



CONSULTANTS IN ENGINEERING,
ENVIRONMENTAL SCIENCE &
PLANNING

COOM GREEN ENERGY PARK

FURTHER INFORMATION RESPONSE REPORT

Prepared for: Coom Green Energy Park Limited

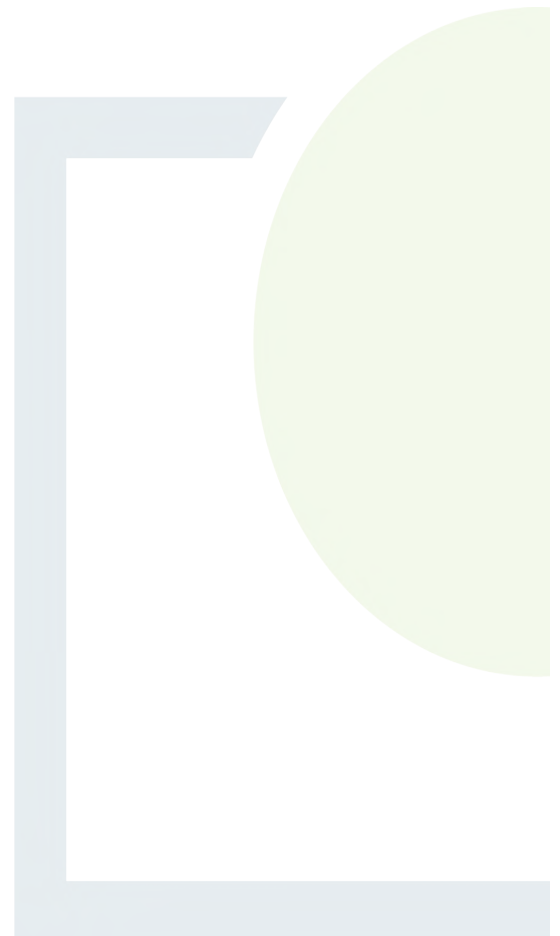
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COOM GREEN ENERGY PARK

FURTHER INFORMATION RESPONSE REPORT

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Abstract: This document contains the response to a further information request issued by An Bord Pleanála for the proposed Coom Green Energy Park, (ABP ref. 308885). This report has been prepared by Fehily Timoney and Company (FT) on behalf of Coom Green Energy Limited.

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1. DETAILS AND PARTICULARS

1.1 Details of Proposed Turbines

ABP Request:

1. *"It is noted that the development description as set out in the statutory notices refers to a maximum tip height of 169 metres and a maximum rotor diameter of 138 metres. To enable the Board to determine the application please confirm the nature and extent of the development for which permission is sought, by reference to plans and particulars which describe the works to which the application relates, in compliance with the relevant provisions of the Planning and Development Regulations 2001 as amended".*
2. *"If the development for which permission is sought incorporates a range of options, please indicate clearly in the application documentation the detail of all such options and confirm that each option has been fully assessed within the application documentation including within the Environmental Impact Assessment Report and Natura Impact Statement".*

Response

A detailed response on these items is presented in the EIAR addendum report attached to this report in Appendix 1.

In addition to the above, the applicant wishes to take the opportunity at this point to adjust the configuration of the proposed on-site permanent meteorological (met) masts from guy-wired to free standing masts.

The proposed met masts are described as follows in the EIAR description of development (Chapter 3 of the EIAR):

The permanent met masts shall be of the following general configuration:

- *A 100m high lattice steel mast with a shallow concrete foundation, fixed to ground anchors by 3no. guy-wires.*

An updated design for a free-standing met mast without anchored guy-wires has been included in this RFI response report. A drawing showing the proposed met mast design is included in Appendix 4. The revised description of the proposed permanent met masts are as follows:

The permanent met masts shall be of the following configuration:

- *100m high lattice steel mast with a shallow concrete foundation.*

The revised met mast design does not change the conclusions of the EIAR.



1.2 Battery Energy Storage System

ABP Request:

“While it is noted that Drawings P20-099-0300-004, 005 & 006 which relate to the proposed substation compound at Lackendarragh North and Drawing P20-099-0300-007 provide details of the battery energy storage system, this element of the proposed development is not outlined in any detail in Chapter 3 ‘Description of Proposed Development’ of the EIAR other than a summary reference at Section 3.5 (pg 4/5) and a brief outline at Section 1.2 within the introduction. While the BESS is detailed in other chapters of the EIAR such as at Section 11.7.3, It is noted that Chapter 3 which describes the development, and which addresses the onsite Electricity substations at Section 3.15.10 and Electrical Cabling at Section 3.5.11, does not address the proposed Battery Energy Storage System which is proposed within the site compound of the proposed Lackendarragh North substation.

(a) Please provide a sufficient description of the proposed Battery Energy Storage System.”

Response

The Battery Energy Storage System (BESS) consists of 20 no. battery storage units to facilitate on site energy storage and to provide ancillary services to the electricity grid. The units will be situated next to the onsite substation compound at Lackendarragh North. The storage units will use Lithium-ion battery storage technology, which is a widely available and globally used energy storage option which is utilised to provide storage services to the grid at a local level. The battery storage technology to be used is comparable to the batteries found in domestic electrical appliances such as remote controls, laptops and mobile phones. The battery storage unit will be subject to adequate measures and standards in relation to fire detection, with measures in place for detecting issues, to controlling of temperatures within the storage units, the identification of potential fire risk and the incorporation of fire suppression systems. In particular the BESS units shall comply with Irish building regulations Part B (Fire Safety) of the Second Schedule to the Regulations, 2006 as amended and Irish Standard I.S. EN 54: Fire Detection and Fire Alarm Systems. The above guidance and standards provide details on the following requirements that shall be complied with in the design, construction and operation of the proposed BESS.

- Means of escape in case of fire;
- Internal fire spread (linings and structure);
- External fire spread;
- Access and facilities for the fire service;
- Fire detection and fire alarm systems.

The batteries will be located on a battery rack and sealed within a container where they will be continually monitored and controlled for performance, temperature and other safety factors. The Battery Management System (BMS) shall be capable of detecting problems (e.g. high temperatures, electrical faults) using cell and module voltage measurements and select temperature measurements within the batteries. Automatic disconnect of the batteries will occur if any unusual parameters are measured (i.e. parameters such as system temperature outside normal operational conditions). In the event of an electrical fault, the system will automatically shut down.



A Fire Risk/Emergency Response Plan for On-Site BESS has been prepared as part of this response and is contained in Appendix 2.1 of this report. This report contains details on the above mentioned control and safety systems which will be implemented at CGEP.

Each battery container will comprise high-quality galvanised metal with a separate external Heating, Ventilation and Air Conditioning (HVAC) to provide external climate control. The battery containers are 16.15m (L) x 2.59 (W) x 2.9 (H) each, and will sit on concrete pad foundations above the finished ground level. Technicians can access the containers with full width steps at one end and an emergency exit with steps at the other.

The cabling trenches and access infrastructure will be completed first. The foundations necessary for elevating the battery containers will then be completed and the empty metal containers brought on to the site and accurately placed in their final position by a mobile crane. Following the placing of the containers, they are then filled with battery racks brought to the site by lorry and connected together via wiring. Upon completion of the wiring of the containerized solution, all the ancillary infrastructure (inverter units, step up transformers and cooling units) will then be installed and connected.

In the extremely rare instance of a fire occurring within an individual container, the internal fire suppression technology will ensure the isolation of the fire within the fireproof container. Furthermore, in the unlikely event of a fire that needs to be extinguished, any water run-off or contaminates associated with fire retardant chemicals will be wholly contained within the specific container, and will be tankered off site by an authorised waste collector to a wastewater treatment plant. Only waste collectors holding valid waste collection permits under the Waste Management (Collection Permit) Regulations, 2007, will be employed to transport wastewater away from the site as described in Chapter 3 of the EIAR. The internal fire suppression technology is considered robust in nature and will act as the first response in the unlikely event of a fire incident.

The external colouring of the containers will be of a colour that is amenable to the surrounding landscape and does not create a visual intrusion (e.g. colours that would represent more natural background colours and be best absorbed into the existing landscape such as greens, browns or greys). The colour which will be used on the containers from the above options will be agreed with Cork County Council prior to commencement of construction. The BESS system has been sized at 50MW storage capacity. The exact rating of the proposed turbine and selected BESS unit will be subject to a competitive procurement process that will only commence if the project receives consent.



1.3 Borrow Pits

ABP Request:

"Similar to the matter addressed above, it is noted that Drawings P20-099-0300-0010, 0011 & 0012 relate to the three proposed borrow pits, and while the proposed borrow pits are outlined in summary detail in Section 9.3.2.3 of the EIAR this element of the proposed development is not outlined in any detail in Chapter 3 of the EIAR other than a summary reference at Section 3.5 (pg 4). The 'Description of Proposed Development' which addresses the elements of the development in some detail does not reference the proposed borrow pits.

(a) Please provide sufficient details to facilitate an assessment of the proposal".

Response

3 no. locations have been identified as proposed borrow pits. The borrow pit locations can be seen on Figure 9.1 of the EIAR. The proposed borrow pits will each have a footprint area of 6,400 m². This will provide a potential volume of 12,800m³ of site won General FILL based on an aggregate resource thickness of 2.0m at borrow pits BP01 and BP02. At borrow pit BP03 an aggregate resource thickness of 3.0m will provide a potential volume of 19,200m³ of General FILL. Details of each borrow pit are included in Drawings P20-099-0300-0010, 0011 & 0012.

Upon removal of the granular material/ rock from the borrow pits, it is proposed to reinstate the on-site borrow pits using excavated spoil. The excavated granular material from the borrow pits will be used in the construction of the infrastructure elements (turbine bases, roads, etc.) at the wind farm. The contractor excavating the granular material/ rock will be required to develop the borrow pits in a way which will allow the excavated spoil to be placed safely. It is proposed to construct cells within the borrow pits for the placement of the excavated spoil. This is to allow for the safe placement and grading of the spoil using dumper trucks and excavators. It also eliminates the need to construct above ground retaining structures which may have an unnecessary visual impact and increase the development footprint of the proposed wind farm.

The text below provides design and construction details for the borrow pits.

The borrow pits shall be constructed as follows:

- (1) The granular material within the proposed borrow pit footprints will be removed by excavation.
- (2) It is proposed to construct the borrow pits so that the base of the borrow pits are below the level of the adjacent section of access road. As excavation progresses into the back edge of the borrow pits, the base of the borrow pits will be raised to suit local conditions. Localised deepening of the borrow pit floors may be required depending on extraction operations.
- (3) Based on the depth and type of granular material present in the borrow pits it will be possible to excavate the granular material from the borrow pits whilst leaving in place upstands/segments of granular material which will help to retain the placed spoil. The upstands/segments of granular material will essentially act as engineered buttresses within the borrow pits.
- (4) Slopes within the excavated granular material formed around the perimeter of the borrow pits will be formed at stable inclinations to suit local in-situ conditions. Exposed sections of the excavation slopes will be left with irregular faces and declivities to promote re-vegetation and provide a naturalistic appearance.



- (5) The stability of the excavation faces within the borrow pits will be visually inspected by competent personnel upon excavation to ensure stability during construction works and in the long term. These visual inspections will prevent the development of conditions in which slope stability would be compromised (such as overly-steep slopes or inadequate drainage of excavation faces) and ensure preventative remedial measures are implemented in advance of any potential slope failure.
- (6) Where it is not possible to leave upstands/segments of intact granular material in place it will be necessary to construct buttresses within the borrow pits. The buttresses will be constructed of granular fill from the borrow pit excavation. The founding stratum for each buttress will be inspected and approved by a competent person.
- (7) It will be necessary to construct the buttresses within the borrow pits in stages as infilling of spoil behind the buttresses progress. The buttress will be constructed of granular fill and placed and compacted in suitable layers to form a buttress of sufficient stability to retain the placed spoil, as necessary.
- (8) Infilling of the spoil will commence at the back edge of the borrow pit and progress towards the borrow pit entrance/buttress. The contractor excavating the granular material will be required to develop the borrow pits in a way which will allow the excavated peat and spoil to be reinstated safely.
- (9) Where required, the formation number of buttresses to form cells within the borrow pits will ensure access for trucks and excavators can be achieved.
- (10) In order to prevent water retention occurring behind the buttresses, the buttress will be constructed of coarse boulder fill with a high permeability. The buttress will be constructed of well graded granular fill of 500mm in size. Alternatively, drains will be placed through the buttresses to allow excess water to drain.
- (11) Any buttresses will be wide enough to allow construction traffic access for tipping and grading during the placement of the excavated spoil. The side slopes of the buttress will be constructed between 30 to 45 degrees.
- (12) The height of the buttresses constructed will be greater than the height of the reinstated spoil to prevent any surface spoil run-off. Buttresses of 5m in height are likely to be required.
- (13) The use of temporary access ramps and long reach excavators during the placement of the excavated spoil will be required.
- (14) The surface of the placed spoil will be shaped to allow efficient run-off of surface water from the placed arisings.
- (15) A layer of geogrid will be used to strengthen the surface of the placed spoil within the borrow pits.
- (16) An interceptor drain will also be installed upslope of the borrow pit, where necessary. This drain will divert any surface water away from the borrow pit and hence prevent water from ponding and lodging during construction and also when reinstated.
- (17) Control of groundwater within the borrow pits will be required during the construction stage. A temporary pump will be installed and pumped groundwater from the borrow pits shall be discharged to the drainage system proposed for each of the borrow pits as shown on planning application drawings.
- (18) A dedicated settling pond will be installed at the lower side/outfall location of each of the borrow pits as shown on the planning application drawings.
- (19) Supervision by a geotechnical engineer will be undertaken throughout the construction process.
- (20) All the above mentioned requirements will be implemented at a minimum by the designer prior to construction.



The location of the proposed borrow pits are shown on Figure 9.1 of the EIAR and site layout plans (0100-Series) as part of the planning application. Details of the proposed borrow pits can be found in 0300-Series planning application drawings.

