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2 EIA METHODOLOGY

2.1 Introduction

As described in Chapter 1 Section 1.9, the process by which the likely significant effects of a project on the environment are assessed is set out in the *EU EIA Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment* (codification) (transposed to Irish law through the Planning and Development Regulations 2001, as amended), as amended by EIA Directive 2014/52/EU (transposed to Irish law through the European Union (Planning and Development) (Environmental Impact Assessment) Regulations S.I. 296 of 2018). Collectively, these are referred to as the amended EIA Directive.

As noted in the Department of Environment, Heritage, and Local Government's Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (August 2018)¹:

1.4 The amended Directive provides a definition of EIA for the first time. It is defined as a process consisting of:

(a) the preparation of an Environmental Impact Assessment Report (EIAR) by the developer

(b) the carrying out of consultations

(c) the examination by the competent authority of the EIAR, any supplementary information provided, where necessary, by the developer and relevant information received through consultations with the public, prescribed bodies and any affected Member States

(d) the reasoned conclusion of the competent authority on the significant effects of the Proposed Development on the environment, and

(e) the integration of the competent authority's reasoned conclusion into any development consent decision.

1.5. The definition of EIA provides for a clear distinction between the process of environmental assessment to be carried out by the competent authority and the preparation by the developer of an Environmental Impact Assessment Report (EIAR).

¹ Department of Environment, Heritage, and Local Government (now Department of Housing, Planning and Local Government) 2018. Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment. Government of Ireland.

This EIAR has been prepared in accordance with the amended EIA Directive and the Guidelines on the information to be contained in Environmental Impact Assessment Reports² and European Commission guidance³.

2.2 The requirement for an EIAR

The Proposed Development triggers the requirement for an EIA as it exceeds the relevant EIA threshold, as detailed in the Planning and Development Regulations, 2001 (as amended), Schedule 5, Part 2, Class 3(l), which states “*Installations for the harnessing of wind power for energy production (wind farms) with more than 5 turbines or having a total output greater than 5 megawatts*”.

Given that an EIA is required, the applicant has commissioned the preparation of an EIAR to accompany a planning application that will enable the competent authority to undertake its duties under the EU EIA Directive.

2.3 Purpose of the EIAR

The purpose of this EIAR is to present an assessment of the likely potential significant effects of the Proposed Development on the environment. Annex IV (5) of the EIA Directive defines how significance of effects should be described.

The EIAR documents the baseline condition of the environment both within the Proposed Development and in the vicinity of a Proposed Development. Through desk studies, field work, modelling, and analysis (as appropriate), the EIAR assesses the likely significant effects of the proposed development on the environment. The assessment process serves to highlight any areas where mitigation measures may be necessary to address potential significant adverse effects by incorporating them into the design or limiting their effects to within acceptable levels, in accordance with established standards and guidelines. The EIAR also presents an assessment of the alternatives considered.

The EIAR supports the planning application for the Proposed Development and provides the relevant environmental information to enable the competent authority (in this case An Bord Pleanála) to come to an informed conclusion when making its decision.

2.4 EIA process

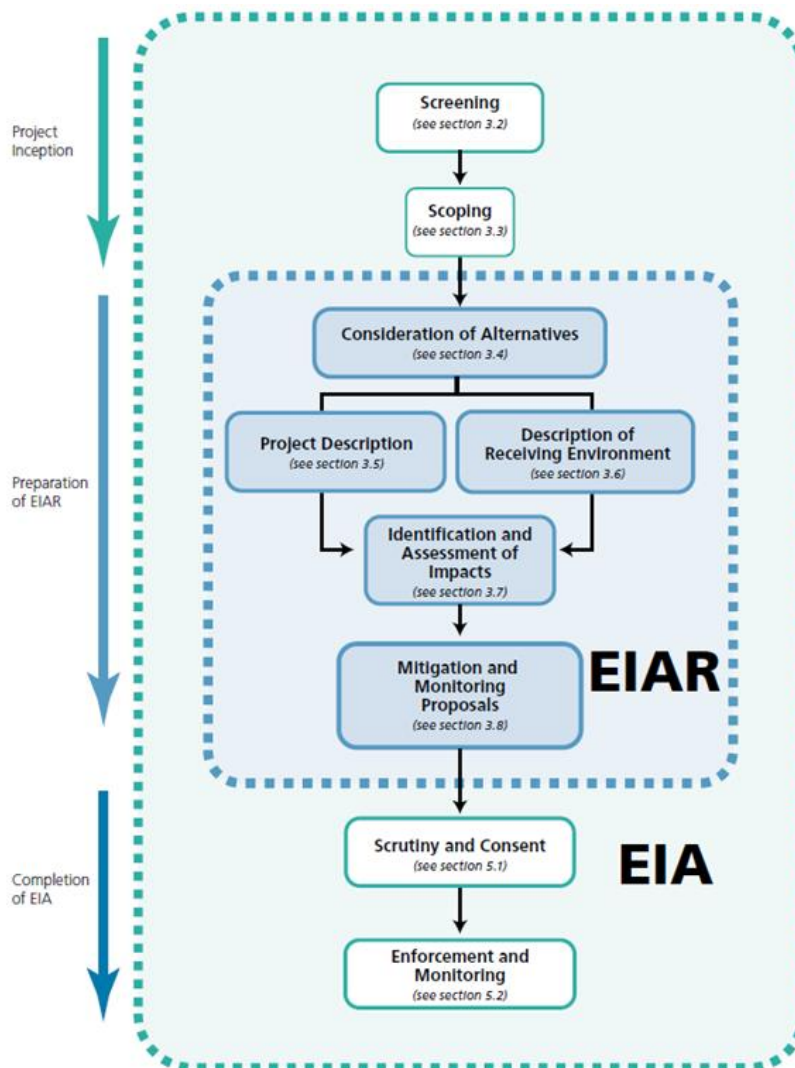
The general sequence of EIA follows the Environmental Protection Agency (EPA) EIAR Guidelines (2022) as illustrated in **Figure 2.1**. The process is summarised as follows:

- Screening – determines whether EIA is required;

² Environmental Protection Agency. 2022, Guidelines on the information to be contained in Environmental Impact Assessment Reports.

³ European Commission. 2017. Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU). European Union.

- Scoping – determines what aspects of the environment should be considered and to what extent;
- Assessment of likely significant effects - which presents baseline information, assessment of effects and their significance, mitigation measures, and monitoring requirements; and
- Preparation of an EIAR – a report of the assessment which informs the decision-maker in reaching a reasoned conclusion on the significant effects of a project on the environment.



