### 5.10.3.3 Population

The extension of the operational phase of the Proposed Development will have no effect on the population of the area with regards to changes to trends, population density, household size or age structure.

### 5.10.3.4 Land-use

The footprint of the Proposed Development site, including turbines, hardstands, and roads etc., occupies only a small percentage of the total Study Area defined for the purposes of this EIAR. The primary land-use of agriculture during the operational phase will continue to co-exist with the wind farm. The Proposed Development will have no impact on other land-uses within the wider area.

### 5.10.3.5 Property Values

As noted in Section 5.7 above, the conclusions from available international literature indicate that property values are not impacted by the positioning of wind farms near houses. It is on this basis that it can be reasonably concluded that there would be a long-term imperceptible impact from the Proposed Development.

### 5.10.3.6 Noise

Details of the noise assessment carried out by Irwin Carr Consulting are presented in Chapter 11 of the EIAR. The noise assessment determined that the operational noise effect at the closest noise sensitive receptors to the site is of a long-term, negative, and not significant in nature. It is noted that this effect considers the periods of greatest potential effect prior to mitigation, i.e., the worst-case scenario. The noise assessment notes that these effects should be considered in terms that the effect is variable, and that this assessment considers periods of the greatest potential effect. The measured noise levels for the Proposed Development have been compared with the existing background noise levels and the best practice guidance levels for noise emissions from wind farms.

As stated in the noise assessment in Chapter 11, it has been demonstrated that the Proposed Development can satisfy the relevant national guidance in relation to noise as well as Condition 8 of the original planning permission to Wexford County Council (Planning Permission 20044702) associated with the Proposed Development can be satisfied, therefore the predicted impact associated with the operational turbines is long-term and not significant.

### 5.10.3.7 Traffic

During the continued operational phase, the wind farm will continue to be remotely monitored. Traffic associated with the operational phase of the wind farm will be from Castledockrell Wind Group Ltd. Personnel visiting the onsite substation and control building, and maintenance personnel who will visit individual turbines. The traffic volumes that will be generated by the Proposed Development during its continued operation will be minimal. The site will generate monthly maintenance trips, with approximately two maintenance staff travelling to site at any one time as Discussed in Chapter 14 of this EIAR.

Typically, there are no more than two trips per day to the site made by car or light goods vehicle. The direct effect on the surrounding road network will be imperceptible neutral and long-term given the very low volume of daily trips to the site.

## 5.10.3.8 Renewable Energy Production and Reduction in Greenhouse Gas Emissions

Ireland did not meet its 2020 renewable energy target of 16%. The actual renewable energy share for Ireland in 2020 was 13.5%, which translates to a 3.3 TWh shortfall of renewable energy (SEAI Energy in Ireland 2021 Report' (December 2020). In June 2022, the EPA published an update on ***Ireland's Greenhouse Gas Emission Projections 2021-2040*** using the latest Inventory data for 2020. The report provides an assessment of Ireland's progress towards achieving its emission reduction targets for 2021 and 2030 as set out under the EU Effort Sharing Decision (ESD) and Effort Sharing Regulation (ESR). Under the Additional Measures scenario, renewable energy is projected to increase up to 78% of electricity generated by 2030 with emissions from the Energy Industry decreasing by 10% per annum from 2021-30. Increased coal use from 2021 and growing energy demand, including from data centres, threaten to negatively impact achievement of National targets, particularly for the first carbon budget period. EPA projections show that 'existing measures' (i.e., no additional policies being implemented beyond those already in place by 2020), Ireland will achieve a reduction of 5% on 2005 levels by 2030, which is significantly short of the 2030 target. 'Additional Measures' (i.e., full implementation of policies outlined in the Climate Action Plan 2021) are paramount to achieve our 2030 targets. With Additional Measures it is projected that renewables will make up 80% of Ireland energy generation with the majority being produced by wind energy developments.

The Proposed Development will offer significant benefits in terms of renewable energy production and reductions in greenhouse gas emissions. In this regard, it will have a long-term significant positive impact. The carbon loss and savings due to the Proposed Development are discussed in Chapter 10 of this EIAR.