1.4 Receptors Within the Vicinity of the Site

ABP Request:

- (a) Figure 11-2 presented in the EIAR is stated to detail the receptors within the vicinity of the proposed development. Section 11.3.1 of the EIAR states that there are 2 planning consents within 1.38km of the turbines, however these are not shown.*
- (b) Furthermore, it is not clear whether the properties, residential or commercial or both of those landowners within whose property the turbines are proposed are included on Figure 11-2. Please address these matters.*
- (c) A number of submissions suggest that there are more than 115 receptors within the study area identified in Figure 12.1. Please respond to this matter.*
- (d) It is also stated that the 20 buildings classed as uninhabited/derelict/otherwise insensitive to shadow flicker, which have not considered as part of assessment, have not been identified. Please respond to this matter.*

Response

In response to request 1.4(a), clarification is required in relation to Figure 11-2 which is presented in the EIAR to detail the receptors within the vicinity of the proposed development and *Section 11.3.1* of the EIAR states that there are 2 planning consents within 1.38km of the turbines, however these are not shown. During re-examination of the planning search and survey of the receptors within the vicinity of the proposed development, we confirmed that the 2 no. planning consents referenced within 1.38km of the turbines in Chapter 11 of the EIAR were included in error. Further research showed 2 no. planning consents previously included referred to planning Reg. Ref 186352, which is an application for a single dwelling unit, and Reg. Ref. 165475, which is an extension of duration for a dwelling unit which is located outside of the 1.38km boundary of the proposed development. This error has since been rectified by the revision and updating of the House Survey.

An up-to-date planning search and survey of receptors within the study area of the proposed application site has been prepared and completed. These searches were conducted using both desk-top investigations and site visits of the receptors to assess the structures and obtain photographs where possible. This primary and secondary information has then been cross checked and compared with the existing house survey information for the site.

In addition, derelict sites identified during previous surveys have been re-examined to confirm their current status.



Buildings have been classified as follows in line with the EIAR:

- Residential;
- Commercial;
- Combined Residential and Commercial;

The updated house survey was conducted in order to ensure that the classification status of buildings within the designated study were still valid. The updated survey included a review of new planning applications. Receptors identified by the revised house survey are presented in Figure 1-1.

The findings of this revised and updated housing survey are:

- 2 no. planning permissions for additional commercial units which are extensions to existing receptors which relate to agriculture (Planning Reg. Ref: 205802 and Planning Reg. Ref: 206854)
- 1 no. additional residential receptor (Planning Reg. Ref: 215559) has been identified within the designated buffer zone, as indicated by the arrow in Figure 1.1, below. This application was granted on 11/10/2021.

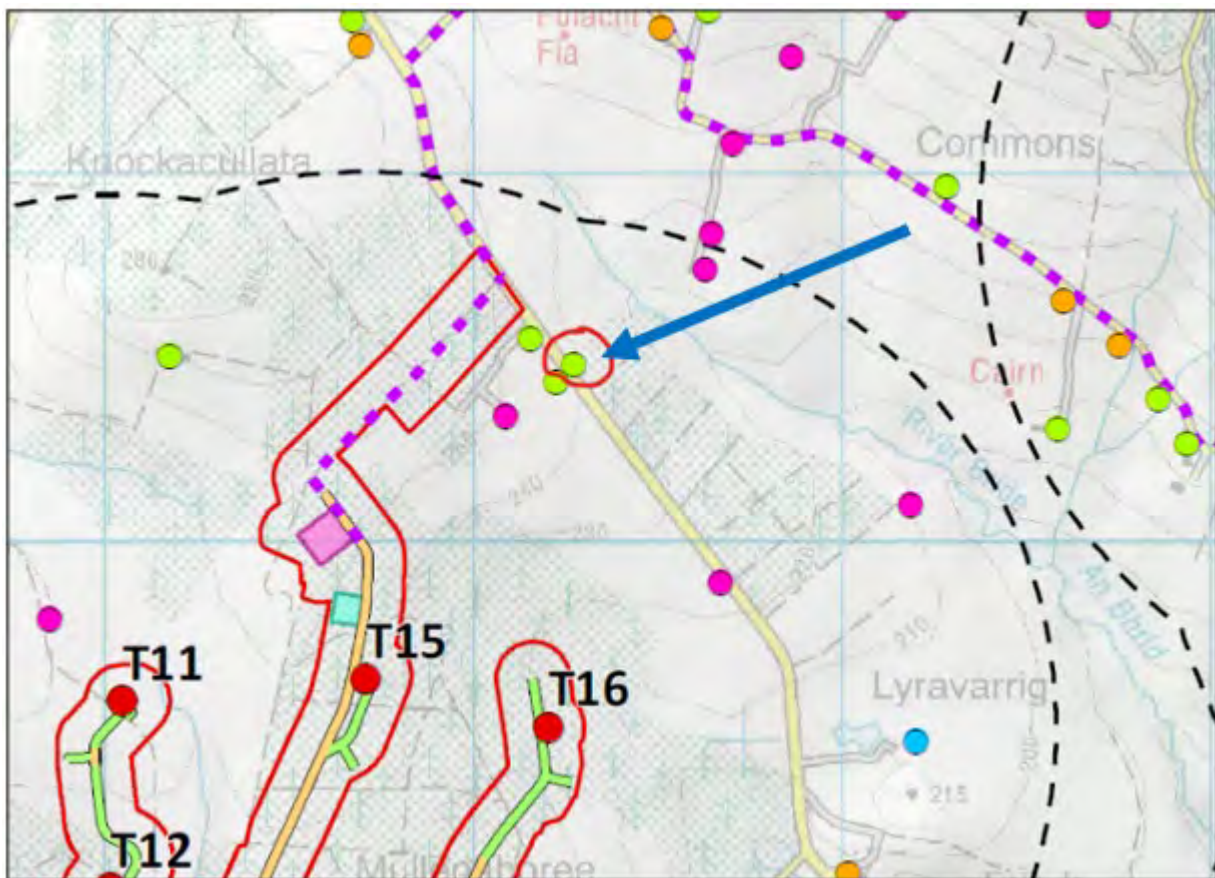


Figure 1-1: Extract from Figure 11-2 showing additional residential receptor.



The updated findings of the planning search and additional receptors have been included within the Receptor and Constraints Map which accompanies this response.

With respect to item 1.4(b), the classification of the receptors in question are identifiable as Residential, Commercial and combined 'Residential *and* Commercial' within the updated Figure 11-2 for the EIAR which has been included in Appendix 4 of this report. The colours for each of these types of receptor is clearly identified in the legend.

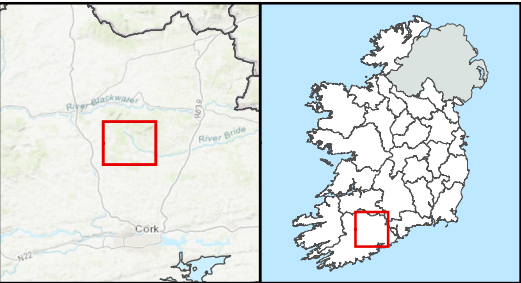
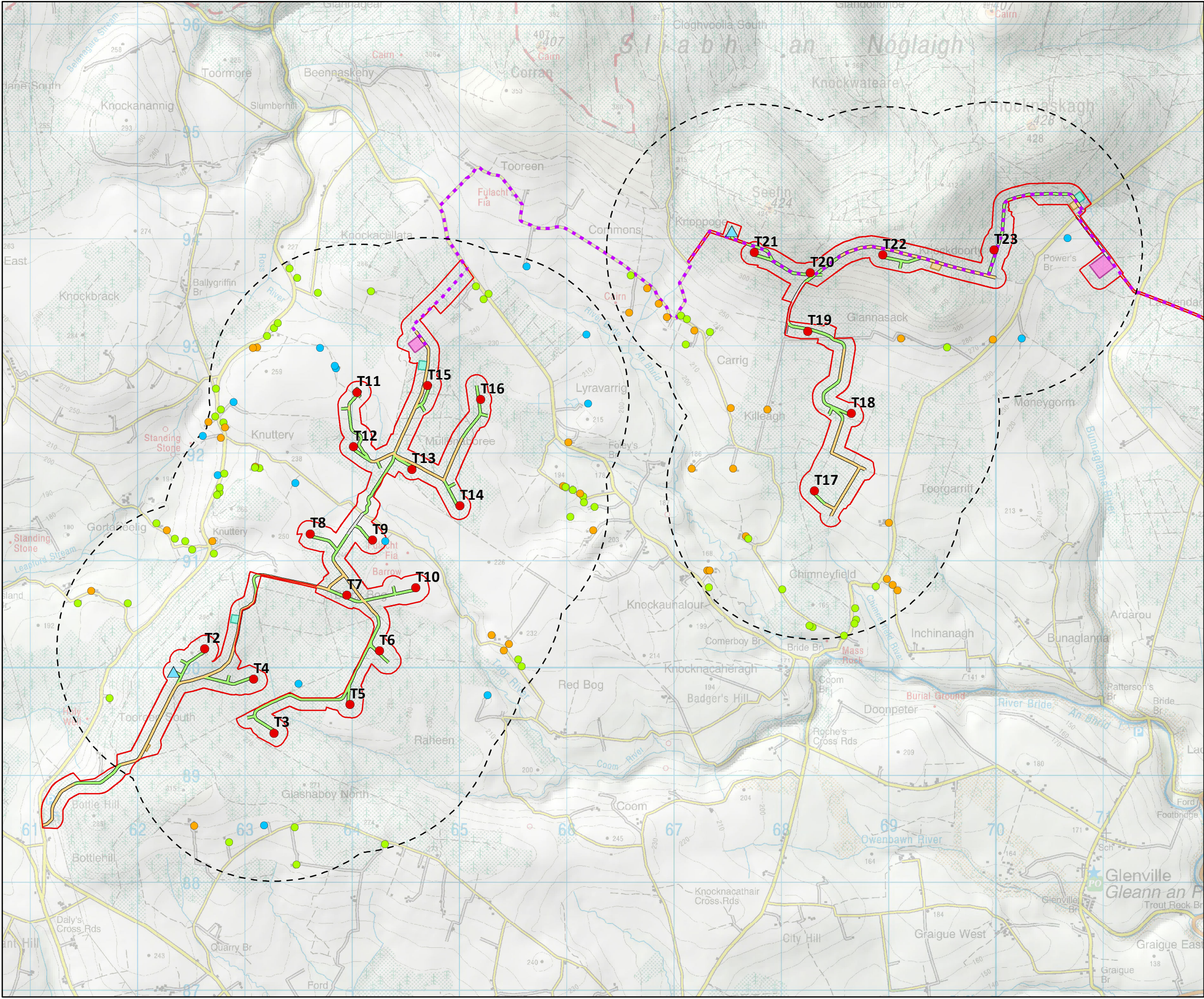
With respect to item 1.4(c) Figure 12-1 in the EIAR identifies a total of 95 no. receptors within 1.38km of the turbines. A total of 115 receptors have been assessed and identified within this revised housing survey.

It has been noted within our review of the third party observations, as submitted as part of this application, that observers suggest there are more than 115 receptors within the study area. In the course of our research for the purpose of this response, we believe this elevated figure may be due to the observers misclassifying residential, commercial and derelict receptors. This may arise when reviewing Eircode data when a commercial facility is detached from its adjoining residential use. However, no evidence has been provided to substantiate these assertions.

Any potential for inaccuracies with regard to the surrounding receptors has been eliminated by way of a visual inspection through site visits and photographing of the receptors where access is possible. This then corroborates the previous survey work and desk-top analysis of these receptors to ensure the designated classification for each individual receptor is accurate and up to date.

With respect to item 1.4(d), 8 no. receptors are classified as derelict in their current condition. These receptors have been evaluated following a visual inspection during a site visit. These 8 no. receptors are therefore regarded as insensitive to the location of the turbines as they are currently un-occupied and would require planning permission and extensive remedial works to become habitable. Thus, these receptors are not eligible to be part of the assessment, but are in the updated Figure 1-1. The reference to 20 no. receptors in item 4.1(d) has also been addressed, as the remaining 12 no. receptors have been accounted for.

To confirm the findings of the desktop studies for these receptors, a site visit was conducted to establish their status where access or a view of the receptor could be obtained. Where access or visibility allowed, it was possible to verify the receptors visited were used for commercial activities such as storage units or other agricultural purposes such as over-wintering cattle or hay storage. Therefore, these receptors have been deemed insensitive to the location of the turbines, as they are not used for human habitation or occupation.



Legend

- Proposed Development Boundary
- 1.38km from Turbine Layout
- Proposed Turbine Layout
- Proposed Permanent Met Masts
- Proposed Cable Route
- Existing Road
- Proposed Existing Road Upgrade
- Proposed New Road
- Proposed Borrow Pit
- Proposed Temporary Compound
- Proposed Substation

Receptors within the vicinity:

- Residential (56)
- Commercial (16)
- Residential and Commercial (35)

TITLE: Receptors within the Vicinity of the Proposed Development	
PROJECT: Coom Green Energy Park, Co. Cork	
FIGURE NO: 1.2	
CLIENT: Coom Green Energy Park Ltd.	
SCALE: 1:35000	REVISION: 0
DATE: 25/02/2022	PAGE SIZE: A3



2. BIODIVERSITY

2.1 Hen Harrier

ABP Request:

As a species listed on Annex I of the EU Birds Directive, the Board must ensure that any assessment of impacts to this species is fully in-line with the provisions of that Directive. While the proposed development is outside of any Special Protection Area for hen harrier, the Nagle Mountains are of significance for the species.

As set out in the Submission received from the Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media (Development Applications Unit), which you will have received, the Department state that they cannot agree with the conclusion (p. 188 of the EIAR) that: "Given a distance of at least 500m from known breeding areas displacement and disturbance are unlikely" as hen harriers are known to regularly hunt 4 km from their nest sites, particularly in landscapes such as this, where there is a relatively low availability of suitable habitat.

Response

The statement indicated above specifically relates to disturbance or displacement to Hen Harriers at the nest and does not include Hen Harriers foraging during the nesting season. This statement is based upon peer-reviewed studies that have examined the susceptibility of nesting Hen Harriers to disturbance or displacement impacts (e.g. Ruddock & Whitfield, 2007). It is acknowledged that there may be wider disturbance or displacement impacts to Hen Harriers, and this is addressed in section 8.5 and 8.7 of the EIAR.

Furthermore, they outline that the EIAR states (Chapter 8, p. 210) that "hen harriers do use areas close to turbines", but no evidence is provided of their use or success in capturing prey (strike rate, etc.) within 250m of an operational turbine. Neither is any evidence produced to support the claim by the EIAR (p. 210) that the 250m displacement is only "theoretical".

Response

The statement indicated above is based upon unpublished data obtained during surveys of Hen Harriers foraging at operational wind farms in Ireland. However, no reliance is placed upon the statement in relation to the determination of impacts to Hen Harriers nesting or foraging within 250m of the proposed projects area. This is evidenced within section 4.1 and section 9 of the Conservation and Habitats Management Plan (CHMP) which explicitly states that all suitable habitats within 250m of a turbine are considered to be no longer available for foraging Hen Harrier and this exclusion area forms the basis for the determination of the area required for positively managed habitat for Hen Harrier within the CHMP.