Source: EPA EIAR Guidelines (2022)

Figure 2.1: The position of the EIAR within the EIA process²

2.4.1 EIA screening

As identified in Section 2.2, the Proposed Development exceeds the relevant EIA threshold, as detailed in the Planning and Development Regulations, 2001 (as amended), Schedule 5, Part 2, Class 3(I).

Therefore, the Proposed Development is subject to EIA by the competent authority, and the applicant, Orsted, is required to prepare an EIAR to accompany a planning application.

2.4.2 Scoping

The scoping stage of the EIA is a process to determine the content and extent of the matters which should be covered in the EIAR. The EPA EIAR Guidelines² state:

‘All parties should be aware of the need to keep the EIAR as tightly focussed as possible. This focusses the effort and resources of all parties on the key significant issues. Scoping is usually guided by the following criteria: -

- *Use ‘Likely’ and ‘Significant’ as the principal criteria for determining what should be addressed. Any issues that do not pass this test should be omitted (scoped out) from further assessment. A section of the EIAR should describe the scoping process explaining why such issues have been scoped out and they are not being considered further. All the prescribed environmental factors need to be listed in the scoping section of the EIAR. It is important to note that the environmental factors themselves cannot be scoped out and must feature in the EIAR. Only topics and headings related to each factor can be scoped in or out. Each environmental factor should be clearly covered by one or more specific section headings in the EIAR. If scoping determines that no likely significant issues arise under any heading, then an explanatory text should be included.*
- *Precedence - where EIARs for similar projects on similar sites or for other project proposals for the same site are available, these can be useful references.*
- *Interactions – careful consideration of pathways – direct and indirect – that can magnify effects through the interaction or accumulation of effects – for instance the potential for cumulative significant effects to arise from multiple non-significant impacts.*

Following informal scoping undertaken by the RSK consultant team, this EIAR identifies, describes, and assesses in an appropriate manner, the direct and indirect potential significant effects that may arise during construction, operation, and decommissioning of the Proposed Development on each of the environmental factors listed in Article 3 of Directive 2011/92/EU as amended by Directive 2014/52/EU as below:

Article 3

1. The environmental impact assessment shall identify, describe, and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on the following factors:

- (a) population and human health;*
- (b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;*
- (c) land, soil, water, air and climate;*
- (d) material assets, cultural heritage and the landscape;*
- (e) the interaction between the factors referred to in points (a) to (d).*

2. The effects referred to in paragraph 1 on the factors set out therein shall include the expected effects deriving from the vulnerability of the Proposed Development to risks of major accidents and/or disasters that are relevant to the Proposed Development concerned.

In accordance with Article 5(1) of the EU EIA Directive, the information to be provided by the developer shall include at least:

- (a) a description of the Proposed Development comprising information on the site, design, size and other relevant features of the Proposed Development;
- (b) a description of the likely significant effects of the Proposed Development on the environment;
- (c) a description of the features of the Proposed Development and/or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment;
- (d) a description of the reasonable alternatives studied by the developer, which are relevant to the Proposed Development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the Proposed Development on the environment;
- (e) a non-technical summary of the information referred to in points (a) to (d); and
- (f) any additional information specified in Annex IV relevant to the specific characteristics of a particular project or type of project and to the environmental features likely to be affected.

A full report on the informal scoping exercise undertaken by the RSK consultant team on behalf of Orsted and the key issues identified is presented in **EIAR Chapter 3 Scoping, Consultations and Key Issues**. The Scoping Consultation Document prepared in respect of the scoping exercise is included in **EIAR Volume III, Appendix 3.1**, and copies of all consultation responses received are contained in **Appendix 3.2**.

2.4.3 Assessment of effects

The EPA's EIAR Guidelines² present the approach to describing environmental effects as applied to this EIAR. These are presented in **Table 2.1**. In determining significance of effects, magnitude of change is considered in relation to the sensitivity of the receiving environment (i.e., receptors).