## 5.10.3.9 Tourism and Amenity

### Pre-Mitigation Impacts

Given that there are currently no tourism attractions or amenity walkways located within the site there are no impacts associated with the operational phase of the development. The Department of the Environment, Heritage and Local Government's *Wind Energy Development Guidelines for Planning Authorities* 2006 state that "*the results of survey work indicate that tourism and wind energy can co-exist happily*". It is not considered that the Proposed Development would have an adverse impact on tourism infrastructure in the vicinity. Renewable energy developments are an existing feature at the site and in the surrounding landscape.

## 5.10.3.10 Shadow Flicker

### Pre-Mitigation Impacts

The shadow flicker prediction model indicates that 18 no. residential dwellings may experience daily shadow flicker in excess of the current DoEHLG guideline threshold of 30 minutes per day caused by the Proposed Development.

Assuming worst-case conditions, 18 no. properties of the 40 no. properties within a 10 rotor diameter area (10 X 71m = 710m) of the wind farm may experience daily shadow flicker in excess of the DoEHLG 2006 Guidelines threshold of 30 minutes per day. Of the 18 no. properties, 3 no. are involved landowners. One property will experience annual shadow flicker above the 2006 DoEHLG Guidelines threshold of 30 hours per year, House 6, which is also an involved landowner. In the absence of mitigation measures, as outlined below, this is considered to be a long-term, moderate, negative impact.

**Notwithstanding the approach set out above should shadow flicker associated with the existing wind farm be perceived to cause a nuisance at any home, the affected homeowner is invited to engage with the Developer. Should a complaint be received during the extension of operation of the Proposed Development the homeowner will be asked to log the date, time and duration of shadow flicker events occurring on at least five different days. The provided log will be compared with the predicted occurrence of shadow flicker at the residence.**

## Proposed Mitigation Measures

Where daily shadow flicker exceedances have been predicted at buildings by the modelling software, a site visit will be undertaken firstly to determine the level of occurrence, existing screening and window orientation. Should the proposed extended operational period be granted, the shadow flicker prediction data will be used to select dates on which a shadow flicker event could be observed at one or multiple affected properties and the following process will be adhered to.

1. *Recording the weather conditions at the time of the site visit, including wind speeds and direction (i.e., blue sky, intermittent clouds, overcast, moderate breeze, light breeze, still etc.).*
2. *Recording the house number, time and duration of site visit and the observation point GPS coordinates.*
3. *Recording the nature of the sensitive receptor, its orientation, windows, landscaping in the vicinity, any elements of the built environment in the vicinity, vegetation.*
4. *In the event of shadow flicker being noted as occurring the details of the duration (times) of the occurrence will be recorded.*

**Screening Measures**

In the event of an occurrence of shadow flicker exceeding guideline threshold values of 30 minutes per day at a residential receptor, mitigation options will be discussed with the affected homeowner, including:

- Installation of appropriate window blinds in the affected rooms of the residence;
- Planting of screening vegetation;
- Other site-specific measures which might be agreeable to the affected party and may lead to the desired mitigation.

If agreement can be reached with the homeowner, then it would be arranged for the required mitigation to be implemented in cooperation with the affected party as soon as practically possible and for the full costs to be borne by the wind farm operator.

**Wind Turbine Control Measures**

If it is not possible to mitigate any identified shadow flicker limit exceedance locally using the measures detailed above, wind turbine control measures will be implemented.

Wind turbines have been fitted with shadow flicker control units to allow the turbines to be controlled to prevent the occurrence of shadow flicker at properties surrounding the wind farm. The shadow flicker control units have been installed on a number of turbines.

A shadow flicker control unit allows a wind farm's turbines to be programmed and controlled using the wind farm's SCADA control system to change a particular turbine's operating mode during certain conditions or times, or even turn the turbine off if necessary.

All predicted incidents of shadow flicker can be pre-programmed into the wind farm's control software. The wind farm's SCADA control system can be programmed to shut down any particular turbine at any particular time on any given day to ensure that shadow flickers occurrences at properties which are

not naturally screened or cannot be screened with measures outlined above. Where such wind turbine control measures are to be utilised, they need only be implemented when the specific combined circumstances occur that are necessary to give rise to the shadow flicker effect in the first instance. Therefore, if the sun is not shining on a particular day that shadow flicker was predicted to occur at a nearby property, there would be no need to shut down the relevant turbines that would have given rise to the shadow flicker at the property. Similarly, if the wind speed was below the cut-in speed that caused the turbine rotor to rotate and give rise to a shadow flicker effect at a nearby property, there would be no need to shut down the relevant turbines that otherwise would have caused shadow flicker.