In addition, the Department note that a number of on-site and off-site measures are proposed (mentioned briefly in the EIAR p. 285), but their likely comparative success is not assessed (i.e. compared to no intervention), before concluding that the proposed wind-farm will have an imperceptible impact on hen harrier.

You are requested to respond to these matters raised.



Response

The updated CHMP (see Appendix 5) addresses this issue comprehensively. Habitat enhancement measures are proposed through the CHMP at alternative lands due to loss of potential foraging habitat within 250 metres radius of each turbine, which totals an area of 148.8ha.

The management prescriptions applied under the CHMP are based upon those used by the National Parks and Wildlife Service (NPWS) in the NPWS Farm Plan Scheme. These measures will benefit Hen Harrier in both the short and long term, and will ensure the supply of a substantial area of suitable foraging habitat for the local Hen Harrier population, over and above that potentially lost as a result of the proposed CGEP development.

The overall aim of the CHMP is to provide a net gain of foraging habitat for Hen Harrier for the lifetime of the proposed CGEP. The management prescriptions proposed will enhance the existing biodiversity of the site for prey items and wildlife in general, which is an extremely important component of the CHMP if it is to be successful. The Plan also promote a mosaic of vegetation types, which are optimal foraging habitat, and will improve foraging success rates and, consequently, breeding success rates for the local Hen Harrier population, which is the ultimate target of the CHMP.

It is concluded that the proposed Conservation and Habitat Management Plan will provide full and effective additional foraging habitat for Hen Harrier, as part of the proposed development of the CGEP.



2.1.1 Vantage point Surveys

ABP Request:

Please clarify what standard methodology was used to inform the Vantage Point flight activity surveys and indicate any deviation from standard best practice.

Please provide the rationale/methodology regarding the daytime survey timings within which vantage point surveys were undertaken, particularly as it relates to the hen harrier.

Please provide the name and expertise of the data collector/observer in the Avifauna Survey – Vantage Point Survey Watch Results provided in Appendix 8-A as per the requirements of Article 5 Paragraph 3 of the EIA Directive as amended.

Response

The methodology used for the Vantage Point Flight Activity Survey is stated in the EIAR in section 8.5.2.3.3 and 8.5.3.3.1 (SNH, 2017). There was no deviation for the standard methodology as indicated in the Best Practice Guidance (SNH, 2017). Over these 3.5 years of data collection (March 2016 to September 2019), the VPs changed to reflect modifications to the location of turbines on the site. This iterative approach to wind farm design was partly based upon re-locating turbines to avoid intensive areas of Hen Harrier activity. The identification of VPs was similarly designed to maximise coverage of the turbine layout, with all VPs subject to viewshed analysis. Note that Best Practice Guidance for evaluating flight risk for birds at onshore wind farms (SNH, 2017) requires two full years of data collection and only the most recent two years of the 3.5 years of data at CGEP were used. Furthermore, the requirement for surveys period (hours of surveys at each VP) was at least met for each VP in each season of survey work being undertaken. A full breakdown of all the hours of surveys undertaken at each Vantage Point is included in Appendix 8-A and is summarised in the Collision Risk Model (see Appendix 1.2 of this report) where these data are being used to determine collision risk. Dates and timings for all surveys are presented, showing that the full suite of Vantage Point surveys were undertaken across a range of survey times. It is important to note that pre-dawn and post-dusk surveys are required where wildfowl (particularly geese or swans) are identified as important ecological receptors at specific sites. These were not identified as critical receptors at the proposed CGEP area (there are no important sites for wintering wildfowl with any likely Zone of Influence at CGEP). VP surveys were therefore undertaken during daylight hours (including periods covering both dawn and dusk) and were undertaken when raptors are considered to be most active, and thereby ensuring that the Vantage Point Flight Activity Survey is representative of times when Hen Harriers and other raptor species are likely to be on the wing.

For undertaking Vantage Point Bird Flight Assessments, Best Practice Guidance states that the reliability of the assessment is dependent on the observers used to collect the underlying information. Using appropriately skilled and experienced observers is therefore essential. This is further reinforced with the EIA Directive, which under Article 5 (3)(a) states that:

“the developer shall ensure that the environmental impact assessment report is prepared by competent experts”

Detailed below are statements of authority for the ecologists that undertook the bird surveys, including the Vantage Point Bird Flight Assessment, for the proposed CGEP project.



All individuals are professional Ecologists with experience of undertaking this type of survey, in addition to other fields of expertise that some individuals may have.

Mr. Chris Cullen ACIEEM undertook bird surveys, data analysis and reporting for CGEP. He has a broad range of experience within the bird survey sector which has been acquired over the past 10 years in consultancy. He is a specialist in Ornithological surveys and assessments. Mr. Cullen was the former lead ecologist on the previously proposed Greenwire Project. In this role he oversaw the implementation of the equivalent of 150 days a month of winter and breeding bird surveys across 5 counties, including Co. Kildare, Meath, Westmeath, Laois and Offaly. He has written EIA and Appropriate Assessment reporting for 4 renewable SID projects and successfully defended ecology findings at oral hearing. He is an expert in current case law, legal review and due diligence.

Mr. Cullen has had a number of papers on birds published in peer reviewed publications such as Irish Birds, The Irish Naturalists Journal, The Proceedings of the Royal Irish Academy, Ringing and Migration and In Practice. He has also been a named author for additional papers published in journals such as Ibis.

Dr Alex Copland BSc PhD MEnvSc is Technical Director with INIS and undertook bird surveys and data analysis for this project. He has over 25 years of professional experience working in both statutory and private companies, in third-level research institutions and with environmental NGOs. He is proficient in experimental design and data analysis and has managed several large-scale, multi-disciplinary ecological projects. These have included research and targeted management work for species of conservation concern, the design and delivery of practical conservation actions with a range of stakeholders and end-users, education and interpretation on the interface between people and the environment and the development of coordinated, strategic plans for birds and biodiversity.

He has written numerous scientific papers, developed and contributed to evidence-based position papers, visions and strategies on birds and habitats in Ireland. He has supervised the successful completion of research theses for several post-graduate students, including doctoral candidates. He lectures to both undergraduate and post-graduate students at UCD, as well as being a collaborative researcher with both UCD and UCC. He also sits on the Editorial Panel of the scientific journal, Irish Birds, which publishes original ornithological research relevant to Ireland's avifauna.

Mr. Peter O Connor BA MSc QCIEEM is GIS Specialist at INIS Peter has been employed with INIS since August 2017. Peter has completed all the mapping for Viewshed Analysis in support of selected Vantage points for SNH based surveys. This involved the complex use of Digital Terrain Models, or Digital Elevations Models in addition to bespoke View shed Analysis plugins for ArcGIS. Peter was responsible for all data capture, and integration into project mapping of field data (habitats, Birds, Bats, Invasive Species, et c) for both the EIAR Biodiversity Chapter supporting Figures (Map books and Appendices) and Appropriate Assessment supporting maps.

Ms. Jennifer Pearson BA MSc GCIEEM undertook bird surveys and supported aspects of the data analysis. Jennifer has acted as Ecologist in respect of a number of SID developments in Ireland including wind farms, grid connection infrastructure, in addition to other developments. She has excellent written experience producing ecology reports including Ecological impact Assessments (EcIA and EIAR Biodiversity Chapters), Appropriate Assessment Stage 1 Screening and Stage 2 Appropriate Assessment reporting (NIS).

Jennifer has experience in various ecological field survey techniques including; Bat surveys carried out throughout all four seasons following Best Practice Guidelines (BCT Collins, 2016), Phase One Habitat surveys following JNCC Best Practice Guidelines, Habitat Surveys using Fossitt (2000) classification, breeding bird surveys, winter bird transects and vantage point surveys in line with Best Practice (Biddy et al 200,SNH, Hardey et al 2013) in addition to barn owl, otter and reptile surveys.



Ms. Olivia O 'Gorman BSc MSc undertook bird surveys for this project. She has been employed as an Ecologist since 2016 and holds both a Bachelor of Science Degree specialising in Zoology and a MSc in Ecological Assessment. Olivia is an experienced ornithological surveyor and has had extensive experience with Birdwatch Ireland working with breeding waders in the Shannon Callows. More recently, she conducts pre- and post-construction ornithology surveying for various projects around Ireland, using standardised techniques and methods in line with Best Practice (SNH, Bibby et al., 2000, Hardey et al., 2013) such as vantage point watches and CBS transects.

Mr. Sean Doyle BSc MSc undertook bird surveys for this project. He is an experienced ornithological surveyor and has had extensive experience conducting research on birds of prey. Currently, he conducts pre and post construction ornithology surveying for various projects around Ireland, using standardised techniques and methods in line with Best Practice (SNH, Bibby et al. 2000 and Hardey et al. 2013) surveys include vantage point watches and CBS transects. Seán has experience in various ecological field survey techniques including; Phase One habitat Surveys following JNCC Best Practice Guidelines, otter, reptiles, water vole, bat and badger surveys. Seán has previously fulfilled the role of ECoW during habitat alteration projects.

Mr. Donncha Ó Catháin BSc GCIEEM undertook bird and habitat surveys at CGEP and supported elements of the reporting for this project. He has extensive experience on pre and post construction ornithology surveying for various projects around Ireland, using standardised techniques and methods in line with Best Practice (SNH, Bibby et al. 2000 and Hardey et al. 2013) surveys include vantage point watches and CBS transects. He is also proficient in GIS and Appropriate Assessment Reporting, Habitat Identification and is a trained botanist.

Ms. Margaux Pierrel BSc MSc undertook bird surveys for this project. She holds an Agronomy Engineer Diploma (the equivalent to a Master's degree in environmental science). Margaux is an experienced ornithological surveyor and has had experience with breeding and wintering bird surveys, particularly for raptors. Margaux has experience in various ecological field survey techniques including bat surveys carried out during the active season following Best Practice Guidelines (BCT Collins, 2016), breeding bird surveys and winter bird Vantage Point surveys in line with Best Practice (Bibby et al., 2000; SNH, 2017; Hardey et al., 2013) in addition to mammal and invertebrate surveys.

Mr. Sam Bayley undertook bird surveys for this project. He has almost 20 years of experience as an Ecologist, Conservation Land Manager and Researcher. He worked for local authorities and The National Trust in England developing nature reserves both for their conservation value and public engagement. These included a large variety of projects from The Green Gym movement of encouraging a healthier lifestyle through conservation volunteering to big budget visitor access improvements, grant applications and landscape scale habitat restoration programmes.

Sam is an avid field naturalist with particular skills in dragonflies, butterflies, moths and birds. He is a highly skilled and qualified Bird Ringer and Bird Ringing Trainer working with British Trust for Ornithology and National Parks and Wildlife Service working on projects across County Cork as well as training PhD students and Post Docs at UCC.

Mr Barry O'Mahony BSc undertook bird survey for this project. He holds a degree specialising in Zoology, Biochemistry and Microbiology. Mr O'Mahony is an experienced field ecologist, with over 10 years professional experience in ornithological surveys. He has had extensive experience surveying inland and coastal wetlands sites using various methodologies, including Vantage Point surveys, bird transect surveys, breeding and wintering raptor surveys and wintering waterbird surveys.



2.1.2 Hen Harrier: collision risk

ABP Request:

Please clarify if the hen harrier collision risk model took account of future changes in forestry cover in the Study area and if not please address with regard to the Scottish Natural Heritage (SNH) guidance 2017 document entitled Wind farm proposal on afforested sites: advice on reducing suitability for hen harrier, merlin and short-eared owl.

Response

A revised Collision Risk Model (CRM) is provided in Appendix 1.2. This revision includes an assessment of impacts arising from changes in forestry cover. It is worth noting that the SNH guidance referred to provides no single solution to the issue of possible future habitat changes, nor any single, clear methodology to evaluate potential impacts.

One option suggested is to re-model the data in the absence of forestry cover, although it is noted that this can lead to both under or over estimation of collision risk. The approach adopted in the revised CRM presents a highly precautionary (over-estimated) approach, by assuming that no flight lines were recorded in forestry habitats, then removes all forestry habitats and re-assessing collision risk based upon a boot-strapped data set. A full description of the approach is included in the revised CRM.

ABP Request:

Please provide an assessment of the potential collision risks of guy wires of the two proposed meteorological masts to hen harriers.

Response

The revised met mast design presented in this F.I. submission requires no guy wires and therefore are not considered.

2.1.3 Conservation and habitat management plan

2.1.4 (a) Off-site Measures

The details of the new habitat and off-site measures are provided in Appendix 8-K of the EIAR with five areas selected for habitat management. However, as outlined by the Department the largest of these areas (No. 1) is existing heath and bog that would provide hunting/foraging habitat in any case, so it cannot be considered as equivalent habitat and cannot be considered as net gain.

Therefore you are requested to justify its inclusion as an area of net gain or submit a revised habitat management plan.



Response

The CHMP has been substantially reviewed to ensure that opportunities for Hen Harrier, and many other species of conservation concern (including the Red-listed Barn Owl, Kestrel and Meadow Pipit) are maximised. This includes the removal of previously assessed habitats (such as areas of heath and bog) to focus management on areas that are typically of low biodiversity value, particularly agricultural grasslands. This revised CHMP proposes six parcels of habitat to be managed for Hen Harrier for the lifetime of the proposed CGEP development. The management measures, which go beyond the measures for Hen Harrier in the NPWS Farm Plan Scheme and the Green, Low-carbon Agri-environment Scheme (GLAS) will ensure maximum benefits to a range of species. Furthermore, the extent of the area proposed for management under the CHMP goes substantially beyond that where potential Hen Harrier foraging habitat may be impacted by the proposed CGEP.

This CHMP has been very substantially revised, with only two Management Area in this CHMP having been retained from the previous CHMP (dated December 2020). All managed habitats proposed within this document are currently sub-optimal for Hen Harrier foraging. This document seeks to provide confirmation on management prescriptions to provide optimal foraging habitats that goes beyond the 148.8 ha of habitat calculated as potential lost to foraging Hen Harriers within the vicinity of the proposed CGEP, and provides a total of 160.75 ha of optimal, managed habitats for foraging Hen Harrier. This represents a Biodiversity Net Gain for Hen Harrier of 11.95ha, that will be managed for the lifetime of the proposed CGEP project.