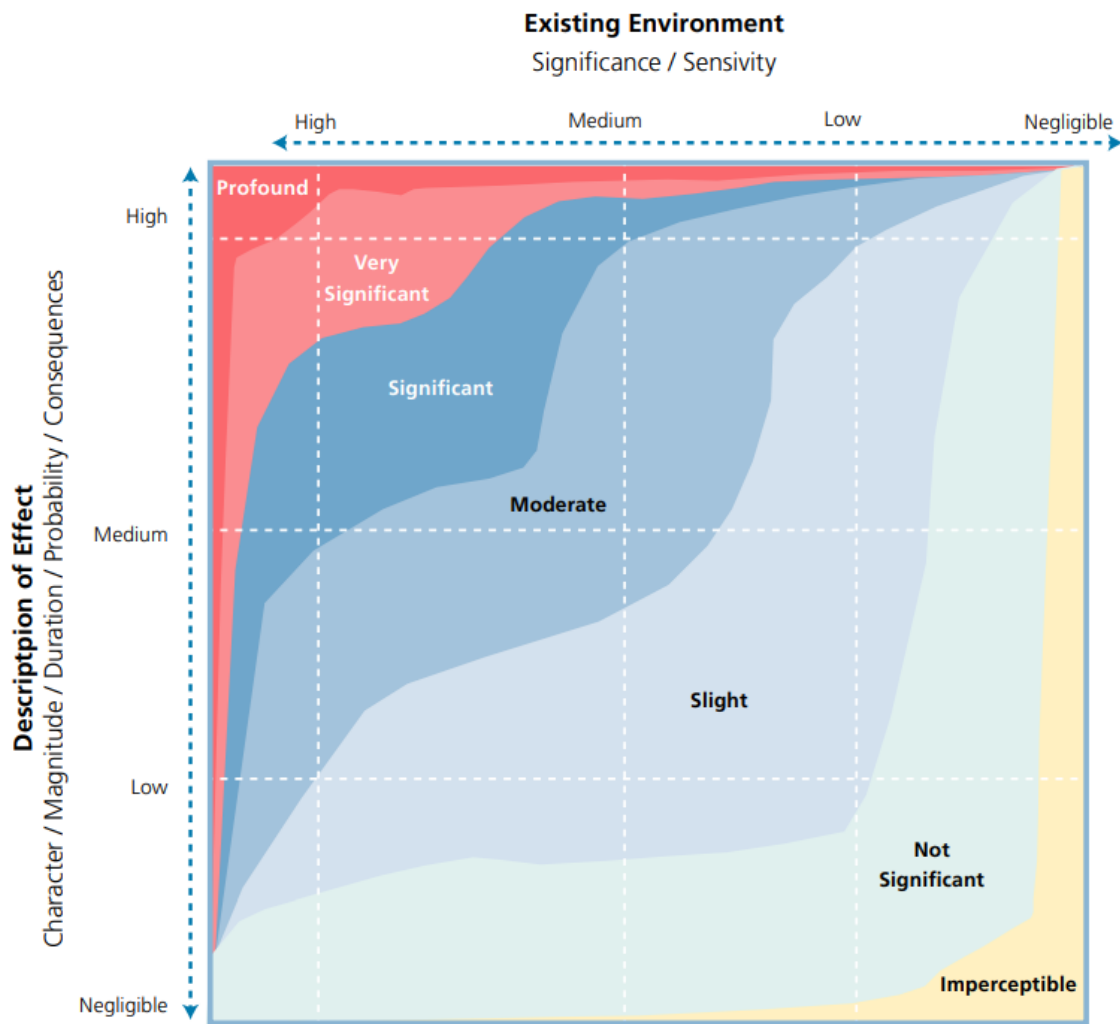
Table 2.1: Descriptions of effects

<p>Quality of Effects</p> <p>It is important to inform the non-specialist reader whether an effect is positive, negative or neutral.</p>	<p>Positive Effects</p> <p>A change which improves the quality of the environment (for example, by increasing species diversity, or improving the reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).</p>
	<p>Neutral Effects</p> <p>No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.</p>
	<p>Negative/Adverse Effects</p> <p>A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem, or damaging health or property or by causing nuisance).</p>
<p>Describing the Significance of Effects</p> <p>'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 (also see <i>Determining Significance</i>).</p>	<p>Imperceptible</p> <p>An effect capable of measurement but without significant consequences.</p>
	<p>Not Significant</p> <p>An effect which causes noticeable changes in the character of the environment but without significant consequences.</p>
	<p>Slight Effects</p> <p>An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.</p>
	<p>Moderate Effects</p> <p>An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.</p>
	<p>Significant Effects</p> <p>An effect which, by its character, magnitude, duration or intensity, alters a sensitive aspect of the environment.</p>
	<p>Very Significant</p> <p>An effect which, by its character, magnitude, duration or intensity, significantly alters most of a sensitive aspect of the environment.</p>
	<p>Profound Effects</p> <p>An effect which obliterates sensitive characteristics.</p>
<p>Describing the Extent and Context of Effects</p> <p>Context can affect the perception of significance. It is important to establish if the effect is unique or, perhaps, commonly or increasingly experienced.</p>	<p>Extent</p> <p>Describe the size of the area, the number of sites and the proportion of a population affected by an effect.</p>
	<p>Context</p> <p>Describe whether the extent, duration or frequency will conform or contrast with established (baseline) conditions (is it the biggest, longest effect ever?)</p>

Describing the Types of Effects	Indirect Effects (a.k.a. Secondary or Off-site Effects) Effects on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway.
	Cumulative Effects The addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects.
	'Do-nothing Effects' The environment as it would be in the future should the subject project not be carried out.
	'Worst-case' Effects The effects arising from a project in the case where mitigation measures substantially fail.
	Indeterminable Effects When the full consequences of a change in the environment cannot be described.
	Irreversible Effects When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost.
	Residual Effects The degree of environmental change that will occur after the proposed mitigation measures have taken effect.
	Synergistic Effects Where the resultant effect is of greater significance than the sum of its constituents (e.g. combination of SOx and NOx to produce smog).

<p>Describing the Probability of Effects</p> <p>Descriptions of effects should establish how likely it is that the predicted effects will occur so that the CA can take a view of the balance of risk over advantage when making a decision.</p>	<p>Likely Effects</p> <p>The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.</p>
	<p>Unlikely Effects</p> <p>The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.</p>
<p>Describing the Duration and Frequency of Effects</p> <p>'Duration' 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.</p>	<p>Momentary Effects</p> <p>Effects lasting from seconds to minutes.</p>
	<p>Brief Effects</p> <p>Effects lasting less than a day.</p>
	<p>Temporary Effects</p> <p>Effects lasting less than a year.</p>
	<p>Short-term Effects</p> <p>Effects lasting one to seven years.</p>
	<p>Medium-term Effects</p> <p>Effects lasting seven to fifteen years.</p>
	<p>Long-term Effects</p> <p>Effects lasting fifteen to sixty years.</p>
	<p>Permanent Effects</p> <p>Effects lasting over sixty years.</p>
	<p>Reversible Effects</p> <p>Effects that can be undone, for example through remediation or restoration.</p>
	<p>Frequency of Effects</p> <p>Describe how often the effect will occur (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually).</p>

Source: EPA EIA Guidelines (2022).



Extracted from Figure 3.4 of the EPA EIAR Guidelines (2022).

Figure 2.2: Determining significance of effects

Table 2.1 and **Figure 2.2** inform the assessment methodology that is presented in each environmental factor chapter. Where relevant, environmental factor chapters have further adapted the criteria specific to the factor assessed (including in the context of relevant, specific guidance). Significance matrices are then defined. The assessment methodology adopted is described within each factor chapter of the EIAR.

2.4.3.1 Definition of effects vs impacts

Although these terms are used interchangeably in the EPA EIAR Guidance (2022), the EU EIA Directive emphasises the identification of environmental effects, with only brief mention of impacts in Article 7 and Annex III. Although related, a distinction should be made between impacts and effects. Impacts are best defined as changes resulting from an action. Effects are defined as consequences of impacts. The sensitivity of a receptor is related to potential impacts to identify the environmental effect. Criteria are then applied to determine the level of significance of the effect.

2.4.3.2 *Transboundary effects*

The Eastern DA, Western DA, IPP cabling and grid connection route are within the administrative boundaries of Clare County Council. The turbine delivery route is within the administrative boundaries of Limerick City and County Council, Clare County Council and Tipperary County Council. Potential transboundary effects with another member states were not identified.

2.4.3.3 *Cumulative effects and interactions of effects between different factors*

Annex IV, point 5 (e) of the EU EIA Directive requires that the cumulation of effects with other existing and/or approved projects are described in the EIAR. In this EIAR, the Projects considered for cumulative assessment also include proposals that are awaiting determination (i.e., there is current planning application) and where relevant, projects in pre-planning stage which have sufficient information available in the public domain.