The atmospheric variables that determine whether shadow flicker will occur or not, are continuously monitored at the wind farm site and the data fed into the wind farm's SCADA control system. The strength of direct sunlight is measured by way of photocells, and if the sunlight is of sufficient strength to cast a shadow, the shadow flicker control mechanisms come into effect. Wind speed and direction are measured by anemometers and wind vanes on each turbine and similarly, and if wind speed and direction is such that a shadow will be cast, the shadow flicker control mechanisms come into effect. The moving blades of the turbine will require a short period of time to cease rotating and as such there may be a very short period (less than 3 to 5 minutes) during which the blades are slowed to a complete halt. The turbines giving rise to shadow flicker may be turned off on different days to prevent excessive wear and tear on any single turbine. This method of shadow flicker mitigation has been technically well-proven at wind farms in areas outside Ireland that experience significantly longer periods of direct sunlight.

Shadow flicker mitigation is already in operation at the Proposed Development site and will continue throughout any proposed extended operational period. If the need arose, the Proposed Development also has the potential to be brought in line with the requirements of the Draft Revised Wind Energy Development Guidelines (2019) should they be adopted during the planning application phase or operational phase of the Proposed Development.

Should a complaint be received within 12 months of the operational period of the Proposed Development being extended, field investigation/monitoring will be carried out by the wind farm operator at the affected property. With the permission of the homeowner, the wind farm developer will log the date, time and duration of shadow flicker events occurring on at least five different days from within the dwelling. The provided log will be compared with the predicted occurrence of shadow flicker at the residence, and if necessary, a field investigation will be carried out.

*Table 5-14 Shadow Flicker Mitigation Strategy for Daily Shadow Flicker Exceedance – Turbine Numbers and Dates*

| Property No. | No. of Days 30min/day Threshold is Exceeded | Turbine(s) Producing Shadow Flicker Exceedance | Days of Year When Mitigation May be Required (Day No's)* | Days of Year When Mitigation May be Required (Dates)* |
|---|---|---|---|---|
| 1 | 111 | T07, T08, T10 | 35-67, 69-77, 270-279, 281-313, 341-366 | 4th February - 7th March, 9th - 17th March, 26th September - 5th October, 7th October - 8th November, 6th - 31st December |
| 3 | 48 | T08, T10 | 66-89, 258-281 | 6th - 29th March, 14th September - 7th November |
| 4 | 44 | T08, T10 | 79-100,247-268 | 19th March - 9th April, 3rd - 24th September |
| 5 | 46 | T08, T10 | 51-73, 274-296 | 20th February - 13th March, 30 September - 22 October |
| 8 | 40 | T08, T10 | 68-87, 260-279 | 8th - 27th March, 16th September - 5th October |
| 9 | 41 | T08, T10 | 58-78, 270-289 | 27th February - 18th March, 26 September - 15th October |
| 10 | 92 | T01, T02, T11 | 1-40, 308-365 | 1st January - 9th February, 3rd November - 31 December |
| 14 | 85 | T01, T02, T11 | 1-33, 315-365 | 1st January - 2nd February, 10th November - 31 December |
| 17 | 100 | T08, 10 | 1-43, 305-354, 360-366 | 1st January - 12th February, 31st October - 19th December, 25th December - 31st December |
| 18 | 95 | T08, 10 | 1-43, 306-352, 362-366 | 1st January - 12th February, 1st November - 17th December, 27th December - 31st December |
| 20 | 95 | T02, T08, T09, | 1-32, 58-63, 284-289, 316-366 | 1st January – 1st February, 27th February – 3rd March, 10th October – 15th October, 11th November – 31st December |
| 23 | 65 | T08, T10 | 4-36, 312-344 | 4th January - 5th February, 7th November - 9th December |
| 26 | 28 | T01 | 22-35, 313-326 | 22nd January - 4th February 8th November - 21st November |
| 29 | 82 | T08, T10 | 1-32, 316-321, 323-366 | 1st January - 1st February, 11th November - 16 November 18th November - 31st December |
| 36 | 51 | T08, T09 | 1-16, 332-366 | 1st January - 16th January, 27th November - 31st December |