All six identified Management Areas in the CHMP are within 5km of recent and historic (back to 2014) Hen Harrier nests. As Hen Harriers can forage up to 5km from the nest site, these management area offer an alternative to the areas where foraging habitat may be impacted by the proposed CHEP project.

2.1.5 (b) Plan Implementation

Concern has been raised that the lease agreement referenced as part of the Conservation and Habitat Management Plan (Section 7.2 Consent) has not been included with the application thereby it is not clear whether the proposed mitigation in respect of the off-site hen harrier forage habitat enhancement measures (Figure 4.2) can be implemented appropriately. Please respond.

You are also requested to provide further details in respect of the proposed monitoring of the effectiveness of the off-site hen harrier forage habitat enhancement measures proposed.

Response

The legal agreements with landowners include the CHMP as a schedule to be implemented as part of the management of identified areas. The CHMP outlines the measures that need to take place and therefore can be implemented. Please see legal letter contained in the CHMP confirming the legal interest that CGEP has in these lands to allow the CHMP be implemented.

Monitoring is integral to the success of the CHMP, and is included within that document (See Appendix 5 section 8). In brief, areas of Hen Harrier foraging habitat (i.e. wet grassland, hedgerows, scrubby earth banks and wet heath) will be accurately mapped and will be monitored annually, for the lifetime of the proposed CGEP, to guarantee that the areas associated with the CHMP have not reduced in area and that the grazing regime that is in place is improving (for Hen Harrier) the current state of these habitats (i.e. neither poaching nor overgrowth of open areas is occurring). As well as mapping, this monitoring will be recorded by means of fixed-point photography.



Additional, annual bird monitoring will take place throughout the construction period and operational phase of the proposed CGEP development to monitor nesting activity and confirm usage of the six enhancement areas by Hen Harrier, throughout the breeding season.

2.2 Sediment Traps

ABP Request:

- (a) You are requested to clarify whether rock-structured, lined, sediment traps can be used along road drains for sediment control, and can there be a commitment to ensure that these are regularly cleaned out during the construction period prior to establishment of sufficient vegetation cover. If so, please provide an indicative map of the spacing of these traps, relative to drain slope.*

Response

The EIAR and associated Surface Water Management Plan submitted with the EIAR describes sediment traps as follows: Both silt traps and check dams will be used to catch the sediments within the swales. The unsettled particles will run through a settlement pond and discharged diffusely. Silt traps will be provided in swales which will consist of geotextile staked across the swale at regular intervals. The geotextile will be weighed down on the upstream side with clean filter stone to provide further filtration and stability to the silt trap, as shown in Figure 4 to Figure 6 in the Surface Water Management Plan (SWMP). For ease of reference these figures have been shown below from Figure 2-1 to 2-3.

A plan of the silt trap locations is shown in Figure 2-2.



Figure 2-1: Silt Trap across Grassed Swale

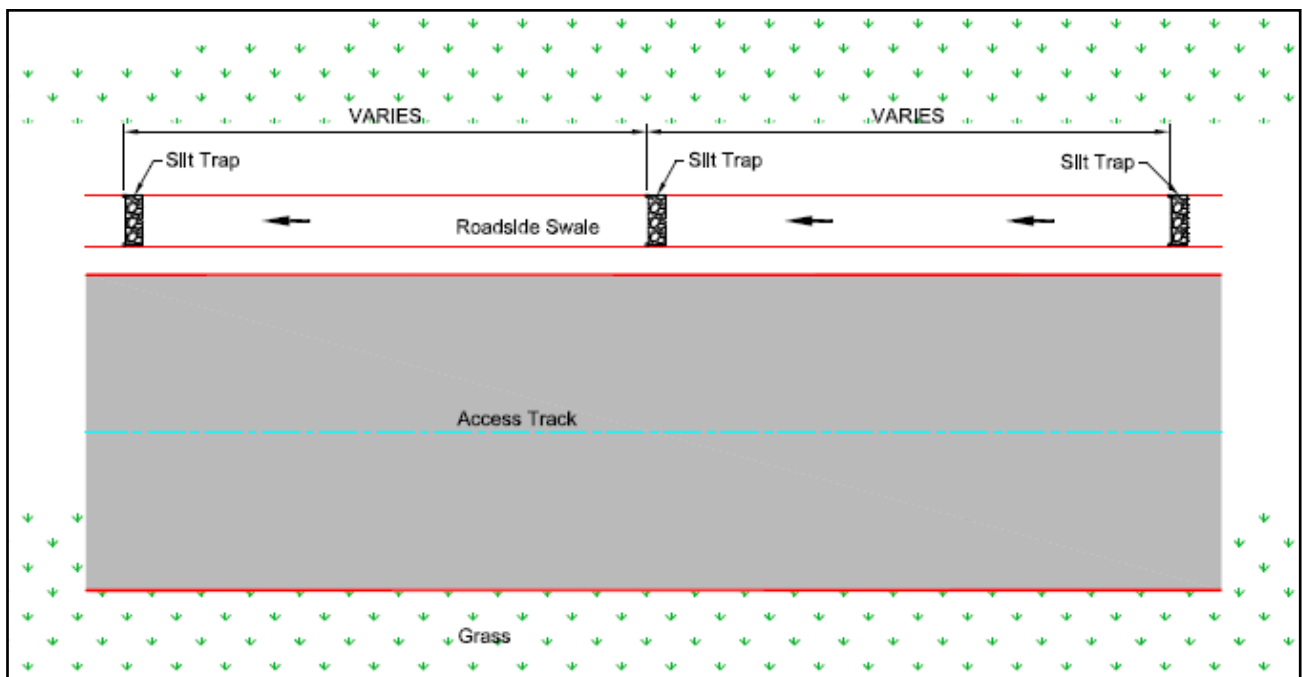


Figure 2-2: Plan of Silt Trap in Swale

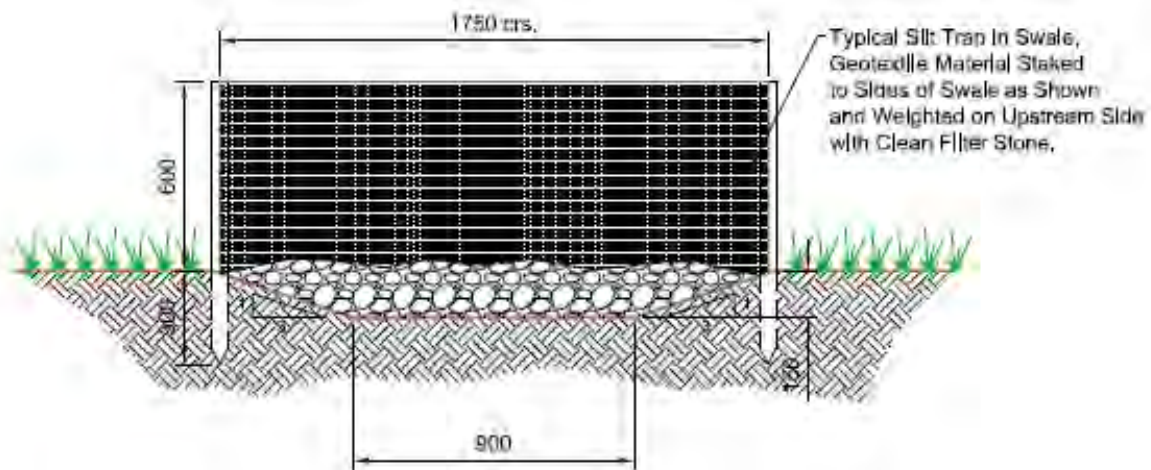


Figure 2-3: Silt Trap Details

While the EIAR does not specify that the sediment traps will be rock lined, the applicant commits to ensuring that rock-lined, sediment traps will be used along road drains for sediment control, and commits to ensure that these are regularly cleaned out during the construction period prior to establishment of sufficient vegetation cover.

On slopes, silt traps will be placed at regular intervals between check dams. At slopes greater than 2%, check dams will be required in the swales and interceptor drains to slow down the velocities of flows and prevent erosion occurring, as shown in 2-4. These check dams will be in stone of minimum size 37.5 mm and will be laid at a spacing of between 9 and 30 m dependent on the slope.

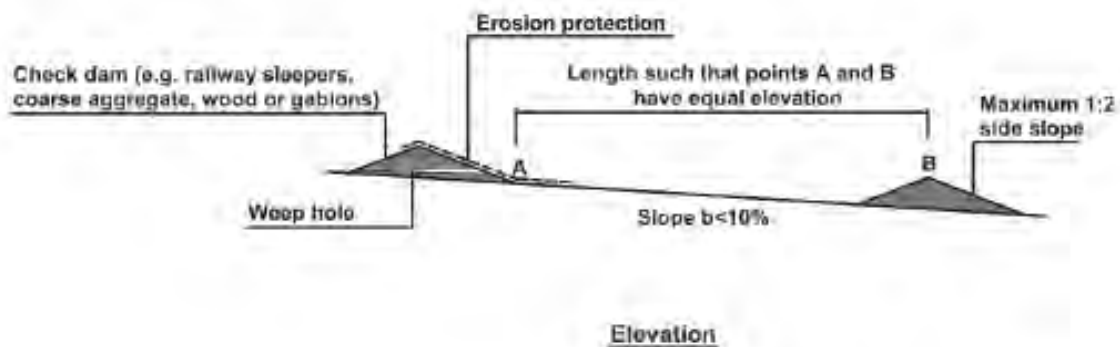


Figure 2-4: Check Dam Details

An Environmental Clerk of Work (ECOW) will be appointed by the developer to ensure the effective operation and maintenance of drainage and other mitigation measures during the construction process. The operations management of the subject development will include regular monitoring of the drainage system and maintenance as required. The developer will ensure that erosion control, namely silt-traps, silt fencing, swales, stilling ponds and diffuse outflow areas are regularly maintained during the construction phase.

Section 10.2.2 of the EIAR lists the latest guidelines to identify relevant objectives relating to hydrology and surface water quality. CIRIA C648 (Control of water pollution from linear construction projects (C648), recommends silt traps across the swales for catchments less than 0.5 ha (5000 m²). The access roads will be 5m wide. Therefore, according to CIRIA C648, it is recommended to locate silt traps every 1000m.



For CGEP it is proposed that the following minimum spacing shall apply for silt traps along access roads in addition to the rules already set out in the SWMP submitted with the EIAR. The following maximum spacing will be applied relative to drain slope as outlined in Table 2-1 below.

Table 2-1: Recommended spacing

Max Spacing	Gradient
50m	> 10%
100m	5- 10%
200m	< 5%

The silt fences will be inspected regularly and after rainfall events by the Environmental Clerk of Works (ECOW) as outlined in Section 1.5 of the SWMP in Appendix 10.4 of the EIAR.



3. NOISE

ABP Request:

(a) Submissions received by the Board in respect of the subject application, including the report from the Planning Authority, include a number of reports prepared by Acoustic/Related Consultants/Experts which critically assess the information provided in Chapter 7 of the EIAR and related appendices. You are requested to review the submissions and respond/clarify accordingly.

(b) Specifically, you are requested to submit a noise contour map detailing the study area relative to the proposed turbines. In addition, the respective locations and distances of all noise sensitive receptors within 500m, 1000m, 1500m and 2000m of the turbines should be presented with all occupied, unoccupied and permitted dwellings identified including dwellings that have a specific interest in the proposed development included.

3a Response

The reader is referred to Appendix 2 Section 3.2 Issue 4 and Section 5.3 which addresses this request.

3b Response

A noise contour map detailing the study area relative to the proposed turbines has been prepared as part of this RFI response and can be found in Appendix 4 of this report. As requested by the Board, the respective locations and distances of all noise sensitive receptors within 500m, 1000m, 1500m and 2000m of the turbines are presented with all occupied, unoccupied and permitted dwellings identified. Note that for certain receptors and turbine combinations a +3dB correction is added to the results, where sound propagation occurs across a valley.

The map represents an up to date receptor dataset following a planning search and survey of receptors within the study area of the proposed application site as described in detail in Section 1.4 of this report.

Individual dwellings that have a specific interest in the proposed development are not called out on the map however no reduced setback distances to involved landowner residential properties are being proposed. As described in the EIAR, there are no receptors within 750m of the proposed wind turbines. The closest residential receptor is located 755m from a wind turbine.



4. LANDSCAPE

4.1 Classifications

ABP Request:

- (a) *"Table 15-3 of the EIAR outlines the Landscape Impact Significance Matrix which the preceding paragraph notes is based on a balance between the sensitivity of the landscape receptor and the magnitude of the impact. While Tables 15-1 & 15-2 describe the classifications for sensitivity and magnitude, there is no such description for the classifications used in Table 15-3. Similarly, Table 15-5 outlines the Visual Impact Significance Matrix, with the same classifications as those within Table 15-3, with Table 15-4 categorising magnitude value and sensitivity. To facilitate a thorough assessment of the analysis undertaken, you are requested to present a description of the classifications provided in Table 15-3 and 15-5".*

Response

The draft EPA guidelines provide a general methodology and impact ratings for all environmental topics covered in an EIAR; the GLVIA (2013) provides specific guidelines for landscape and visual impact assessment. Therefore, a combination of the draft EPA guidelines and the GLVIA has informed the methodology for the assessment. In respect of significance terminology and definitions, the EPA Guidance states; *"Significance is a concept that can have different meanings for different topics – in the absence of specific definitions for different topics the following definitions may be useful ..."*.

It then provides a table of seven categories from 'Profound' to 'Imperceptible'. By contrast, the GLVIA recommends the use of a *"word scale for degrees of significance"* and uses a four category example that does not use the term 'significant' within it, on the basis that *"problems can arise where separate topic assessments use the same or similar terminology in the evaluation of significance, but define these terms differently"*. Instead, LVIA practitioners have flexibility to determine the scale terms they use, but must clearly indicate which categories are deemed to be 'Significant' impacts in EIA terms. In the case of the project LVIA, a clear indication of what categories are deemed to be significant was provided in respect of the identical significance matrices (Table 15.3 & 15.5) in the project LVIA i.e. 'Substantial' and 'Profound-substantial' as shown with grey shading in the extracted significance matrix, below.

