turbine life (e.g. manufacture, construction, decommissioning)	78,974	79,132
Losses due to backup	53,217	53,217
Losses due to reduced carbon fixing potential	3,572	6,205
Losses from soil organic matter	13,896	82,058
Losses due to felling forestry	6,479	6,736
Total	**156,138**	**227,348**

The turbine life cycle has been incorporated into the overall carbon losses and savings calculation for the Proposed Development, along with that of the losses due to disturbance and removal of peat. As detailed in Section 10.3.3.3.2:

'*In total, it is estimated that **2,688,629** tonnes of carbon dioxide will be displaced over the proposed thirty-year lifetime of the Proposed Development, and 89,405 tonnes of carbon dioxide will be displaced per annum.*

Based on the Scottish Government carbon calculator as presented above, 156,138 tonnes of CO_2 will be lost to the atmosphere due to changes in the peat environment and due to the construction of the Proposed Development. This represents 5.81% of the total amount of carbon dioxide emissions that will be offset by the Proposed Development. The 156,138 tonnes of CO_2 that will be lost to the atmosphere due to changes in the peat environment and due to the

construction and operation of the Proposed Development will be offset by the Proposed Development in 21 months of operation.'

2.2.10 Geotechnical

Malachy Walsh and Partners (MWP) have addressed all geotechnical concerns raised in the submissions in their response document which is included at **Appendix 2** of this overall response document.

2.2.11 Land Ownership

A submission states that there are several land registry folios that were not signed for within the proposed development boundary.

All relevant letters of consent as detailed in Section 7 of the Application Forms were included within the application documentation, as submitted.

2.2.12 Electric & Magnetic Fields

Issues relating to Electric & Magnetic Fields were addressed by Ionic Consulting Limited in their Grid Route Connection Response included at Appendix 9 of the RFI Response document.

It is noted within this response that EirGrid are the state owned company that manages and operates the transmission grid across the island of Ireland, and the proposed Coole Wind Farm 110kV grid connection will be designed and constructed to their specifications.

2.2.13 Turbine Ranges

Several submissions have raised concerns about the range of turbine sizes proposed in the EIAR.

For the purposes of the EIAR which accompanied the planning application, various wind turbine parameters all within the 175-metre tip height envelope were considered to assess the likely effects of the proposed development on the environment.

In response to the Further Information request and taking into account the Derryadd Judgement ((Sweetman v the Board & Ors [2021] IEHC 390 and [2021] IEHC 662), a refined turbine range was established for the Proposed Development as follows

- 15 No. wind turbines with a maximum ground-to-blade tip height of 175 metres, a blade length in the range of 74.5 metres minimum to 77.5 metres maximum and a hub height in the range of 97.5 metres minimum to 100.5m maximum.

It is confirmed that all scenarios within the limited range of flexibility set out above (the "Turbine Range") have been fully assessed within the application documentation including within the Environmental Impact Assessment Report and Natura Impact Statement as lodged.

Please refer to Section 2 of the overall RFI Response Document for further details.

2.2.14 Access

A query has been raised in relation to the proposed access to T15. As shown on Planning Drawing 200445-55 – Proposed Site Access F&G a permanent access road to T15 will be constructed and used as the main access point to T15 during the construction and operational phases of the project. This access point will be gated. A temporary run over area will also be constructed and used during the construction

phase of the project to allow turbine component deliveries. This area will be fenced off during the construction phase and only opened to allow deliveries. There are 12 components associated with the turbine so this area would be opened on 12 occasions. The area will be reinstated post construction.

2.2.15 Planning

Development Plan Policy

A submission stated that the Proposed Development is contrary to the Westmeath County Development Plan and government policy on heritage tourism.

Since the lodging of this application under ABP-309770-21, The Westmeath County Development Plan 2021-2027 (WCDP) came into effect on the 3rd of May 2021. The WCDP incorporates the aims, objectives, policies and guidelines to provide for the proper planning and sustainable development of County Westmeath. The WCDP provides for the development of indigenous energy resources, with an emphasis on renewable energy supplies. The Council acknowledges the importance of renewable energy in reducing anthropogenic greenhouse gas emissions and the contribution of renewable energy in achieving national and EU target net zero greenhouse gas emissions by 2050.