### Residual Impact

Shadow flicker could potentially have a long-term, moderate, negative impact in the absence of mitigation measures. The implementation of the above mitigation measures, at the 15 no. sensitive receptors as listed in Table 5-14 above, should exceedances be recorded during ground-truthing site visits (as outlined above) will ensure that there will be no shadow flicker exceedances of the existing daily and annual shadow flicker limits at properties within 10 rotor diameters from the Proposed Development as recommended in the current 2006 DoEHLG guidelines. Likewise, the Proposed Development can be brought in line with the requirements of the Draft Revised Wind Energy Development Guidelines 2019 should they be adopted during the planning application process for this development. Therefore, the residual impact will long-term, negative and slight.

### Significance of Effects

Based on the assessment above and the mitigation measures proposed there will be no significant effects related to shadow flicker.

## 5.10.3.11 Interference with Communication Systems

Wind turbines, like all large structures, have the potential to interfere with broadcast signals, by acting as a physical barrier or causing a degree of scattering to microwave links. The alternating current, electrical generating and transformer equipment associated with wind turbines, like all electrical equipment, also generates its own electromagnetic fields, and this can interfere with broadcast communications. The most significant effect at a domestic level relates to a possible flicker effect caused by the moving rotor, affecting, for example, radio signals. The most significant potential effect occurs where the wind farm is directly in line with the transmitter radio path. This interference can be overcome by the installation of deflectors or repeaters.

Notwithstanding the fact that this wind farm is already operational, the usual scoping and consultation process involving organisations such as regional broadcasters, and fixed and mobile phone operators was carried out as part of the scoping and consultation exercise. Full details are provided in Chapter 2: Background to the Proposed Development and Section 14.2 (Telecommunications and Aviation) of Chapter 14: Material Assets. The Proposed Development will have no impact on telecommunications.

## 5.10.3.12 Residential Amenity

Potential impacts on residential amenity during the operational phase of the proposed wind farm could arise primarily due to noise, shadow flicker, changes to visual amenity or interference with telecommunications. Detailed noise and shadow flicker modelling have been carried out as part of this EIAR, which show that the Proposed Development will be capable of meeting all required guidelines in relation to noise thresholds and the shadow flicker thresholds set out in the 2006 DoEHLG Wind Energy Guidelines and the Draft Revised Wind Energy Development Guidelines 2019.

The visual impact of the Proposed Development is addressed comprehensively in Chapter 13 of this EIAR. As part of the Proposed Development, there will be no changes to visual amenity as the turbines are already existing and will not be altered in any way. An assessment of roadside screening was carried out for roads within 5 kilometres of the proposed turbine locations, with both the methodology and findings of this described in Section 13.3 of this EIAR. Many of these roads have intermittent/partial and dense screening, and therefore these roads which fall within the ZTV will have more screening and therefore reduced views, rather than the full visibility that the ZTV suggests. Given the separation distance of the residential properties from the proposed turbines, the fact that the turbines are existing and will not be altered in any way, and the level of existing screening in the area, the Proposed Development will have no significant impact on existing visual amenity at dwellings.

**As part of the scoping and consultation exercise undertaken by MKO, the national and regional broadcasters and fixed and mobile phone operators were contacted with regard to potential interference from the proposed wind farm. Full details are provided in Section 2.6 of the EIAR (in Chapter 2: Background to the Proposed Development) and Section 14.2 of the EIAR (in Chapter 14: Material Assets – Other Material Assets). Copies of scoping replies received are presented in Appendix 2-1 of the EIAR. The proposed wind farm will have no impact on telecommunications.**

All mitigation as outlined under noise and vibration, visual amenity and shadow flicker in this EIAR will be implemented in order to reduce insofar as possible impacts on residential amenity at properties located in the vicinity of the Proposed Development.