Throughout preparation of the Proposed Development's design and EIAR, the RSK Project Team has monitored these projects and proposals within or proximal to the study area, including projects and proposals under various consenting procedures (i.e., local planning, strategic infrastructure, and permitting) and linear projects such as roads and railways. Based on professional judgment, and where the likely environmental effects during all phases of the development for these projects and proposals are local, the cumulative study area for the assessments is 10km from the Proposed Development red line planning boundary (site only) and a 350m either side of the proposed TDR and GCR options (where these lie outside the 10km study area). The study area applies to all environmental factors except where specific guidance applies (i.e., landscape and visual assessment).

A desktop Geographical Information Systems (GIS) exercise was undertaken to identify projects and proposals within the defined study area. The desktop GIS exercise was supplemented by in-depth research, including planning history searches, up to a cut-off date of 4th of December 2023.

A list of projects and proposals that were monitored for cumulative assessment during the course of the Proposed Development's design and EIAR preparation (up to the cut-off date of 4th of December 2023) is presented in **Table 2.2**. The final column in **Table 2.2** summarises the scoping exercise undertaken to identify which projects were scoped in for cumulative assessment. The projects scoped in for cumulative assessment are highlighted in grey.

Scope for assessment may differ depending on the environmental factor (e.g., landscape and visual impact assessment, noise impact assessment, etc.), and therefore the Projects identified for cumulative assessment, where they differ from those presented in **Table 2.2**, are defined in each environmental factor chapter of the EIAR.

Table 2.2: Existing, planned and proposed projects in the study area

Project	Planning / Project Ref.	Nearest Distance to the Proposed Development Site	Description	Scoped in / out for cumulative assessment
Within 10km from Project Site				
Solar Farm	2360249 Clare County Council	Approximately 4.5km West from the proposed windfarm site	<p>A solar farm on a site of 70 hectares consisting of the following: 309,008 sq. m. of solar photovoltaic panels on ground mounted steel frames; a 38 kV electrical substation with electrical control building and associated compound with palisade fence; the installation of 21 electrical skids within 7 no. electrical compounds (with acoustic barrier fencing); underground power and communication cables and ducts, including underground cabling along the L3056 public road; new and upgraded internal access tracks (including stream crossings as required); 3 no. upgraded site entrances to the public road (one entrance to L-3054 (Lackyle Heights), and 2 no. entrances to L-30541); boundary fencing (including 607m of acoustic barrier fencing on the eastern boundary); landscaping and biodiversity enhancement measures; and all associated ancillary development, site works and services. The solar farm will be operational for 40 years.</p> <p>A Natura Impact Statement (NIS) has been prepared in respect of the proposed</p>	<p>Permission was granted on the 10th of October 2023 with 14 No. conditions. From examination of the online planning file, it is our understanding that this project has not yet commenced.</p> <p>This development is scoped in for cumulative assessment due to its proximity to the Proposed Development.</p>

Project	Planning / Project Ref.	Nearest Distance to the Proposed Development Site	Description	Scoped in / out for cumulative assessment
			<p>development and will be submitted to the planning authority with the application.</p> <p>Permission was granted on the 10th of October 2023.</p>	
Quarry	18818 Clare County Council	Approximately 4km South from the proposed wind farm site	<p>For development which will consist of an expansion to an existing quarry consisting of 10 hectares located adjacent to the existing working quarry including extraction of rock by blasting means down to 150mOD; Extracted rock will be processed at the existing working quarry; Landscaping of the quarry during the operational phase and restoration of the quarry on completion of extraction; All associated ancillary facilities / works; The applicant is seeking a 16 year permission as part of the application. The application is accompanied by an Environmental Impact Assessment Report (EIAR)</p> <p>Application was submitted on the 17th of October 2018 and was granted on the 13th of December 2019.</p>	<p>Clare County Council issued notification to grant planning permission subject to nineteen conditions on the 13th of December 2019. The facility is currently operational.</p> <p>This operational quarry, which is identified as a source of materials for construction of the Proposed Development, is scoped in for cumulative assessment due to its proximity to the Proposed Development.</p>
Residential Development	2023065 EIAR Portal Reference 22959 Limerick	Approximately 8.8km South from the proposed windfarm site	Proposed development of 98 no. residential units and a significant Biodiversity area, on a site of 9.45 hectares, which comprises Phase 3 of an overall Masterplan site.	<p>Granted permission with 27 No. Conditions on the 28th of June 2023.</p> <p>An appeal was submitted on the 24th of July 2023.</p> <p>This development, which is yet to be determined, is scoped in for cumulative</p>

Project	Planning / Project Ref.	Nearest Distance to the Proposed Development Site	Description	Scoped in / out for cumulative assessment
	County Council			assessment due to its proximity to the Proposed Development.
Restoration of Old Quarry Site	18995 Clare County Council	Approximately 6km East from the proposed windfarm site	<p>For the restoration of 3.76 hectares of an extant sand and gravel quarry to agricultural grassland. The development is necessary to comply with condition no. 4 of substitute consent 03.SU.0127 and will include importation of inert material and all associated development works.</p> <p>Permission was granted on the 9th of March 2023.</p>	<p>Permission was granted on the 9th of March 2023.</p> <p>Condition 2b states that the maximum annual rate of intake shall not exceed 18,000 metric tonnes.</p> <p>This development is scoped in for cumulative assessment due to its proximity to the Proposed Development.</p>
Residential Development	<p>2023143 EIAR Portal Reference</p> <p>221114 Limerick County Council</p>	Approximately 8.8km South from the proposed windfarm site	Proposed development of 54 no. residential units which comprises Phase 4 of an overall Masterplan site	<p>Permission was granted on the 11th of October 2023 with 30 No. Conditions.</p> <p>From examination of the online planning file, it is our understanding that this project has not yet commenced.</p> <p>This development is scoped in for cumulative assessment due to its proximity to the Proposed Development.</p>
Solar Farm	22591 Clare County Council	Approximately 5km Southeast from the proposed windfarm site and within 350m of TDR	For a 10-year planning permission for a solar array at Ballyglass, Coolderry, Dromintobin North, Reanabrone, and Oakfield (townlands) Ardnacrusha, Co Clare. The development will consist of c265,000 m ² of solar panels on ground mounted frames, 8 no. single storey	The application was submitted on the 4 th of July 2022 and was granted on the 17 th of February 2023 with 13 conditions.