It is highlighted that at the time of writing the County Development Plan 2021-2027 is the subject of a Direction by the Minister of State at the Department of Housing, Local Government and Heritage. The direction came after a submission by the Office of the Planning Regulator advising that CPO 10.143 of section 10.23.2 be deleted, *"...the Office [of the Planning Regulator] remains of the view that the inclusion of the policy objective CPO 10.132 (renumbered CPO 10.143) and an unchanged Wind Energy Capacity Map in the adopted Development Plan create a significant limitation or constraint on renewable energy projects which is inconsistent with the SPPR [Specific Planning Policy Requirements] and would also significantly restrict other policy objectives supporting wind energy development such as policies CPO 10.139, CPO 10.142 and CPO 10.144."*. The Direction, issued on the 28th of September 2022 directs the Planning Authority to delete wind energy policy objective CPO 10.143 in its entirety from section 10.23.2 of the Development Plan. For clarity, policy objective CPO 10.143 set out separation distances between wind turbines and residential dwellings.

The WMCDP acknowledges the importance of transitioning to a low carbon economy, future diversification, and adaptation to new energy technologies. It also identifies wind as a form of renewable energy which will helps in managing the transition of the local economies of such areas in gaining the economic benefits of greener energy.

It is important to note that Westmeath County Council considered the principle of development to be acceptable for the Proposed Development in their original submission on the application and noted the following:

> *"The principle of the proposed wind farm development is considered acceptable, given that the development is in line with national and regional energy and climate action policies, and largely complies with the objectives and policies set out in the current County Development Plan 2021-2027 (CDP). The proposed development is considered generally compliant with the Wind Energy Guidelines 2006 (and the Draft Revised Wind Energy Development Guidelines 2019) in terms of siting and landscape suitability for large wind farm developments, given the proposed location on an extensive parcel of peatland"*

In summary the County Development Plan for Westmeath fully recognises the importance of obtaining more energy from renewable sources. Westmeath County Council seeks to support and facilitate the sustainable provision of a reliable energy supply in the County, with emphasis on increasing energy supplies derived from renewable resources. Furthermore, there is a range of policy in place which supports the development of renewable energy. Accordingly, the Proposed Development is compliant with the relevant provisions of the Westmeath County Development Plan 2021-2027.

3. CONCLUSIONS

This document, associated appendices and updated planning application drawings have been prepared to address the submissions/observations made in respect of planning application reference ABP-309770–21 regarding the proposed Coole Wind Farm. The information provided here will directly assist the Board in their ongoing consideration of the planning application. The information constitutes a full and robust response to the matters raised.

APPENDIX 1

TOBAR RESPONSE

Response to submissions on Further Information for the Proposed Coole WF, County Westmeath

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Client: MKO Ireland Ltd

C/O MKO Tuam Road,

Galway

Date: 27/04/2023

Table of Contents

1 INTRODUCTION

Tobar Archaeological Services Ltd prepared the archaeology and cultural heritage chapter of the EIAR which accompanied the planning application for the proposed Coole Wind Farm, County Westmeath. Tobar also prepared a response to a request for Further Information (ABP Ref 309770-21) issued by An Bord Pleanala as well as addressing third party concerns. This document has been prepared in response to submissions received in relation to that Further Information Response.

Miriam Carroll and Annette Quinn are directors of Tobar Archaeological Services Ltd. Miriam and Annette both graduated from University College Cork in 1998 with a Masters degree in Methods and Techniques in Irish Archaeology. Both are licensed by the Department of Housing, Local Government and Heritage to carry out excavations and are members of the Institute of Archaeologists of Ireland. Annette Quinn and Miriam Carroll have been working in the field of archaeology since 1994 and have undertaken numerous projects for both the private and public sectors including excavations, site assessments (EIAR) and surveys. Miriam Carroll and Annette Quinn are directors of Tobar Archaeological Services which has been in operation for 20 years.