### Proposed Mitigation Measures

As detailed above, the closest proposed turbine, Turbine No. 10 is 278m from the nearest dwelling. All mitigation as outlined under noise and vibration, traffic, visual amenity, telecommunications and shadow flicker in this EIAR will be implemented in order to reduce insofar as possible impacts on residential amenity at properties located in the vicinity of the Proposed Development.

### Residual Impact

With the implementation of the mitigation measures outlined in relation to noise and vibration, traffic, shadow flicker, telecommunications and visual amenity, the Proposed Development will have no significant impact on residential amenity/ imperceptible effect on residential amenity.

### Significance of Effects

Based on the assessment above there will be no significant direct or indirect effects on residential amenity.

## 5.10.4 Decommissioning Phase

The Proposed Development includes for the extension of lifetime of the existing wind farm for a further 20 years beyond the expiry of the current permission in 2025. Following the end of their useful life, the wind turbines may be replaced with a new set of turbines, subject to planning permission being obtained, or the site may be decommissioned completely. The substation will be retained, as this application is seeking its permanent extension. The existing site roads will be left in situ as they are in use by local landowners in order to access their agricultural lands. Foundations will be infilled with local topsoil, and hardstand areas will be left to revegetate and regenerate naturally over time.

The works likely required during the decommissioning phase are described in Section 4.7 Decommissioning of Chapter 4 of this EIAR and Appendix 4-4 Decommissioning Plan.

Any impacts and consequential effects that occur during the decommissioning phase will be similar to that which would have typically occurred during the initial construction phase of the existing wind farm, however, to a lesser magnitude. The control measures for noise and dust outlined in Appendix 4-4 Decommissioning Plan will ensure that the potential for impacts on human health are minimised or avoided.

## 5.10.5 Cumulative Effects

For the assessment of cumulative effects, any other existing, permitted or Proposed Developments (wind energy or otherwise) have been considered where they have the potential to generate an in-combination or cumulative impact with the operational phases of the proposed extension of operational life of Castledockrell Wind Farm. The factors to be considered in relation to cumulative effects include

**population and human health, biodiversity, land, soil, water, air, climate, material assets, landscape, and cultural heritage as well as the interactions between these factors.**

**The potential cumulative impact of the Proposed Development and other relevant developments has been carried out with the purpose of identifying what influence the Proposed Development will have on the surrounding environment when considered cumulatively and in combination with relevant approved, and existing projects in the vicinity of the site.**

**Further information on projects considered as part of the cumulative assessment are given in Chapter 2: Background to the Proposed Development. The impacts with the potential to have cumulative effects** on population and human health in particular noise, air and climate, shadow flicker, traffic, telecommunications and visual impacts are addressed in their relevant chapters of this EIAR

### 5.10.5.1 Health and Safety

The Proposed Development will have no impacts in terms of health and safety. There is no credible scientific evidence to link wind turbines with adverse health impacts. All other proposed, permitted or operational/existing developments (wind energy or otherwise) would be expected to follow all relevant Health and Safety Legislation during the operation and decommissioning phases of the Proposed Development. It is assumed also that all mitigation measures in relation to the other cumulative projects will also be implemented. It is on this basis that it can be concluded that there would be a long-term imperceptible cumulative impact from the Proposed Development and other developments in the area.

### 5.10.5.2 Employment and Economic Activity

Wind farms within 20 kilometres of the Proposed Development which may be proposed, permitted or operational/existing contribute to short term employment during the construction stages and provide the potential for long-term employment resulting from maintenance operations. However, given the very low volumes of traffic associated with the operational stage of the existing wind farm, there is no potential to give rise to cumulative traffic impacts.

The agricultural activities on the site of the Proposed Development provides employment, through livestock and harvesting of cereals etc. These activities have continued and expanded while the existing wind farm has been under construction and operating, resulting in a long-term moderate positive cumulative impact.

### 5.10.5.3 Tourism and Amenity

There are no key identified tourist attractions pertaining specifically to the site of the Proposed Development itself. As mentioned previously, wind farms are an existing feature in the surrounding landscape, which will assist in the assimilation of the Proposed Development into this environment.