Project	Planning / Project Ref.	Nearest Distance to the Proposed Development Site	Description	Scoped in / out for cumulative assessment
			<p>control cabins with associated electrical transformer units and hardstand areas, 2 no. ring main units, underground cabling within the solar array site and within the L70382 public road to connect solar array field parcels, security fencing, CCTV, access tracks (upgrade of existing and new), upgrades to four existing agricultural field entrances on the R463, I3046 and L70382 and creation of new entrance on L70382, temporary construction compound, landscaping and all associated ancillary apparatus and development works. The solar array will connect to the national grid and will have an operational lifespan of 35 years. A Natura Impact Statement (NIS) has been prepared in respect of the proposed development and will be submitted to the planning authority with the application.</p> <p>The application was submitted on the 4th of July 2022 and was granted on the 17th of February 2023 with 13 conditions.</p>	<p>This development is scoped in for cumulative assessment due to its proximity to the Proposed Development.</p>
Solar Farm	16368 Clare County Council	Approximately 9km South West from the proposed windfarm site	<p>For a 10-year permission for the development of a solar PV panel array consisting of up to 29,225.37 sq.m of solar panels on ground mounted steel frames, 1 No. substation, 3 No. inverter cabins, underground cable ducts, a temporary site compound area and ancillary facilities, boundary security</p>	<p>The application was granted on the 24th of April 2017 with 17 conditions.</p> <p>This development is scoped in for cumulative assessment due to its proximity to the Proposed Development.</p>

Project	Planning / Project Ref.	Nearest Distance to the Proposed Development Site	Description	Scoped in / out for cumulative assessment
			<p>fencing, site landscaping, a site entrance and access track, CCTV and all associated site works located in the townland of Ballymorris.</p> <p>The application was granted on the 24th of April 2017 with 17 conditions.</p>	
Solar Farm	1731 Clare County Council	Approximately 9.1km South West from the proposed windfarm site	<p>For a 10-year permission for the development of a solar PV farm consisting of up to 34,334 sq.m of solar panels on ground mounted steel frames, 1 no. substation, 2 no. inverter cabins, a battery storage container, underground cable ducts, a temporary site compound area and ancillary facilities, boundary security fencing, site landscaping, upgrade to existing farm track and new internal access track, CCTV and all associated site works. The development includes the demolition of the existing ruined cottage on site. The proposed solar farm will be connected to the National Grid.</p> <p>Permission was granted by Clare County Council on 11th of August 2017.</p>	<p>“Construction on the Terra project is expected to commence mid next year, creating 60 jobs during the 12-week build.” – Clare Champion reports on July 14th, 2017.</p> <p>From examination of the online article, it is our understanding that this project has commenced construction as of mid-2018.</p> <p>This development is scoped in for cumulative assessment due to its proximity to the Proposed Development.</p>
Ballymorris South Solar Farm	17411 Clare County Council	Approximately 9.8km Southwest	The development will consist of a 10 year permission for the construction of a Solar PV Energy development within a total site area of up to 9.4 ha., to include one single storey electrical substation building, electrical transformer/inverter	From examination of the online planning file, it is our understanding that this project has commenced construction as of Q1 2021.

Project	Planning / Project Ref.	Nearest Distance to the Proposed Development Site	Description	Scoped in / out for cumulative assessment
			<p>station modules, solar PV ground mounted on steel support structures, access roads, fencing, CCTV, and associated electrical cabling, ducting and ancillary infrastructure.</p> <p>Permission was granted as of 22nd of June 2018.</p>	<p>This development is scoped in for cumulative assessment due to its proximity to the Proposed Development.</p>
Within 350m of TDR and GCR				
Road Works	198000 Limerick County Council	Within 350m of TDR	<p>The proposed improvement works will be carried out within the existing 60kph speed limit zone over a length of 750m between L6135 Curraghchase Junction and the L6125 Junction. The improvement works proposed comprise a reduction of the N69 carriageway width to 6.5m over the 750m length of the scheme with a footway installed on the southern side (school side) and kerbing and a grass verge on the northern side of the carriageway. The proposed works also include for the installation of LED public lighting on the northern side of the carriageway, road lining and signage as well as surface water drainage along both sides of the N69 carriageway and pavement improvement works. Accommodation works will be undertaken as required including improvement works in and around the community hub of the national school and GAA club grounds. The</p>	<p>The improvement works are planned along the N69, which is a large part of the Proposed Development's TDR. This development is therefore scoped in for cumulative assessment.</p>

Project	Planning / Project Ref.	Nearest Distance to the Proposed Development Site	Description	Scoped in / out for cumulative assessment
			<p>implementation of the works proposed will result in a rearrangement of the existing road network in the vicinity of the scheme. Changes to the existing road network will include the reduction of road width to 6.5m over a 750m length and the installation of a kerbed footway abutting the westbound carriageway and kerbing and a verge abutting the eastbound carriageway over the scheme length.</p> <p>The application for planning permission was submitted on 31st of January 2019.</p>	
Residential Development	201114 and 211328 Limerick County Council	Within 350m of TDR	<p>Construction on Site 1 of 96no. residential units: 2no. 4-bedroom detached units, 20no. 4-bedroom semi-detached units, 8no. 3-bedroom semi-detached units, 32no. 3 bedroom terraced units, 13no. 2 bedroom terraced units, 17no. 2 bedroom duplex units, 4no. 1 bedroom duplex units. Provision of Creche and Community Building including external play area (Gross Floor Area - 787 sq.m, Creche 610 sq.m & Community Building 177 sq.m). Provision of shared communal and private open space, car parking, bicycle storage, bin storage, vehicular and pedestrian access, public lighting, site landscaping, services, signage, ESB substation and all associated site development works. Development to include access onto the Mungret</p>	<p>From examination of the online planning file, it is our understanding that this project has commenced construction as of 21st of February 2022.</p> <p>This development is scoped in for cumulative assessment based on its proximity to the TDR.</p>

Project	Planning / Project Ref.	Nearest Distance to the Proposed Development Site	Description	Scoped in / out for cumulative assessment
			<p>Road(R859). The planning application is accompanied by a Natura Impact Statement.</p> <p>Planning permission was granted on the 27th of May 2021.</p>	
Residential Development	211152 Limerick County Council	Within 350m of TDR	<p>A residential development comprising 89 no. residential units, (9 no. detached houses, 36 no. semi-detached houses, 20 no. terraced houses, 24 no. duplex units), demolition of existing farm buildings, additional parallel parking along the Castletroy College road, accessed via a new entrance onto the Castletroy College road and all ancillary site development works. Ancillary site development works include a new connection to the public water main, foul and surface water drainage, access roads, footpaths, vehicle parking, landscaping, boundary treatments and site development works above and below ground. The planning application is accompanied by an EIAR and an NIS (Natura Impact Statement).</p> <p>Planning permission was granted on the 20th of April 2022.</p>	<p>From examination of the online planning file, it is our understanding that this project has not yet commenced.</p> <p>This development is scoped in for cumulative assessment based on its proximity to the TDR.</p>
Residential Development	191236 Limerick County Council	Within 350m of TDR	<p>A residential development comprising 92 no. residential units, (60 no. houses, 32 apartments) This includes 1 no block of 32 apartments specifically intended to accommodate independent living for</p>	<p>From examination of the online planning file construction is ongoing.</p>