	Sensitivity of Receptor				
Scale/Magnitude	Very High	High	Medium	Low	Negligible
Very High	Profound	Profound-substantial	Substantial	Moderate	Slight
High	Profound-substantial	Substantial	Substantial - moderate	Moderate-slight	Slight-imperceptible
Medium	Substantial	Substantial - moderate	Moderate	Slight	Imperceptible



	Sensitivity of Receptor				
Scale/Magnitude	Very High	High	Medium	Low	Negligible
Low	Moderate	Moderate-slight	Slight	Slight-imperceptible	Imperceptible
Negligible	Slight	Slight-imperceptible	Imperceptible	Imperceptible	Imperceptible

*Light grey shading indicates a level of impact that is considered to be 'significant' in EIA terms

The significance matrix is a summary judgement table that combines sensitivity and magnitude effects that have already been textually defined (Tables 15.1, 15.2 and 15.4). It also includes an indication of the categories that are deemed to be significant (i.e. 'Substantial' and above). It is not usually considered necessary to define all of the significance categories, however, in the interests of clarity and reconciling with the EPA defined terms, see Table 4.1, below:

Table 4-1: Correlation of project LVIA and EPA significance terminology

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

Based on the discussion above as represented in Table 4.2, the term 'Substantial' in the project LVIA can be read as 'Significant' in correlation to the EPA definition.



4.2 Visual Impact on Receptors

ABP Request:

(b) "Receptors 36 & 37 – As outlined by the Planning Authority, no visuals have been provided in the vicinity of this cluster of dwellings (as referenced in Figure 12-1 in the EIAR) and it is noted that VP15 & VP16 are at a considerable remove. You are therefore requested to provide a photomontage from these receptors".

In response to this request, Macro Works captured photography and prepared photomontages at two additional locations to represent receptors 36 & 37, as identified by Cork County Council. These photomontages are included in Appendix 1.4 of this report. These are assessed below:

Viewshed Reference Point		Direction of View	Distance to nearest turbine:	Number of turbine nacelles visible:
RFI2	Local road at Coom	NW		
Representative of:	<ul style="list-style-type: none"> Local Community Views 			
Receptor Sensitivity	Medium-low			
Existing View	This is an open, but not extensive view across a broad plateau of rolling farmland and forestry from a quiet local road that runs between Knuttery and Red bog through the Bottle Hill portion of the site. This view represents the closest farmstead to the east of the Bottle hill cluster of turbines. The topography descends gently away from the viewer as good quality pasture and then rises again in broad forestry plantations in various stages of rotation.			
Visual Impact of Coom Wind Farm	<p>The proposed Bottle Hill cluster of turbines will all be relatively openly visible from here throughout the north-western quarters though there is less potential to see the other cluster of turbines on the slopes of the Nagles further to the northeast. At distances ranging between about 1km and 3km the Bottle Hill turbines will be a prominent and defining element within the view. However, they will not appear spatially dominant and overbearing in this context and they will not be the only defining element of what remains a productive rural landscape of broad scale farming and forestry.</p> <p>The turbines will considerably increase the scale and intensity of built development within this visual setting as well as dynamic movement within a largely static upland scene. The array has a broad lateral extent, but with that a strong sense of permeability. The scale differential between the nearest and furthest turbines also highlights the depth of the array and separation distances between turbines in a legible manner.</p> <p>The visual impact here is a balance between strong visual legibility, but also considerable intensification of built development. Overall, the impact is deemed to be High.</p>			
Summary	Based on the assessment criteria and matrices outlined in section 14.1.1 of the project LVIA, the significance of visual impact is summarised below.			
	Visual Receptor Sensitivity	Visual Impact Magnitude	Significance of Visual Impact	
	Medium-low	High	Substantial-moderate	



The Substantial-moderate impact outlined above is equal to the level of significance of impact assessed for VP6 and VP7 in the original LVIA. However, this is the highest level of impact magnitude assessed for any of the viewpoints selected to represent local community views. Though this is equivalent to the highest significance previously assessed, it is not considered that the impact is significant in EIA terms.

4.3 Other Matters

ABP Request:

- (c) *Reference is made in the consideration of cumulative impacts at Section 15.10.1 of the EIAR to the Barranafaddock Wind farm which it is stated is 23km east in the Knockmealdown range. It is noted that this windfarm is not included in the Table outlining projects considered in the cumulative assessment in Appendix 2 and therefore clarity should be provided as to whether it is referred to by another name in that Table or if not if the relevant details could be provided for the development.*

Barranafaddock wind farm was only mentioned in passing in the introduction to section 15.10 i.e. there are no other wind farms besides Esk contained within the study area but there are a few not far outside of it. The LVIA study area was determined on the basis of the Irish Wind Energy Guidelines (both current 2006 and Draft Revised 2019 versions), which determine that a 20km radius study area should be used for turbines in excess of 100m blade tips. This has been standard practice for wind energy developments in Ireland for nearly two decades. It is considered reasonable that the Draft Revised Wind Energy Guidelines (2019) have not increased the recommended LVIA study area as it is very unlikely that wind energy developments separated by such large distances could generate significant cumulative effects in-combination with each other.



5. LAND, SOIL AND GEOLOGY

5.1 Classifications

“(a) Table 9-5 of the EIAR outlines the Ratings of Significance of Impacts for Geology/Hydrogeology (NRA 2009). To facilitate a thorough assessment of the analysis undertaken, you are requested to present a description of the classifications provided in Table 9-5”.

Table 5-1: Copy of EIAR Table 9-5 - Ratings of Significance of Impacts for Geology/Hydrogeology (NRA, 2009)

Importance of Attribute	Magnitude of Impact			
	Negligible	Small Adverse	Moderate Adverse	Large Adverse
Very High	Imperceptible	Significant/Moderate	Profound/Significant	Profound
High	Imperceptible	Moderate/Slight	Significant/Moderate	Profound/Significant
Medium	Imperceptible	Slight	Moderate	Significant
Low	Imperceptible	Imperceptible	Slight	Slight/Moderate

Significance of Impact:

Imperceptible: An impact capable of measurement but without noticeable consequences.

Slight: An impact which causes noticeable changes in the character of the environment without affecting its sensitivities.

Moderate: An impact that alters the character of the environment in a manner consistent with existing and emerging trends.

Significant: An impact, which by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.

Profound: An impact which obliterates sensitive characteristics.

Importance of Attribute:

Low: Attribute has a low quality, significance or value on a local scale. Degree or extent of soil contamination is minor on a local scale. Volume of peat and/or soft organic soil underlying route is small on a local scale.

Medium: Attribute has a medium quality, significance or value on a local scale. Degree or extent of soil contamination is moderate on a local scale. Volume of peat and/or soft organic soil underlying route is moderate on a local scale.



High: Attribute has a high quality, significance or value on a local scale. Degree or extent of soil contamination is significant on a local scale. Volume of peat and/or soft organic soil underlying route is significant on a local scale.

Very High: Attribute has a high quality, significance or value on a regional or national scale. Degree or extent of soil contamination is significant on a national or regional scale. Volume of peat and/or soft organic soil underlying route is significant on a national or regional scale.

Magnitude of Impact:

Negligible: Results in an impact on attribute but of insufficient magnitude to affect either use or integrity.

Small Adverse: Results in minor impact on integrity of attribute or loss of small part of attribute.

Moderate Adverse: Results in impact on integrity of attribute or loss of part of attribute.

Large Adverse: Results in loss of attribute.



6. AVIATION

ABP Request:

- (a) Observations have been received from the Irish Aviation Authority including the IAA Engineering Department. You are requested to address their requirements in respect of the potential impact on the Cork ILS 16 (LOC 16) coverage area.

6a Response:

Coom Green Energy Park Ltd has commissioned Flight Calibration Services Ltd (FCSL) to assess if the proposed CGEP will have any adverse effect on flight inspection procedures and profiles associated with the Cork Airport Runway 16 Instrument Landing System (ILS). FCSL's assessment report is included in Appendix 6 of this report.

The assessment concludes that a flight inspection aircraft flying centreline, part orbit, bottom edge, slice and left slice 8° flight profiles associated with the Cork Airport Runway 16 ILS will remain sufficiently clear of the proposed Coom Green Energy Park site in Visual Meteorological Conditions (VMC).

However, if the 17 nautical miles part orbit profile is to be flown in Instrument Meteorological Conditions (i.e. in poor visibility), the part orbit height will need to be increased to allow 1,000 ft vertical clearance above the highest wind turbine (T22). For the slice and left slice 8° profiles, the proposed wind farm will require that these profiles are flown at higher altitudes to provide sufficient clearance above the proposed wind turbines.

The flight inspection Glide Path slice and left slice 8° profile (level runs) will have to be raised to an altitude of 2,800ft in Instrument Meteorological Conditions to provide the flight inspection aircraft adequate clearance over the proposed wind turbines. If there is insufficient Glide Path Radio Frequency signal for the extended level run at 2,800 ft then it may not be possible to conduct this flight inspection in conditions of bad visibility.

FCSL recommend that flight trials should be conducted at the next routine Runway 16 ILS flight inspection to assess the radio frequency signal levels for extended Glide Path level runs at an altitude of 2,800 ft above mean sea level.

Overall, the impact of the proposed Coom Green Energy Park on Runway 16 ILS flight inspection procedures is expected to be minimal, with minimal cost implications, as ILS flight inspection tasks are normally planned such that they are conducted in conditions of good visibility.

ABP Request:

- (b) You are also requested to clarify the following: Section 16.5.2.5 of the EIAR - Construction Phase – states that “no scoping response was received by the IAA or DAA citing any concerns with the proposed development despite multiple attempts at engagement It is considered therefore that there will be no significant effect on aviation from the proposed development”. However, both Table 16.1 and Section 16.4.1 refers to correspondence received from the Irish Aviation Authority. Please clarify.



6b Response:

To clarify, the text set out in Section 16.5.2.5 of the EIAR is factual. The consultant did not receive any response from the IAA or DAA during the EIAR scoping process. The IAA and DAA were issued the scoping report on the 25th June 2019. No response was received from the IAA or DAA. An update letter with the latest layout was issued to the IAA 7th September 2020. No response from the IAA was received.

Consultation first took place directly between the IAA Airspace & Navigation and the developer in July 2018, at an early stage in the project. This resulted in further correspondence received from the IAA on the 16th of June 2019, prior to issuing of the scoping report. Meetings then took place between the developer and the IAA on the 26th of July 2019 and 2nd of August 2019 to resolve potential issues. A design solution was put forward to avoid potential impact. Turbine quantity was reduced and a Radar Vectoring Area Assessment was provided to the IAA. Finally, correspondence was received 31st of October 2019 indicating that the IAA had no further objections to the proposed development.

“The IAA ATM Operations and Strategy Directive, whom I represent, has no objection to this development”.

To clarify, no scoping response was received from the IAA or DAA. The text in Table 16-1 and Section 16.4.1 of the EIAR states that a scoping response was received from the IAA, when in fact the consultation with the IAA was separate to the scoping process.

ABP Request:

- (c) Section 16.7 of the EIAR states that “During the development of any large project that holds the potential to effect telecoms or aviation, the Developer is responsible for engaging with all relevant Telecoms Operators and Aviation Authorities to ensure that the proposals will not interfere with television or radio signals by acting as a physical barrier. In the event of any potential impact, the Developer for each individual project is responsible for ensuring that the necessary mitigation measures are in place. Therefore, as each project is designed and built to avoid impacts arising, cumulative impacts are unlikely”.

The consideration of cumulative impacts provided in relation to the above, refers to the process by which cumulative impacts should be addressed rather than a consideration of any cumulative impacts. You are therefore requested to provide a consideration of the cumulative impact of the proposal with the other developments referenced.

6c Response:

A cumulative assessment has been carried out for the proposed development, to include projects listed in Section 16.7 of the EIAR. This includes other operational wind farms in the greater area of the CGEP site and major infrastructure projects including road schemes. Small scale development such as one-off housing and agricultural related development was also considered for cumulative impact, however, no potential effects were identified, therefore, small-scale development was screened out of the cumulative assessment.

The projects considered in the cumulative assessment are fixed infrastructure, or in the case of forestry activities, an activity centred in a fixed area.



Individual projects have potential to a) have no impact on telecommunications and aviation, or b) have potential impact on telecommunications and aviation, whereby mitigation is required. In each case, it is the responsibility of the developer of a project to mitigate against any potential negative impact to telecommunications and aviation.

In relation to potential impacts of the proposed CGEP on telecommunications, one telecommunications operator, Novatel, has indicated that there will be a small percentile of customers that will be affected particularly south facing. Mitigation measures put in place during construction will ensure broadband service is not interrupted. There will be no significant effect on all other telecommunication operations as a result of the development of the CGEP. Mitigation measures are set out in Section 16.6 of the EIAR.

In relation to potential impacts of the proposed CGEP on aviation, no significant impacts have been identified in the EIAR and no significant impacts have been identified in the additional ILS assessment included in this response to further information.

Taking into account the absence of significant effects on telecommunications and aviation as a result of the development of the CGEP, the following sets out an assessment of potential cumulative impacts of the CGEP in relation to other projects and activities with potential to affect telecommunications and aviation.



Table 6-1: Cumulative assessment of the CGEP in combination with other plans and projects – Telecommunication and Aviation

Project	Likely Effects of the Identified Project	Cumulative Effects in Combination with the Proposed CGEP
Bottlehill Landfill	The Bottlehill Landfill Facility is an existing facility which does not negatively affect telecommunication signals or aviation activity. Any future operation of this facility as permissible in its planning consent will not have any effects on telecommunications links or aviation activities.	As there are no potential negative affects resulting from the existing Bottlehill Landfill Facility, no likely cumulative effects are predicted in combination with the CGEP.
Castlepook Wind Farm	The existing Castlepook Wind Farm was designed with all turbines set back a suitable distance from telecommunications links. There is no impact of the existing project on aviation activity. Therefore, the existing Castlepook Wind Farm will have no impact on existing telecommunications links or aviation activities.	As there are no potential negative affects resulting from the existing Castlepook Wind Farm, no likely cumulative effects are predicted in combination with the CGEP.
Knocknatallig Wind Farm	The Knocknatallig Wind Farm consists of 6 no. existing wind turbines. The design of the project avoided impacts on existing telecommunications links and aviation activities. Therefore, the existing Knocknatallig Wind Farm will have no impact on existing telecommunications links or aviation activities.	As there are no potential negative affects resulting from the existing Knocknatallig Wind Farm, no likely cumulative effects are predicted in combination with the CGEP.
Boggeragh Wind Farm	The existing Boggeragh Wind Farm was designed to avoid any impact on telecommunications links. Any subsequent impact to links resulting from the existing wind farm have been mitigated. Furthermore, the existing wind farm does not impact on aviation activity. Therefore, the existing Boggeragh Wind Farm will have no impact on existing telecommunications links or aviation activity.	As there are no potential negative affects resulting from the existing Boggeragh Wind Farm, no likely cumulative effects are predicted in combination with the CGEP.
Esk Wind Farm	The existing Esk Wind Farm was designed to avoid impact on existing and proposed telecommunications links. Effects on aviation activities was not identified. Therefore, the existing Esk Wind Farm will have no impact on existing telecommunications links and aviation activity.	As there are no potential negative affects resulting from the existing Esk Wind Farm, no likely cumulative effects are predicted in combination with the CGEP.