2 RESPONSES TO THIRD PARTY SUBMISSIONS

2.1 Concerns regarding effect on setting of archaeological monuments including UNESCO World Heritage Sites, National Monuments and recorded monuments

A number of submissions have again raised concerns regarding the adverse effect of the proposed wind farm development on the setting of archaeological monuments within the surrounding landscape. Chapter 13 of the EIAR included a comprehensive assessment of the potential visual effects of the proposed wind farm development on the archaeological and cultural heritage resource. The assessment of potential impacts on setting of recorded monuments was aided by ZTV, photomontage, desk-based assessment and site inspection where appropriate. The methodology utilised in the assessment is presented in Chapter 13 section 13.2.4. There is no legislative distance or industry standard approach for the assessment of impacts on the setting of cultural heritage assets. A standardised approach was utilised for the assessment of impacts of visual setting (indirect effects) according to types of monuments and cultural heritage assets which may have varying degrees of sensitivity. The assessment of impacts on visual setting was undertaken using both the Zone of Theoretical Visibility (ZTV) map in the Landscape and Visual Impact Assessment (LVIA), as presented in Chapter 12 of the EIAR, and also viewshed analysis from specific cultural heritage assets.

It is again reiterated that **all** Sites and Monuments Records (SMRs),Record of Monument's and Places (RMPs), Record of Protected Structures (RPS), and National Inventory of Architectural Heritage (NIAH) structures within 5km of each turbine were included in the EIAR in order to assess potential effects on setting. All recorded monuments that are located within 5km of the proposed turbines are shown on Figure 13-13 and listed in Appendix 13-5 and Table 13-9 of Chapter 13. Monuments included in the assessment comprise those currently listed in the Record of Monuments and Places (RMP) and those in the Sites and Monuments Record (SMR), some of which are scheduled for inclusion in the next revision of the RMP. No monuments in the surrounding 5km landscape were omitted from the assessment.

As outlined in the Further Information Response, the assessment as presented in Chapter 13 of the EIAR included potential impacts to the setting of UNESCO World Heritage Sites, National Monuments

(Granard Motte, Loughcrew, Fore Abbey, Fore Town Gates, Mortimer's Castle and Wattstown/Frewin Hill), recorded monuments within 5km of the nearest turbine, Protected Structures and NIAH structures.

The Hill of Uisneach (included on the UNESCO WHS Tentative List) is situated c. 28km from the nearest proposed turbine. It was concluded that given this distance the immediate setting of the monument would not be impacted, and that the potential effect to its wider setting would be Imperceptible.

No change to the immediate setting of any National Monuments as a result of the proposed turbines was identified in the assessment. The National Monuments in question are located at distances of between c. 8km and 16km to the nearest proposed turbine. While a change to the wider setting of the National Monuments was identified it was deemed to be Slight or Not Significant, particularly given the intervening distance of the proposed turbines from the monuments (see Chapter 13, Table 13-9). The assessment of potential impacts on setting was aided by viewshed analysis, ZTV, photomontage, desk-based assessment and site inspection where appropriate.

A comprehensive assessment of potential effects to the setting of recorded monuments within 5km of the nearest proposed turbine was also carried out and is detailed in Chapter 13 of the EIAR. Table 13-10 lists all recorded monuments within 5km of the proposed turbines, their sensitivity (visual dominance, above ground trace, uniqueness, proximity to site, etc.) significance of impact, and distance to the nearest turbine. Impacts to the immediate setting of any recorded monuments as a result of the proposed development was not identified. Impacts to the wider setting of such monuments is acknowledged but is deemed to be Slight in the majority of cases, with some slight-moderate and others imperceptible. All monuments located within 5km of the proposed turbines were included in the assessment, including those referred to in a number of submissions received in respect of the Further Information Response.

Concerns raised regarding photomontages are dealt with in the Landscape and Visual response, (included at Section 2.2.1 of the overall response Document) which should be read in conjunction with this document.

3 CONCLUSION

This document comprises a response to submissions received in respect of the Further Information Response submitted to An Bord Pleanála (Ref. 309770-21) regarding the proposed Coole Wind Farm, Co. Westmeath. It addresses a number of third party submissions which raised concerns about the potential effects on the setting of archaeological heritage in the surrounding landscape. Concerns raised regarding photomontages are dealt with in the Landscape and Visual response which should be read in conjunction with this document. It is considered that all concerns regarding the assessment process and the results of same as reached in Chapter 13 of the EIAR are addressed in the Further Information Response and again here, and that the mitigation measures outlined in the Chapter are appropriate for the amelioration of any potential impacts identified.

APPENDIX 2

MWP RESPONSE

MWP

Response to RFI Response to Items Raised in Submissions

Coole Wind Farm

Coole Wind Farm Ltd.