Project	Planning / Project Ref.	Nearest Distance to the Proposed Development Site	Description	Scoped in / out for cumulative assessment
			<p>older persons. The planning application is accompanied by an EIAR and NIS. There is also additional parallel parking along the Castletroy College road, accessed via a new entrance onto the Castletroy College road and all ancillary site development works. Ancillary site development works include a new connection to the public water main, foul and surface water drainage, access roads, footpaths, vehicle parking, landscaping, boundary treatments and site development works above and below ground.</p> <p>Planning permission was granted on the 4th of march 2021 by Limerick County Council.</p>	This development is scoped in for cumulative assessment based on its proximity to the TDR.
Residential Development	19547 Limerick County Council	Within 350m of TDR	<p>A residential development comprising 70 no. residential units, (16 no. semi-detached houses, 6 no. terrace houses, 4 no. duplex units, 1 no. 4 storey apartment block over basement), 2 storey Creche and community playing pitch, accessed via the Castletroy College road and all ancillary site development works.</p> <p>Planning permission was granted on 28th of May 2020 by Limerick County Council.</p>	<p>From examination of the online planning file construction is ongoing.</p> <p>This development is scoped in for cumulative assessment based on its proximity to the TDR.</p>
Road Works	306146	Within 350m of TDR	Foynes to Limerick Road (including the Adare Bypass) including all ancillary and consequential works.	The improvement works are planned along the N69, which is a large part of the Proposed Development's TDR. This

Project	Planning / Project Ref.	Nearest Distance to the Proposed Development Site	Description	Scoped in / out for cumulative assessment
	An Bord Pleanála (ABP)		The application was approved with conditions on the 30 th of August 2022 by ABP.	development is therefore scoped in for cumulative assessment.
Road Works	306199 ABP	Within 350m of TDR	Foynes to Rathkeale Protected Road Scheme 2019, Rathkeale to Attyflin Motorway Scheme 2019 and Foynes Service Area Scheme 2019 (forming the Foynes to Limerick Road (including Adare Bypass)). The application was approved with modifications on the 30 th of August 2022 by ABP.	The improvement works are planned along the N69, which is a large part of the Proposed Development's TDR. This development is therefore scoped in for cumulative assessment.
Residential Development	20256 Limerick County Council	Within 350m of TDR	A residential development comprising 57 units (comprising 21 no. semi-detached houses, 3 no terrace, 2 duplex units) and 1 four storey apartment block over basement comprised of 31 apartments revisions to development granted under planning 18/698 consisting of alteration to a portion of the open space area, all accessed via existing entrance onto the Kilmurry Road and all ancillary site development works including connections to the public water main, foul and surface water drainage, access roads, footpaths, vehicle parking, landscaping, boundary treatments and site development works above and below ground. The planning application is accompanied by a Natura Impact Statement.	From examination of the online planning file construction commenced in May 2021 and was completed as of February 2022. The construction phase of the residential is complete and should therefore have no interaction with the Proposed Development. This development is therefore scoped out of the cumulative assessment.

Project	Planning / Project Ref.	Nearest Distance to the Proposed Development Site	Description	Scoped in / out for cumulative assessment
			Planning permission was granted on 8 th of December 2020.	
Residential Development	211400 Limerick County Council	Within 350m of TDR	A residential development comprising 96 no. residential units, (16 no. semi-detached houses, 6 no. terrace houses, 2 detached units along with 2 no. 5 storey apartment blocks over basement, comprised of 72 no. apartments and basement parking), bin & bike stores, demolition of existing farm buildings, additional parallel parking along the Castletroy College road, accessed via a new entrance onto the Castletroy College road and all ancillary development works. Ancillary site development works include a new connection to the public water main, foul and surface water drainage, access roads, footpaths, vehicle parking, landscaping, boundary treatments and site development works above and below ground. The planning application is accompanied by a NIS. Planning permission was granted on the 9 th of June 2022.	From examination of the online planning file, it is our understanding that this project has not yet commenced. This development is scoped in for cumulative assessment based on its proximity to the TDR.
Residential Development	21311588 Limerick County Council	Within 350m of TDR	Application - Construction of 371 residential units, proposed access road and two storey childcare facility. Planning permission was granted on the 26 th of May 2022.	From examination of the online planning file, it is our understanding that this project has commenced as of February 2023.

Project	Planning / Project Ref.	Nearest Distance to the Proposed Development Site	Description	Scoped in / out for cumulative assessment
				This development is scoped in for cumulative assessment based on its proximity to the TDR.
Residential Development	21350 Limerick County Council	Within 350m of TDR	<p>A residential development comprising 62no. residential units(14no. semi-detached house, 10no. terrace houses, 4no. duplex units, 2no. 5 storey apartment blocks over basement, comprised of 34no. apartments and basement parking), revisions to development granted under planning reference 20/256 consisting of alteration of portion of the open space area and alterations to the visitor drop off area, all accessed via existing entrance onto the Kilmurry Road and all ancillary site development works on lands at Newtown, Castletroy, Co. Limerick. Ancillary site development works include connections to the public water main, foul and surface water drainage, access roads, footpaths, vehicle parking, landscaping, bin & bike store, boundary treatments and site development works above and below ground. The planning application is accompanied by an EIAR(Environmental Impact Assessment Report) and an NIS(Natura Impact Statement).</p> <p>Planning permission was granted on the 3rd of December 2021.</p>	<p>From examination of the online planning file, it is our understanding that this project has not yet commenced.</p> <p>This development is scoped in for cumulative assessment based on its proximity to the TDR.</p>