Project	Likely Effects of the Identified Project	Cumulative Effects in Combination with the Proposed CGEP
Single Wind Turbine (Pluckanes)	The Pluckanes Wind Farm is an existing single wind turbine. The turbine is located in a position which does not affect existing telecommunications links or aviation activity. Therefore, the existing Pluckanes Wind Farm will have no impact on existing telecommunications links or aviation activity.	As there are no potential negative affects resulting from the existing Pluckanes Wind Farm, no likely cumulative effects are predicted in combination with the CGEP.
M20 Motorway	The M20 Cork to Limerick Road Improvement Scheme by nature of the works is unlikely to interfere with Telecommunications links and aviation activity.	Considering the distance between the proposed M20 Development and the CGEP, no likely impacts on telecommunication links and aviation activity has been identified in combination with the CGEP.
M28 Motorway	The M28 motorway project is planned to upgrade approx. 12.5Km of the N28 National Primary Route from the N40 South Ring Road to Ringaskiddy. Due to the nature of the roadworks, it is unlikely to have an impact on telecommunication links and aviation activity.	Considering the distance between the M28 and the CGEP, no likely impacts on telecommunication links and aviation activity has been identified in combination with the CGEP.
Dunkettle Interchange	The Dunkettle interchange was designed to avoid impact on existing and proposed telecommunications links. Due to the nature of the development it is unlikely to impact on aviation activity. Therefore, the Dunkettle Interchange will have no impact on existing telecommunications links and aviation activities.	As there are no potential negative effects on telecommunications and aviation resulting from the Dunkettle Interchange, no likely cumulative effects are predicted in combination with the CGEP.
Existing Forestry Activity	Forestry activity in the vicinity of the CGEP is ongoing and consists of a longstanding programme of planting, felling and replanting. The plantations grow to a uniform height before felling. The longstanding practice is unlikely to deviate from its existing form. An afforestation licence is required for any additional plantations. Considering the longstanding forestry practice in the area, it is unlikely that the continued forestry activity has negative impacts on existing telecommunications links or aviation activities.	Ongoing forestry activities in the vicinity of the CGEP is not likely to impact on telecommunications links or aviation activities and therefore no likely cumulative effects are predicted in combination with the CGEP.



Project	Likely Effects of the Identified Project	Cumulative Effects in Combination with the Proposed CGEP
Replant Lands at Moneygorm	No telecommunications links have been identified at the replant lands site at Moneygorm. Therefore, it is unlikely that replanting of this site will affect telecommunication links or aviation activity.	As there are no potential negative affects resulting from the replanting of lands at Moneygorm, no likely cumulative effects are predicted in combination with the CGEP.
Replant Lands at Ballard.	Replanting of lands located at Ballard, County Wicklow is not likely to impact on telecommunications links in the area.	Replant lands located at Ballard, County Wicklow are a significant distance from the proposed CGEP and will therefore have no potential cumulative impact in combination with the CGEP on telecommunications or aviation activity.
Ballinagree Wind Farm	The proposed Ballinagree Wind Farm has identified no potential impacts on existing or proposed telecommunications links and no potential impact on aviation activity. Therefore, no impact is likely to occur.	As there are no potential negative affects resulting from the proposed Ballinagree Wind Farm on telecommunications and aviation, no likely cumulative effects are predicted in combination with the CGEP.
Annagh Wind Farm	The proposed Annagh wind farm has identified no potential negative effects on existing or proposed telecommunication links and no potential negative impacts have been identified on aviation activities. Therefore, no impact is likely to occur.	As there are no potential negative affects resulting from the proposed Annagh Wind Farm and considering the significant distance between the Annagh wind farm and the CGEP, no likely cumulative effects are predicted.
Tesco, Fermoy	The construction of a single storey retail unit of c. 3739 sq/m. Due to the nature of the works it is unlikely to affect telecommunication links and aviation activities.	There are no potential negative effects from the construction of the retail unit, therefore no likely cumulative effects are predicted in combination with the CGEP on telecommunications and aviation.

Table 6-1 sets out the potential cumulative impacts to telecommunications links and aviation activities of various projects in combination with the proposed CGEP. The assessment has concluded that there will be no likely potential cumulative impacts of the CGEP on telecommunications links and aviation activities.



7. ROADS AND ENTRANCES

- (a) Reference is made at Section 13.4.2 of the EIAR to the site entrances and in particular to the proposed use of four entrances. However, as is outlined in further detail in the following point, only three drawings have been submitted of three of the four proposed entrances. While it is understood that the fourth proposed entrance is the existing entrance serving the Bottlehill facility you are requested to provide a drawing of the entrance arrangement.

7a Response:

The previously submitted site entrance drawings (Drawing Ref. P20-099-0101-0001 to P20-099-0101-0003 inclusive) have been reviewed following receipt of Further Information Request (a) above. A new revision of this drawing set has been provided to the Board which includes an additional site entrance layout illustrating the existing Bottlehill facility entrance arrangement (Drawing Ref. P20-099-0101-0004) which can be viewed in Appendix 4 of this report.

- (b) While the entrance layout drawings submitted are noted, you are requested to provide detailed drawings of the proposed site entrances (Bottlehill & Mullenaboree, Lackendarragh and Knockdoorty) including the proposed sightlines and setbacks. You are also requested to provide the rationale in respect of the setbacks proposed.

7b Response:

A detailed drawings package has been included in Appendix 4 of this submission illustrating the four proposed entrance layouts. The drawings package includes sightlines and setback distances of the four proposed entrances. The existing Bottlehill Entrance Layout was not included in the original application drawings package as no works were proposed to the existing entrance as part of the proposed project.

Fehily Timoney and Company's (FT) previous assessment of sight lines for all site entrances were carried out in line with TII Publication DN-GEO-03060 national roads. This requires visibility 'Y' distances of 160m in both directions and set back distances of 'X' = 3m for a speed limit of 80kph. It should be noted that these standards are applicable to access from national roads and considered a conservative worst case assessment target for entrances to local roads such as these. For the Lackendarragh site entrance it was determined during site assessments that TII sight line requirements were not achievable at this location. For this entrance, Cork County Council (CCC) visibility requirements for local roads of 90m 'Y' distance in both directions was applied as the design requirement.

Following internal review of the Planning Authority's Further Information Request under Issue no. 4 regarding roads and entrances, and the CCC Area Engineer's submission for Kanturk/Mallow Municipal District in section 5.2.19 of the Planner's Report, FT contacted the Area Engineers via email to discuss the Bottlehill/Mullenaboree entrance observation point requirement of 4.5m 'X' distance set back from the road edge. FT noted that this requirement was not included in TII publications DN-GEO-03060 or DN-GEO-03030.



The area engineer explained because the applicant is changing the use of the existing Coillte Entrance off the LP-1219 from a forestry and residential entrance to a construction entrance a 4.5m 'X' distance and 90m 'Y' distance are required at this location.

FT Engineers revisited the 4 no. proposed entrances in December 2021 to carry out revised sight line surveys following the CCC observations within section 5.2.19 of the Planner's Report. Revised sightline drawings with specific mitigation for achieving sightline requirements have been provided in Appendix 4 of this report. The results of the second site access survey are provided in Table 7-1 below which shows existing sight line distances without mitigation. For comparison, previous sightline survey results are included here also. The FT Sight Line Assessment sheets for both sight line surveys have also been provided in Appendix 8 of this report.

Table 7-1: Sight Line Survey Results¹

Survey Location	Coordinates	August 2019 June 2020*		December 2021			
		Y (m) at x=3m		Y (m) at x=3m		Y (m) at x=4.5m	
		To Right	To Left	To Right	To Left	To Right	To Left
Existing Bottlehill Facility Entrance	52°02'27.9"N 8°33'28.8"W	160	65	160	90	160	70
Bottlehill/Mullen boree Entrance	52°02'53.1"N 8°34'03.1"W	140	100	160	103	130	90
Knockdoorty Entrance	52°06'00.2"N 8°25'36.2"W	160	160	160	160	90	160
Lackendarragh Entrance	52°05'58.4"N 8°25'38.9"W	55	50	75	60	50	40

The updated site entrance drawings were issued to Cork County Council engineers for consultation in February 2022. CCC indicated that they received drawings and did not wish to provide further comment. Following revised surveys of all of the proposed site entrances, proposed entrances satisfy CCC's sightline requirements. Detailed explanation of the proposed clear sight line distances, proposed setbacks, accommodation works and rationale for same are outlined in subsequent paragraphs.

Existing Bottlehill Facility Entrance

The existing Bottlehill facility entrance can achieve minimum CCC sight line requirements ('Y'=90m) at a setback distance of 'X'=4.5m with minor mitigation in the form of roadside hedgerow trimming and moving of a road sign to the left. With additional hedgerow cutting to the left, TII sight line requirements are also achievable in both directions. Roadside hedgerows will be managed throughout the lifetime of the project to ensure visibility splays are maintained.

¹ Figures show minimum distance observed.



Figure 7-1: View Right of Bottlehill Entrance at X=3m



Figure 7-2: View Left of Bottlehill Entrance at X=3m



Bottlehill/Mullenboree Entrance

The Bottlehill/Mullenboree entrance can achieve minimum CCC sight line requirements ($'Y'=90\text{m}$) at a setback distance of $'X'=4.5\text{m}$ with mitigation in the form of roadside hedgerow trimming in both directions. TII sight line requirements are also achievable in both directions with additional mitigation in the form of roadside hedgerow trimming in both directions. Following site surveys it has been determined that the required mitigation can be achieved without works in third party lands. Roadside hedgerows will be managed throughout the lifetime of the project to ensure visibility splays are maintained.



Figure 7-3: View Right of Bottlehill/Mullenboree Entrance at $X=0\text{m}$



Figure 7-4: View Left of Bottlehill/Mullenboree Entrance at X=0m

Knockdoorty Entrance

The Knockdoorty entrance can achieve minimum CCC sight line requirements ($'Y'=90\text{m}$) at a setback distance of $'X'=4.5\text{m}$ without any mitigation. TII sight line requirements are also achievable in both directions without additional mitigation. Roadside hedgerows will be managed throughout the lifetime of the project to ensure visibility splays are maintained.

Lackendarragh Entrance

The Lackendarragh entrance can achieve minimum CCC sight line requirements ($'Y'=90\text{m}$) at a setback distance of $'X'=4.5\text{m}$ with mitigation in the form of roadside hedgerow trimming in both directions. TII standard sight lines are not achievable in both directions due to unfavourable road geometry and third party land boundaries to the left. Following site surveys it has been determined that the required mitigation can be achieved without works in third party lands. Roadside hedgerows will be managed throughout the lifetime of the project to ensure visibility splays are maintained.

- (c) Section 3.5.8.1 of the EIAR refers to the proposed crossing of the M8 Motorway by way of horizontal directional drilling (HDD) and references Drawing P1306-2650-0033. However, no such drawing has been submitted. Furthermore, Drawing P1306-0501-0003 does not appear to have been submitted as part of the application drawings. Please address.

It is further noted that Transport Infrastructure Ireland note that the proposal seeks that the cable follows the route across the M8 to Barrymore and consider that limited details have been provided on the proposed M8 crossing provided (refer sections 3.5.8.1 and 3.6.5.2 and Plate 13-9). Please address accordingly.



7c Response

The drawing referred to by the Planning Authority above (Drawing Ref. P1306-2650-0033), illustrated the plan view of the grid connection route (GCR) as it passes under the M8 motorway via HDD east of Corrin Woods. The Grid Connection Route has been considered as part of the overall project within the EIAR and NIS and does not form part of the application for consent. A new revision of this drawing (Drawing Ref. P20-099-2650-0033) with further details of the proposed HDD has been prepared and included in Appendix 4 of this report.

The second drawing referred to by the Planning Authority (Drawing Ref. P1306-0501-0003), illustrated a turbine delivery route (TDR) node which was subsequently removed as part of the TDR assessment within section 3.5.6 of the EIAR and the drawing has since been superseded. This drawing previously illustrated a TDR node near Silversprings/Tivoli and did not show details of the HDD.

The HDD path is illustrated on drawing Ref. P20-099-0300-0027 in Appendix 4. The drawing shows a plan and longitudinal section from the HDD entry point to exit point and indicates the bore alignment under the M8 motorway. As stated in the Further Information Request (c), a methodology for the HDD was included in the EIAR section 3.5.8.1 of Chapter 3 and in the CEMP section 3.4.1.14.

Horizontal Directional Drill (HDD) Methodology

The HDD will be carried out using Vermeer D36 x 50 Directional Drill, or similar plant. The launch and reception pits will be 0.55 m wide, 2.5 m long and 1.5 m deep. The pits will be excavated with a suitably sized excavator and shall employ the same mitigation measures outlined herein for trenching and joint bay excavations.

The drilling rig will be securely anchored to the ground by means of anchor pins which will be attached to the front of the machine.

The drill head will then be secured to the first drill rod and the operator shall commence to drill into the launch pit to a suitable angle which will enable the excavation to obtain the depths and pitch required to the line and level of the required profile. Drilling of the pilot bore shall continue with the addition of 3.0 m long drill rods, mechanically loaded and connected into position.

During the drilling process, a mixture of a natural, inert and fully biodegradable drilling fluid such as Clear Bore™ (environmentally friendly product (not toxic to aquatic organisms)) and water is pumped through the centre of the drill rods to the reamer head and is forced into void and enables the annulus which has been created to support the surrounding sub soil and thus prevent collapse of the reamed length. Depending on the prevalent ground conditions, it may be necessary to repeat the drilling process by incrementally increasing the size of the reamers. When the reamer enters the launch pit, it is removed from the drill rods which are then passed back up the bore to the reception pit and the next size reamer is attached to the drill rods and the process is repeated until the required bore with the allowable tolerance is achieved.