May 2023

Contents

Project No.	Doc. No.	Rev.	Date	Prepared By	Checked By	Approved By	Status
23249	6003	A	04/05/2023	P Curran	D Cagney	P Curran	For Information

MWP, Engineering and Environmental Consultants
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1. Introduction

MWP was appointed by Coole Wind Farm Limited to provide a response to a Request for Further Information (RFI) from An Bord Pleanála on Case Number ABP-309770-21 in relation to the geotechnical elements. The RFI requested a response to third-party submissions made on this case number.

This document addresses the below-listed topics which were raised in the submissions:

- Site investigation techniques used and variability in peat depths
- Slope angles from various techniques
- Piling of peat and soft clays

2. Review of Site Investigation Methodology

The reliability of various exploratory techniques was addressed in Appendix 12 of the previous RFI Response. This response is reproduced below in italics for convenience. This RFI was specifically focused on T12, however, the same comments apply to all other turbine locations within the site.

The Geotechnical and Peat Stability Assessment (Appendix 8-1 of the EIAR by MKO) provided with the planning documents yields acceptable factors of safety. As detailed in EIAR Chapter 8 Land, Soils & Geology and Appendix 8.1 Geotechnical & Peat Stability Assessment detailed walkover surveys have been undertaken on the proposed development site which include over 250 no. peat probe depths which have been used to complete the peat stability assessment of the site (refer to Appendix C of the Geotechnical & Peat Stability Assessment). The variations in peat depths noted between the boreholes and peat probing information at the other turbine positions are not significant enough to alter the outcome of the peat stability assessment.

Based on the findings of the peat stability assessment, the proposed Coole wind farm site and associated works has an acceptable margin of safety and is considered to be at low risk of peat failure/slide. A number of deeper peat areas are present on site which will require specific construction methods, but do not represent a peat slide or failure risk. The findings in Appendix 8.1 Geotechnical & Peat Stability Assessment and Appendix C of this document include recommendations and control measures for construction work in deep peat lands to ensure that all works adhere to an acceptable standard of safety. In summary, the Coole wind farm site has an acceptable margin of safety and is considered to be at low risk of peat failure.

"From experience, the peat probes provide the most reliable representation of the peat depth at T12 for the reasons detailed below.

- *The peat probe used has a small auger at the end of the probe which was used to extract samples of the material at the base of the peat. This allowed for visual confirmation that the interface between the peat and the underlying stratum had been reached, hence verifying the depth of the peat.*
- *The rotary core drilling technique used at T12 was focused on identifying the depth to a competent stratum (such as limestone at Coole). This technique flushes water through the borehole as drilling progresses. At Coole, the peat is underlain by soft clays. The flushing of water makes the determination of the interface between the peat and soft clay difficult to identify as the two materials become mixed. The peat gets washed down into the clay underneath as the borehole casing advances. Rotary core drilling was a technique used to identify the depth to a solid stratum (Limestone) at Coole and was not used to determine the interface between two soft materials such as peat and clay.*

Following a review of the available ground investigation information and peat probes, the following can be noted:

- *The Rotary Core Borehole at T12 overestimates the depth of peat (the borehole log suggests a peat depth of 12.5m).*
- *The peat probes completed to inform this RFI response suggest the peat depth to be 8.7m at the centre of T12 and a maximum peat depth of 9m in the vicinity of the turbine and hardstand.*
- *The rotary coring technique used at T12 is not suitable for accurately determining the interface between two soft materials such as peat and clay and was used to identify the depth to a solid stratum (Limestone) at Coole.*
- *The depths provided by the peat probes are considered to provide the most accurate peat depths and should be used for assessment purposes."*

3. Review of Slope Angles from Various Techniques

A review of the slope angles from LiDAR versus those from handheld equipment has been carried out for all turbine locations. The LiDAR yields shallower angles than those from handheld equipment. Therefore, the angles used in the Geotechnical and Peat Stability Assessment (Appendix 8-1 of the EIAR by MKO) are more conservative than any assessment using the LIDAR.

4. Piling of Soft Clays and Peat

Piled foundations are proposed at all turbine locations where soft material (including peat and soft clays) has been encountered. Piled foundations are designed to be used in soft ground (including peat and soft clays), where the pile transfers the load from the foundation level to a solid stratum at depth (the limestone bedrock in this instance), without any significant load being placed on any soft ground that may be present. Peat removed from the turbine locations and associated access roads will be used for landscaping or placed/spread locally alongside any excavations.