Project	Planning / Project Ref.	Nearest Distance to the Proposed Development Site	Description	Scoped in / out for cumulative assessment
Road Works	218001 Limerick County Council	Within 350m of TDR	The construction of an overflow channel and new culvert under the N69 in the vicinity of Marine Cove Road.	The improvement works are planned under the N69, which is a large part of the Proposed Development's TDR. This development is therefore scoped in for cumulative assessment.
Residential Development	22313124 Limerick County Council	Within 350m of TDR	A 10-year permission for the construction of 384no. residential units (202 no. houses, 182 no. apartments), creche and associated site works. The application was submitted for planning on the 31 st of March 2022.	This development, which is yet to be determined, is scoped in for cumulative assessment based on its proximity to the TDR.
Road Works	228018 Limerick County Council	Within 350m of TDR	Development works that will consist of upgrades/reconstruction works commencing on the R526 (north-east of Ballykeefe Roundabout), along South Circular Rd, Henry St and terminating at Mill Lane in Limerick City Centre.	The R526 is a fly over which runs over the N18 (along the Turbine Delivery Route of the Proposed Development). The works associated with this road development should not interact with the N18 road and is therefore scoped out of the cumulative assessment.
Quarry	23294 Limerick County Council	Within 350m of TDR	The development will consist of the restoration and infilling of the existing and future void over an area of (c. 17.2 ha) of existing permitted quarry (05/7029 and ABP 13.QC.2098) using approximately 2,464,000m ³ or 4,435,200 tonnes of inert soil and stone material or stone by-product, or river dredge spoil. The application was submitted for planning on the 6 th of June 2023.	This development is scoped in for cumulative assessment based on its proximity to the TDR.

Project	Planning / Project Ref.	Nearest Distance to the Proposed Development Site	Description	Scoped in / out for cumulative assessment
Land Disturbance	2337 Clare County Council	Within 350m of TDR	To fill land with topsoil, subsoil, stone and inorganic construction material to raise the level of the land for agricultural purposes. A Natura Impact Statement is included with the application. The application was submitted for planning on the 25 th of January 2023.	The principal road used is to be the R465 from Limerick City. Material will also be brought from Killaloe via the R471 and R463. The TDR of the Proposed Development runs along the R471 which intersects with R463. This development is scoped in for cumulative assessment based on its use of common roads and proximity to the Proposed Development site.
Road Works	238002 Limerick County Council	Within 350m of TDR	The development works will consist of and extension of the existing embankment on the landowner's side and various other road upgrade works including a shared raised footpath and cycleway and footway with fencing. The application was submitted for planning on the 27 th of February 2023.	This development is therefore scoped in for cumulative assessment due to its proximity to the TDR of the Proposed Development.
Road Works	238004 Limerick County Council	Within 350m of TDR	The proposed improvement works that comprise of 550m of revised road layout on the N69 and 90m of realigned side road L1403 and will provide for various additional road upgrade features including a footway, signal-controlled pedestrian crossings, kerbing and hardscaping, etc. The application was submitted for planning on the 20 th of April 2023.	The improvement works are planned along the N69, which is a large part of the Proposed Development's TDR. This development is therefore scoped in for cumulative assessment.

Project	Planning / Project Ref.	Nearest Distance to the Proposed Development Site	Description	Scoped in / out for cumulative assessment
Residential Development	314013 ABP	Within 350m of TDR	<p>The construction of 21 no. dwellings and all associated site works. The application is accompanied by a Natura Impact Statement (NIS).</p> <p>The application was submitted to ABP on the 6th of July 2022 and the case was due to be decided on the 8th of November 2022.</p>	This development, which is yet to be determined, is scoped in for cumulative assessment due to its proximity to the TDR of the Proposed Development.
Port Works	2018007 EIAR Portal Reference 301561 ABP	Within 350m of TDR	<p>Port capacity extension to consist of modifications to the existing jetties and quays, phased expansion of the port estate and all associated site development works.</p> <p>The application was granted permission on the 21st of December 2018 by ABP.</p>	This development is scoped out for cumulative assessment on the basis that the indicative construction schedule in the planning file was ca. 3 years (assumed to end in early 2022) and that this development will therefore have no interactions with the Proposed Development.
Road Works	2019214 EIAR Portal Reference 306146 ABP	Within 350m of TDR	<p>Approximately 15.6km of Type 2 dual carriageway express road extending from Foynes to Rathkeale, approx. 17.5km of dual carriageway motorway from Rathkeale to Attyflin and a service area for Heavy Goods Vehicles approximately 5ha in size near Foynes.</p> <p>The application was approved on the 30th of August 2022.</p>	The improvement works will have potential interactions with a section of the N69, which is a part of the Proposed Development's TDR. This development is therefore scoped in for cumulative assessment.
Port Works	2020031 EIAR Portal Reference	Within 350m of TDR	Jetty Extension between East Jetty and West Quay of area 0.361ha. Pontoon relocation and landing structures with access to West Quay of area 0.0071ha.	This development is scoped out for cumulative assessment on the basis that it is a foreshore application and will therefore have no interactions with the Proposed Development.

Project	Planning / Project Ref.	Nearest Distance to the Proposed Development Site	Description	Scoped in / out for cumulative assessment
			The foreshore lease was granted on the 11 th of January 2022 Foreshore Ref: FS006837.	
Solar Farm	248066 ABP	Within 350m of TDR	10-year permission. for the development. of a solar PV farm consisting of up to 35,582m ² of solar panels on mounted steel frames, 1 no. substation; 3 no. inverter cables, underground cable ducts and all associated works. Planning permission was granted on the 5 th of April 2018 by ABP.	This development is scoped out for cumulative assessment on the basis that its construction schedule will not coincide with that of the Proposed development, having been granted planning permission in April 2018. It is assumed that this development will therefore have no interactions with the Proposed Development.

Each environmental factor chapter includes a cumulative assessment of the Proposed Development with other proposed projects as may be relevant to that factor depending on the potential interaction and likelihood of cumulative effects within the relevant Zone of Influence (Zoi), and in accordance with specific guidance for that factor. The Projects which are scoped in for cumulative assessment for the **Landscape and Visual Impact Assessment (EIAR Chapter 14)** are listed in Table 2.3.

Table 2.3: Wind farms within 20 km

Development	Status	Distance/ Direction (kilometres) [1]	Number of Turbines	Tip Height (metres)
Carrownagowan WF	Granted	5.1 km NE	19	169
Fahybeg Onshore Wind Farm (appealed)	Planning	6.0 km E	8	169 - 176.5
Parteen Turbine	Operational	9.4 km SE	1	Unknown
Vision Care Turbine	Operational	13.7 km SE	1	Unknown

[1] From nearest turbine of the proposed development to nearest known point of cumulative development.

Projects and proposals for other wind farms that are at pre-planning stage, but have publicly available information, have also been monitored during the course of the Proposed Development's design and EIAR preparation. The details of other wind farms within 20km that are at pre-planning stage are listed in **Table 2.4**.