The use of a natural, inert and biodegradable drilling fluid such as Clear Bore™ is intended to avoid any adverse effects arising from the use of other, traditional polymer-based drilling fluids and will be used sparingly as part of the drilling operations. It will be appropriately stored prior to use and deployed in the required amounts to avoid surplus. Should any excess drilling fluid accumulate in the reception or drilling pits, it will be contained and removed from the site in the same manner as other subsoil materials associated with the drilling process to an approved disposal site. Backfilling of launch & reception pits will be conducted in accordance with the normal specification for backfilling excavated trenches and joint bays.

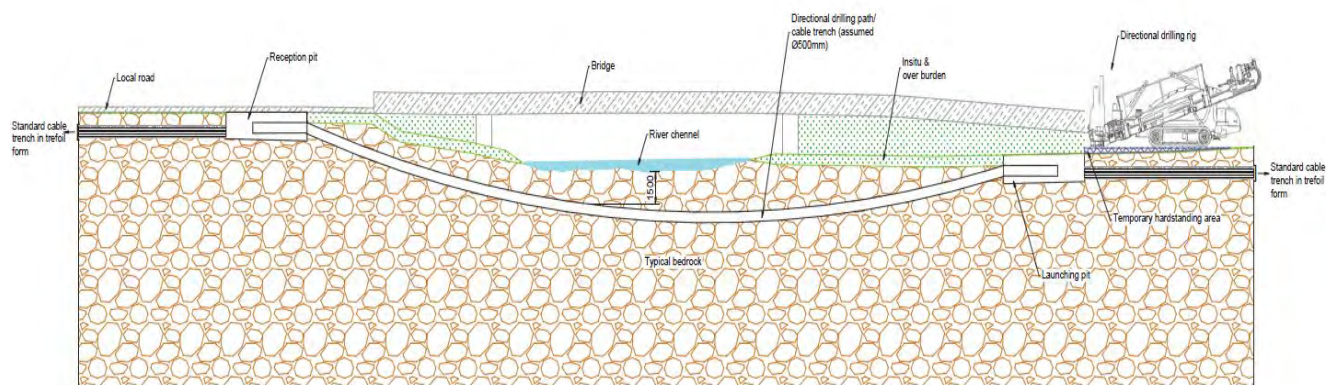


Figure 7-5: HDD Profile



The M8 Motorway Crossing

Where the grid connection route crosses the M8 motorway, horizontal directional drilling (HDD) will be used. The locations of the launch and reception pits will be adequately spaced from the carriageway to ensure the bore is at such depth as not to conflict with the drainage, foundations or surface of the motorway. A minimum clearance of 3m below the M8 motorway will be adhered to. Dimensions of vertical clearance at significant HDD nodes along the path have been illustrated in the longitudinal profile of the HDD (Drawing Ref. P20-099-0300-0027) in Appendix 4. Launch and exit points shall be located off the public road as indicated by areas “A” and “B” respectively in the image below.



Figure 7-6: Launch and Exit Locations for HDD Operation Under M8 Motorway

The cable will follow the GCR along the local road and cross the M8 to Barrymore, the grid cable will cross private lands near Lackendarragh North substation and then follow the public road. As described in Section 13.1 of Chapter 13 of the EIAR, c7.7km of the proposed 110kV cable associated with the grid connection will be laid in private lands and c16.7km will be laid within the public road.

FT obtained Bore Hole data supplied by Direct Route (Fermoy) Ltd² for several trial pits in the vicinity of the proposed HDD entry and exit points.

² Direct Route (Fermoy) Ltd are a special purpose company responsible for operating this section of the M8 Motorway on behalf of Transport Infrastructure Ireland under a Public Private Partnership (PPP) contract



Intrusive and non-intrusive site investigations were also undertaken by Irish Drilling Ltd (IDL) and Minerex Environmental Ltd under the supervision of an Engineering Geologist from FT June to October 2019 and also in October 2020. Further details of site investigations, results, and HDD impacts can be reviewed in Chapter 9 of the EIAR sections 9.1.7, 9.2.6, 9.3.2.6, 9.3.2.7.

2019 FT site supervision was carried out by James Dunn. James was a Project Engineer with Fehily Timoney & Company working in the Infrastructure Department. He has a Bachelor of Science in Applied Geology from Staffordshire University and a Masters in Geology from University College Cork. James has over 10 years' professional experience in the geological engineering, contaminated land and resource sectors in the UK, Ireland and Australia. 2020 FT site supervision was carried out by Emily Archer, a project geotechnical engineer for FT. Emily has a Bachelor of Science (BSc.) in Geology and a Masters (MSc.) in Applied Environmental Geology, both from University College Cork. Since starting with FT in 2018, she has worked on various geotechnical, environmental monitoring, contaminated land and EIA projects. Emily was working under the supervision of Ian Higgins. Ian is a geotechnical engineer with over 20 years' experience in the design and supervision of construction of bulk earthworks, geotechnical foundation design, geotechnical monitoring and reviewing, reinforced earth design and 3rd party checking of piling and ground improvement designs. Ian's experience also includes the design, supervision and interpretation of ground investigations, including desk studies, walkover surveys, hazard mapping of rock excavations and slopes.

The scope of the site investigations is summarised below with the information obtained referenced in this chapter:

- Advancement of 18 No. trial pits to a maximum depth of 4.4m below ground level (BGL) at proposed borrow pit locations and selected turbine locations.
- Advancement of 3 No. cable percussive/rotary boreholes to a maximum depth of 15m BGL at proposed horizontal directional drilling (HDD) locations at water crossings locations W06, W08 and W19 along the proposed grid connection route.
- Collection of samples for environmental and geotechnical testing.
- Seismic Refraction Profiling, 2D Electrical Resistivity (ERT) surveying and Seismic Refraction (P-Wave) along pre-designated transects at proposed turbine locations



8. REPLANT LANDS

ABP Request:

"The description of the proposed development for which consent is sought correctly does not include reference to the replant lands as the replacement replanting of forestry is subject to licence in compliance with the Forestry Act 2014 as amended and the consent for such replanting is covered by the Forestry Regulations 2017 (S.I. No. 191 of 2017)."

Environmental Impact Assessment Report

It is noted that while the replant lands are stated projects considered in the cumulative assessment in the Environmental Impact Assessment Report, a document entitled Environmental Assessment of Replant Lands at Moneygorm and Ballard is attached at Appendix 3.3 of the Environmental Impact Assessment Report with references to the replant lands included in a number of Chapters of the Environmental Impact Assessment Report other than in respect of cumulative impacts.

Response

Environmental Impact Assessment Report

For each chapter of the EIAR, the assessment of offsite replant lands was carried out as follows:

Chapter 1 – Introduction : Not applicable.

Chapter 2 – Need for the Development and Alternatives Considered identifies that an environmental assessment has been carried out for replant lands at Moneygorm, Co. Cork and Ballard, Co. Wicklow which are not included in the application for consent. Stating that the replant lands at Moneygorm and Ballard form part of the overall project and are considered cumulatively with other elements of the wind farm project.

Chapter 3 – Description of the Proposed Development considers the replant lands as a cumulative impact on the proposed development. This chapter outlines the size of the replant land sites and the licencing of the lands in section 3.5.17. Tree felling and associated replanting; is included in the development description summary under section 3.5.1. This chapter further states that the replant lands are to be considered cumulatively with other elements of the wind farm project.

Chapter 4 – Policy gives no mention or reference to the replant lands

Chapter 5 – EIA, Scoping Consultation & Key Issues considers the replant lands cumulatively with other elements of the wind farm project. This chapter identifies the lands location and references the licensing process. In terms of impacts, this chapter acknowledged that a replanting appraisal should be carried out as part of the EIAR, and such an appraisal of the replant lands is included in each chapter where relevant.

Chapter 6 – Air & Climate considers the replant lands cumulatively with other elements of the wind farm project. This chapter addresses the replant lands in the cumulative impact section which outlines the context and location of the replant lands.



This chapter concludes that negative or adverse effects on the air quality of the receiving environment and sensitive receptors associated with replanting activities at Moneygorm are considered to be short-term in duration and imperceptible in significance and no additional mitigation is required. In addition this chapter addresses the existing forestry felling and replanting stating that negative or adverse effects on the air quality of the receiving environment and sensitive receptors associated with the existing forestry activities adjacent to the site are considered to be short term in duration and slight in significance.

Chapter 7 – Noise & Vibration gives no mention or reference to the replant lands

Chapter 8 – Biodiversity incorporates the replant lands into the chapter and assesses the direct, indirect, and potential impacts of the replant lands in terms of biodiversity and the surrounding areas. However, this chapter notes in section 8.1 of the EIAR that the replant lands are to be considered under cumulative impacts, which aligns with the approaches of other chapters. This approach ensures that a full assessment of the replant lands is considered within the whole project (to avoid risks of “project splitting”). However, as the replant lands are subject to separate licensing requirements, it has been indicated that they need to be considered as an in-combination effect to the CGEP project rather than integral to it.

Chapter 9 – Land, Soils & Geology summarizes the potential cumulative impacts in Section 9.2.9 and 9.4.5. Section 9.2.9 outlines the size and location of each of the sites stating:

- *Moneygorm, Co. Cork The proposed replant lands are made up of a large (c.40 Ha)*
- *Ballard, Co. Wicklow are made up of two large sections (c.23.7 and 12.8 Ha)*

This Chapter considers the replant lands cumulatively with other elements of the wind farm project and assesses their potential direct and indirect cumulative impacts accordingly. .

Chapter 10 – Hydrology & Water Quality considers the replant lands cumulatively with other elements of the wind farm project. Section 10.3.9 of this Chapter addresses the cumulative impact assessment of CGEP with replant lands. Proposed mitigation measures are provided for each phase of the CGEP and for activities related to replant lands. The proposed mitigation measures are adequate to ensure no significant cumulative impact.

Chapter 11 – Population, Human Health and Material Assets considers the replant lands cumulatively with other elements of the wind farm project. The replant lands are mentioned in 11.5.3 as a potential impact during the operational phase of the development. This chapter concludes that the replant lands will be provided to replace forestry lands required for the development of the CGEP. The total area for replanting is 62.8 ha. Once operational, the CGEP is not expected to have a significant negative impact on agricultural or forestry practices.

Chapter 12 – Shadow Flicker gives no mention or reference to the replant lands.

Chapter 13 – Traffic & Transportation considers the replant lands cumulatively with other elements of the wind farm project. The grid connection route, turbine delivery route and replant lands are considered in respect to the traffic and transportation in this chapter also. This chapter outlines works associated with replanting and outlines these works are isolated from the main development. Concluding that traffic and construction works associated with the replanting is expected to be very low and of a imperceivable impact.



Chapter 14 – Archaeology, Architecture and Cultural Heritage assesses replant lands as a cumulative impact to the proposed development. This Chapter concludes that following mitigation that the proposed replanting works in Moneygorm and Ballard will not result in any predicted cumulative impacts on the cultural heritage resource in combination with the proposed development.

Chapter 15 – Landscape & Visual Impact Assessment assesses replant lands as a cumulative impact to the proposed development. An assessment of the landscape and visual effects in relation to replant lands is provided within the report entitled Environmental Assessment of Replant Lands at Moneygorm and Ballard (Appendix 3.3). This assessment concludes that the effects will be negligible.

Chapter 16 – Telecommunications and Aviation assesses replant lands as a cumulative impact to the proposed development in section 16.7 under cumulative impacts. Both replant lands are identified.

Chapter 17 – Interactions of the Foregoing assesses the replant lands as a cumulative impact of the interactions between key environmental aspects under Biodiversity, Material Assets, Lands Use; concluding that the interaction of these impacts is considered to be slight and will be mostly reversible following decommissioning.

ABP Request:

Natura Impact Statement

Appendix B of the Natura Impact Statement includes an Appropriate Assessment Screening Report for the proposed replant lands at Moneygorm, Co. Cork and Ballard Co. Wicklow and a Natura Impact Statement for the proposed replant lands at Moneygorm, Co. Cork. However, it is noted that the Appropriate Assessment Screening Report and the Natura Impact Statement for the proposed development incorporates the replant lands as part of the proposed development rather than as part of the consideration of in-combination effects.

You are therefore requested to clarify:

- (a) Why the documents outlined above have included documents related to the replant lands;*
- (b) Why the replant lands have been included as part of the development in the Natura Impact Statement and in some Chapters of the Environmental Impact Assessment Report other than in respect of in-combination effects/cumulative effects respectively.*
- (c) In light of the above, please review the Appropriate Assessment Screening Report, Natura Impact Statement and Environmental Impact Assessment Report accordingly.*

Response

The associated afforestation of alternative lands equivalent in area to those lands being permanently clearfelled for the proposed development is subject to a separate licencing process pursuant to the provisions of the Forestry Act 2014 (as amended) and the Forestry Regulations 2017 (as amended) as outlined in Appendix 8-I section 1.1 of the EIAR and section 3.4.16 of the AASR/NIS.



As the Board is aware section 37H(6) of the Planning and Development Act 2000 (as amended) makes clear that a person is not entitled to carry out a development merely because they have obtained planning permission, i.e. the planning permission does not obviate the need to have all other statutory and legal consents required to carry out the proposed development. The NIS has been revised to include the replant lands under the assessment of in-combination effects.

The revised NIS has been included in Appendix 3. NIS appendices C and D have been updated as part of this RFI response and have been included with this submission. Appendix C is included with the revised NIS document and Appendix D has been reproduced under Appendix 5 of this report. The remainder of the appendices associated with the NIS remain unchanged since the EIAR submission and therefore, being available, have not be reproduced as part of this submission.



9. ERRATA / INCONSISTENCIES WITHIN THE EIAR

ABP Request:

- a) *Please clarify why Table 6.9 in the EIAR refers to Carbon Monoxide Data for Carlow Town 2004-2005.*

9a Response

To clarify why Table 6.9 of the submitted EIAR refers to “Carbon Monoxide Data for Carlow Town 2004-2005”, a review of the information used in compiling the Carbon Monoxide data for the submitted EIAR has shown the caption provided for Table 6.9 to be incorrect, and labelled “Carbon Monoxide Data for Carlow Town 2004-2005” in error. The caption for Table 6.9 should read “Table 6-9: Carbon Monoxide Data for Cork Harbour 2007-2008”, as the ‘Parameter’ and ‘Measurement’ data contained within Table 6.9 is specific to Cork Harbour for the time period of 2007-2008, and not for the location and date included in the submitted EIAR.

ABP Request:

- b) *Please provide a paper copy of Figures 7.1 & 7.2 as the hard copy of the document received by the Board contains a link for these rather than a copy of the maps.*

9b Response

3no. paper copies of Figures 7.1 & 7.2 have been provided to ABP as part of this submission.

ABP Request:

- c) *Section 8.2 & 8.3 of the EIAR include references to a large number of Figures, the references for which are bolded in the text. You are advised that these Figures have not been included in either the main EIAR Chapter itself or in the Appendices to Chapter 8. Please provide the figures referenced throughout Chapter 8 of the EIAR.*

9c Response

Figures referenced throughout Chapter 8 of the EIAR have been included in this RFI response and can be found in Appendix 4.

ABP Request:

- d) *Please outline why there is reference to the Lower River Shannon SAC at Section 8.3.4.5 of the EIAR.*



9d Response

The Lower River Shannon SAC is referenced in error; the text should read:

"Otter is also listed as a qualifying interest of the Blackwater River (Cork/Waterford) SAC and, hence, is evaluated as of International Importance, which is equivalent to a Very High sensitivity rating."

ABP Request:

- e) Please provide a table of contents for Chapter 8 of the EIAR.

9e Response



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ABP Request:

- f) You are also advised that the table of contents provided for Appendix 8 is incomplete and you are requested to amend accordingly.

9f Response

A table of contents for Appendix 8 of the EIAR has been compiled and is shown below as follows:

Appendix 8-A: Avifauna Survey Data
Appendix 8-B: Aquatic Ecology, Fishery and Freshwater Pearl Mussel Report 2020 Report
Appendix 8-C: Turbine Delivery Route EcIA Report 2020
Appendix 8-D: Habitats and Flora Data
Appendix 8-E: European Sites Data
Appendix 8-F: National Sites Data
Appendix 8-G: Non-volant Mammal Data
Appendix 8-H: Bat Survey Data
Appendix 8-I: Ecological Appraisal Replant Lands 2020
Appendix 8-J: Hen Harrier Collision Risk Modelling
Appendix 8-K: Conservation and Habitat Management Plan
Appendix 8-L: Figures (Not included in EIAR submission)

Figures associated with Chapter 8 of the EIAR which were not submitted with the EIAR at the time of submission (referenced in RFI Item 9c above) are listed in the table of contents above as Appendix 8-L. These figures are included in Appendix 4 of this report.

ABP Request:

- g) You are advised that Table 13-4 in the paper copy of the EIAR has not been properly copied such that the information on either side of the page is missing. Please provide a copy of same.

9g Response

In response to the advice that Table 13-4 in the submitted paper copy of the EIAR has not been properly copied, and that information on either side of the page is missing, a copy of Table 13-4 and Table 13-5 have been included as part of this response, below. Hard copies of Table 13-4 and Table 13-5 have also been provided to ABP as part of this submission.



Table 13-4: Predicted AADT Volumes with Construction Phase Traffic

Location	AADT (2018)	Predicted AADT During Construction (Estimated Site Start 2021)	% HGV Based on TII ATC Data	HGV AADT Pre-Development	Average Daily HGV Trips Generated by Development	Predicted HGV AADT During Construction	% Increase	LGV AADT Pre-Development	Average Daily LGV Trips Generated by Development	Predicted LGV AADT During Construction	% Increase	Average Daily Trips Generated by Development (Combined)	Predicted Combined AADT During Construction	% Increase
N72 Between Fermoy and Ballyhooley, Castlehyde Co. Cork	2,812	2,889	4.4%	127	14	141	11.2%	2,762	34	2,795	1.23%	48	2,937	1.67%
M08 Between Jn13 Mitchelstown (South) Jn14 Fermoy (North), Mitchelstown Co. Cork	18,898	19,413	10.2%	1,980	14	1,994	0.7%	17,433	34	17,467	0.19%	48	19,461	0.25%
M08 Corrin Bridge Jn15 to Jn16	18,166	18,661	9.4%	1,754	14	1,768	0.8%	16,907	34	16,941	0.20%	48	18,709	0.26%
N20 Between Blarney and Mallow, Lissavours Co. Cork	17,122	17,588	6.3%	1,108	30	1,138	2.7%	16,480	35	16,515	0.21%	65	17,653	0.37%

Project related traffic will vary over the course of the construction programme. Activities can be broken up into the following main categories:

- Site mobilisation
- Onsite access road and drainage
- Turbine crane pads
- Foundations
- Substation
- Grid connection cabling works.

The busiest period during the construction programme is expected to occur between Month 7 to Month 15 when multiple construction activities are expected to take place concurrently. Peak traffic associated with the development is expected to occur during month 12 of the construction programme. Average daily vehicle trips during this month are estimated to reach up to 140 for HGV's and 100 for LGV's. The predicted AADT for the Coom Green Energy Park during peak month of the construction phase of the proposed development is presented in Table 13-5 over.



Table 13-5: Predicted Construction Traffic Impact During Peak Month

Table 13-5: Predicted Construction Traffic Impact During Peak Month

Location	Predicted AADT During Construction (Estimated Site Start 2021)	Predicted AADT During Peak Construction Month (Estimated 2022)	% HGV Based on TI ATC Data	HGV AADT Pre-Development	Average Daily HGV Trips Generated by Development during Peak Construction Month	Predicted HGV Daily Trips During Peak Construction Month	% Increase	LGV AADT Pre-Development	Average Daily LGV Trips Generated by Development during Peak Construction Month	Predicted LGV AADT During Construction	% Increase	Average Daily Trips Generated by Development (Combined) During Peak Construction Month	Predicted Combined AADT During Peak Construction Month	% Increase
N72 Between Fermoy and Ballyhookey, Castlehyde Co. Cork	2,889	2,915	4.4%	128	45	173	35.0%	2,786	48	2,834	1.72%	93	3,008	3.19%
M08 Between In 13 Mitchelstown (South) In 14 Fermoy (North), Mitchelstown Co. Cork	19,413	19,588	10.2%	1,998	45	2,043	2.2%	17,590	48	17,638	0.27%	93	19,680	0.47%
M08 Corin Bridge Inc 15 to Inc 16	18,661	18,829	9.4%	1,770	45	1,815	2.5%	17,059	48	17,107	0.28%	93	18,922	0.49%
N20 Between Blarney and Malrow, Lissacore Co. Cork	17,588	17,747	6.3%	1,118	95	1,214	8.5%	16,629	52	16,681	0.31%	147	17,894	0.83%

The second busiest period during the construction phase takes place during months 8, 9, 10 and 11 where average daily trips reach 119 and 100 for HGV's and LGV's respectively. These are distributed in similar fashion between the eastern and western parts of the site to that shown in the table above.

The distribution of overall HGV traffic throughout the construction programme is presented in Figure 13-7 below.



ABP Request:

- h) The assessment methodology used to determine significance in Chapter 13 has not been provided and you are requested to address including providing the classifications for significance of effects.

9h Response

The methodology used to determine significance in Chapter 13 was informed by the EPA Guidelines on The Information To Be Contained In Environmental Impact Assessment Reports (DRAFT), 2017. The classifications for significance of effects are set out in this guidance document as follows:

Significance of Effect

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

Figure 9-1 below shows how comparison of the character of the predicted impact to the sensitivity of the receiving environment can determine the significance of the impact.

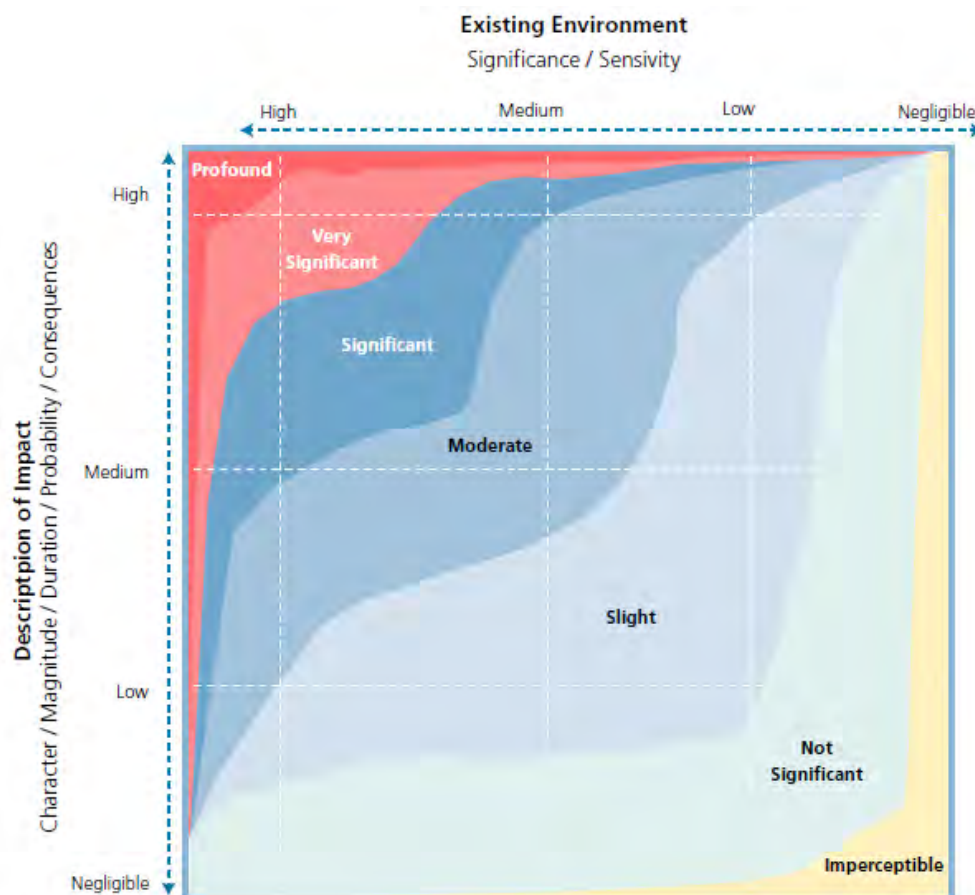


Figure 9-1: Classifications of the Significance of Impacts

ABP Request:

- i) Reference is also made at Section 13.4.2 of the EIAR to the site entrances being shown on drawings P1306-0101-0001, P13006-0101-002 and P1306-0101-00. No such drawings exist. You are requested to clarify.

9i Response

Section 13.4.2 states the following:

The site entrances are shown on drawings P1306-0101-0001, P13006-0101-002 and P1306-0101-003.

Site entrances are included in the drawings provided under drawing numbers P20-099-0101-0001, P20-099-01012 and P20-099-0101-0003. This reference error is due to a change in the internal numbering system.

As part of this RFI response, revised layout drawings for all of the proposed site entrances have been prepared and are contained in Appendix 4 of this report.



ABP Request:

- j) You are requested to clarify whether reference to Table 15-10 in the first paragraph of Section 15.8 should refer to Table 15-9 rather than 15-10.

9j Response

The first paragraph of Section 15.8:

Table 15.10 below summarises the full textual assessment of visual effects for each Viewshed Reference Point (VRP) contained in Appendix 15.1. Whilst the 'receptor sensitivity analysis table' and full textual assessment for each VRP is normally contained within the landscape and visual chapter, in this instance, given the considerable number of VRPs, it is considered more prudent to place this material in a separate appendix and focus herein on the significance of the findings. The left hand side of the table incorporates statistical data associated with the view of turbines, whilst the right hand side contains professional judgements in respect of the view. It is important to note that the professional judgements are based on the effects experienced in relation to the view and are not directly influenced by the statistical data. These aspects are only combined within Table 15-10 in order to identify patterns of effect to better inform the conclusions of this assessment.

This Section should refer to Table 15.9 and not 15.10.

ABP Request:

- k) *The concluding paragraph of Section 15.10.1 refers to Table 15-11 but no such table exists but it is considered that the reference should be to Table 15-10. You are requested to clarify same.*

9k Response

The concluding paragraph of Section 15.10 of this Chapter states:

Table 15.11 below provides Macro Works' criteria for assessing the magnitude of cumulative impacts, which are based on the SNH Guidelines (2012).

This section should in fact refer to Table 15.10 and not 15-11.

Similarly, the last paragraph of section 15.10.1 states:

Overall, it is considered that the proposed Coom Energy Park will have very limited landscape and visual cumulative impacts in conjunction with other wind energy developments and major infrastructure developments. In accordance with the criteria provided in Table 15.11, cumulative impact is considered to be in the order of Low-negligible.

This should refer to Table 15.10 and not 15.11.



ABP Request:

- I) You are requested to review the EIAR and also the NIS to establish if there are any further errors within the documents and address same in your response.

9I Response

Table 6.7

In complying with the request to review the EIAR and NIS to establish if there are any further errors within the documents which require addressing in our response, a review of the submitted EIAR has shown the caption of Table 6.7 to be incorrect, and labelled “*Particular Matter (PM10) data Carlow Town*” in error. The caption for Table 6.7 should read “*Table 6-7: Particular Matter (PM10) data Cork Harbour 2007-2008*”, as the ‘Parameter’ and ‘Measurement’ data contained within Table 6.7 is specific to Cork Harbour for the time period of 2007-2008, and not for the stated location included in the caption for Table 6-7 of the submitted EIAR.

Appendix 16.3

On review of the appendices of the submitted EIAR it is noted that Appendix 16.3 “*Pager Power Aviation Assessments*” the latest revision of the assessments were not included. The versions included in the submitted EIAR are dated December 2019 whereas the up-to-date version intended for submission is dated August 2020. These latest revisions are included here in Appendix 7 of this Response to Further Information document. Reports included are as follows:

- Risk Assessment (Aviation) – Issue 5 – August 2020
- ILS Calibration Flight Impact Assessment – Issue 4 – August 2020
- Radar Vectoring Area (Cork) Assessment – Issue 3 – August 2020

It should be noted that the conclusions of the latest versions of the reports do not differ to those submitted in the first instance.



10. SUBMISSION AND OBSERVATIONS

Please respond to the matters raised in the submissions and observations received by the Board from members of the public and prescribed bodies and to the matters raised in the report received from the Planning Authority, where not specifically addressed in the matters raised in the further information above. Given the large number of observations received and the commonality of many issues you are advised to address the matters arising by topic.

*The further information referred to above should be received by the Board **no later than 5.30 p.m. on the 1st April, 2022.***

In this regard, please submit 3 hard copies and one electronic copy of the above information.

Please note that following its examination of any information lodged in response to this request for additional information, the Board will then decide whether or not to invoke its powers under section 37(F)(2) of the Planning and Development Act, 2000, as amended, requiring you to publish notice of the furnishing of any additional information and to allow for inspection or purchase of same and the making of further written submissions in relation to same to the Board.

Response

As part of this RFI response, a detailed report to directly address third party submissions and observations on the project has been prepared and is contained in Appendix 2 of this report.