Table 2.4. Details on wind farm projects in the region at pre-planning stage

Development	Status	Distance/ Direction (kilometres) [1]	Number of Turbines	Tip Height (metres)
Knockshanvo	Pre-planning	0.5 km N	9	179.5 - 185
Ballycar	Pre-planning	4.7 km S	12	150 - 158
Lackareagh	Pre-planning	6.4 km NE	7	Unknown

EIAR Chapter 20 Impact Interactions and Cumulative Effects presents a summary of the potential cumulative effects arising from the proposed development as assessed in each environmental factor chapter, and also addresses impact interactions where several different impacts may collectively give rise to additional or greater effects on environmental receptors.

2.4.4 Preparation of the EIAR

This EIAR has been prepared to comply with the EIA Directive 2011/92/EU (as amended by Directive 2014/52/EU), National Legislation, EU and EPA guidelines and other guidelines and circulars. This EIAR adheres to the fundamental principles outlined in the

EU Guidelines (2017)³ and EPA EIAR Guidelines (2022). These guidelines set out the matters that must be addressed in an EIAR which include:

- anticipating, avoiding, and reducing significant effects;
- assessing and mitigating effects;
- maintaining objectivity;
- ensuring clarity and quality;
- providing relevant information to decision makers; and
- facilitating public engagement.

2.4.4.1 Content of the EIAR

The EIAR for the Proposed Development is presented by environmental factor and describes the existing environment, the likely significant effects of the proposed development, and the proposed mitigation measures, under the chapter headings listed in Table 2.5.

Table 2.5: Content of the EIAR

The EIAR
Volume I. Non-Technical Summary
Volume II. Main Report
Part 1. The Proposed Development Context and Description
1.0 Introduction & Background
2.0 EIA Methodology
3.0 Scoping, Consultations, Community Engagement and Key Issues
4.0 Project Need and Alternatives Considered
5.0 Project Description
Part 2. Environmental Factors
6.0 Population and Human Health
7.0 Biodiversity
8.0 Ornithology
9.0 Hydrology and Hydrogeology
10.0 Soils and Geology
11.0 Material Assets (utilities, waste, telecommunications and aviation)
12.0 Shadow Flicker
13.0 Noise and Vibration
14.0 Landscape and Visual
15.0 Archaeological, Architectural and Cultural Heritage
16.0 Traffic and Transport

17.0 Air Quality
18.0 Climate
19.0 Major Accidents and Disasters
20.0 Impact Interactions and Cumulative Effects
21.0 Schedule of Mitigation Measures
Volume III. Appendices
Volume IV. Drawings and Figures
Volume V. Photomontages

2.5 Definitions of site and study area

The site of the Proposed Development for which planning permission is sought (as indicated by the planning red line boundary) encompasses the wind farm, the route of the proposed IPP underground cable connecting both distinct Proposed Development Areas on the West and East (explained in further detail in **Chapter 5 Project Description**), the grid connection route and the turbine delivery route.

The blue line boundary around the proposed wind farm site encompasses lands for which Orsted has lease options and landowner agreements in place.

The Zone of Influence (Zol) determines the receiving environment for the activities associated with the Proposed Development (i.e., an area that could be affected by changes as a result of Project activities). As is described in relation to the cumulative assessment (section 2.4.3.3) where the likely environmental effects during all phases of the development for the Proposed Development are local, based on professional judgment, the Zol for the Proposed Development is 10km from the wind farm site boundary and a 350m corridor of the proposed TDR and GCR options (for those areas outside the 10km study area).

In some cases, the Zol for the Proposed Development may differ for specific environmental factor chapters in accordance with guidance. Study area boundaries are determined on the basis of Zol, and baseline data is gathered for the study area (which lies within the Zol). For example, the EIAR **Chapter 13 Noise and Vibration**, defines a study area delimited by the 35 decibel (dB) contour from proposed turbine positions whilst EIAR **Chapter 14 Landscape and Visual** defines a study area of 20km from the proposed turbines for its assessments, and EIAR **Chapter 12 Shadow Flicker** defines a study area of 1.5km around each proposed turbine. The methodology section of each environmental factor chapter defines its Zol/ study area accordingly.

2.6 Sensitive receptors

It is considered that a 2km study area defines the maximum extent where sensitive receptors may be affected by the proposed development and also correlates to the area extent for the community engagement programme. During the receptor survey, however, receptors were recorded up to 2.1km for comprehensiveness. A total of 306 sensitive receptors within a 2.1 km radius of each of the proposed turbines in the wind farm site have been identified through desktop study and field survey for assessment in the EIAR.

Refer to **EIAR Volume III Appendix 2.1** for a description of the methodology employed in identifying the sensitive receptors for the EIAR.

The sensitive receptors identified include occupied dwellings, unoccupied dwellings (excluding dilapidated properties), planning permission sites (validated and granted up to 4th of December 2023), community buildings and schools. There are no sensitive receptors within 500 m, thirty-six (36) within 1 km, ninety-eight (98) within 1.5 km and three hundred and six (306) within 2.1 km. Refer to **Volume III Appendix 2.2** which contains the database of all sensitive receptors including their grid co-ordinate reference (Geo-directory data), the distance to the nearest turbine, and the turbine identifier.

2.7 Implementation of Wind Energy Development Guidelines

The Proposed Development has been designed and developed in accordance with the Department of Housing, Local Government and Heritage (hereafter referred to as “The Department”) Wind Energy Development Guidelines (2006) as published by the Minister per section 28 of the Planning and Development Act 2000 (as amended). The Department undertook a consultation on the Draft Revised Wind Energy Guidelines (2019) following a targeted review of the 2006 Guidelines. Consultation on the Draft Revised Guidelines concluded in February 2020. To date the Department has not issued replacement Wind Energy Guidelines.

Due regard has been given to the 2019 Draft Revised Wind Energy Development Guidelines in the design and EIAR of the Proposed Development in relation to the following:

- maintaining a setback distance of four times the blade tip height of the proposed turbines (720m) to the nearest point of curtilage of non-financially involved dwellings subject to a mandatory minimum distance of 500m for all dwellings (per Section 6.18 of the 2019 Draft Revised Wind Energy Guidelines); and
- in relation to the requirement for undertaking community engagement, preparation of a Community Report and submission with the planning application (per Appendix 2 of the 2019 Draft Revised Guidelines).

It is possible that new Wind Energy Development Guidelines would be issued prior to a decision being made on the planning application for the Proposed Development. It is accepted that in the course of the statutory timeframes for decision making on the planning application under the Planning and Development Regulations, 2001 (as amended) the competent authority may request further environmental information to demonstrate compliance with any aspect of the new Guidelines.