It is not considered that the Proposed Development, together with other projects in the area will cumulatively affect any tourism infrastructure in the wider area. As mentioned previously, wind farms are an existing feature in the surrounding landscape, and the Proposed Development comprises an existing wind farm. As also noted in Section 5.4 above, the conclusions from available research indicate there is a generally positive disposition among tourists towards wind development in Ireland. It is on this basis that it can be concluded that there would be a long-term imperceptible cumulative impact from the Proposed Development and other wind farm developments in the area.

### 5.10.5.4 Land-use

Existing land-uses of agriculture will continue in conjunction with the Proposed Development and all other existing and permitted wind farms (as shown in Figure 2-1 of Chapter 2 of this EIAR). Therefore, there will be no significant cumulative impact on land-use.

### 5.10.5.5 Property Values

As noted in Section 5.7 above, the conclusions from available international literature indicate that property values are not impacted by the positioning of wind farms near houses. It is on this basis in combination with the long-established nature of the wind farm at this location, that it can be concluded that there would be a long-term imperceptible cumulative impact from the Proposed Development and other wind farm developments in the area.

### 5.10.5.6 Services

The rate payments from the Proposed Development and other projects in the area will contribute significant funds to Wexford County Council, which will be redirected to the provision of public services within the County. In addition, the injection of money into local services though the establishment of community benefit funds is also expected to be a long-term positive cumulative impact.

### 5.10.5.7 Shadow Flicker

As outlined in Section 5.7.5.2, the nearest wind farm development to the Proposed Development is the existing Turbine 12 of Castledockrell Wind Farm. There are no other existing, permitted or proposed turbines within the Shadow Flicker Study area.

#### Pre-Mitigation Impacts

As outlined in the Section 5.8.7 above, cumulative shadow flicker model results show that there is potential for cumulative shadow flicker to be experienced at the 3 no. properties assessed due to the existing Castledockrell Turbine 12 in conjunction with the Proposed Development.

It has been demonstrated that, assuming theoretical precautionary conditions, there are 3 no. properties that experience daily cumulative shadow flicker in excess of the DoEHLG guideline threshold of 30 minutes per day. The DoEHLG total annual guideline limit of 30 hours is exceeded at 1 no. properties once the regional sunshine average of 29.79% is considered.

#### Proposed Mitigation Measures

Table 5-9 lists the 3 no. properties at which a shadow flicker mitigation strategy may be necessary to ensure no cumulative shadow flicker may be experienced. Where the Proposed Development is modelled to contribute to the annual shadow flicker experienced by any of the 3 no. properties, the relevant Proposed Development turbines would be programmed to switch off for the appropriate time to prevent any shadow flicker experience as a result of the Proposed Development.

#### Residual Effect

Following the implementation of the above mitigations measures, the DoEHLG 2006 Guidelines of less than 30 minutes per day of shadow flicker experienced as a result of the Proposed Development will be achieved and this will result in a long-term, imperceptible negative residual cumulative impact from shadow flicker on human health.

#### Significance of Effects

Based on the assessment above and the mitigation measures proposed there will be no significant effects related to shadow flicker on human health.

## 5.10.5.8 Residential Amenity

### Pre-Mitigation Impacts

Cumulative impacts on residential amenity could potentially arise from impacts due to noise, traffic or visual disturbance.

### Proposed Mitigation Measures

All mitigation as outlined in this EIAR will be implemented in order to reduce insofar as possible impacts on residential amenity at properties located in the vicinity of the Proposed Development. It is assumed also that all mitigation measures in relation to the other cumulative projects will also be implemented. A cumulative list of other wind farms is presented in Chapter 2 of this EIAR. The Castledockrell existing Turbine 12 is the closest existing or permitted wind farm/turbine to the Proposed Development, located approximately 330m to the southwest of the closet turbine (T11). Overall, it is deemed that no significant cumulative effects are likely to occur as a result of the continued operation of the Castledockrell Wind Farm.

### Residual Impact

During the operational phase, noise and shadow flicker from the proposed and permitted projects will be limited to below guideline levels or as committed to by the developer, resulting in a long-term, imperceptible residual impact from on residential amenity.

### Significance of Effects

Based on the assessment above there will be no significant direct or indirect effects

# 6. BIODIVERSITY

## 6.1 Introduction

This Chapter of the Environmental Impact Assessment Report (EIAR) assesses the likely direct and indirect significant effects (both alone and cumulatively with other projects) that extended operational period of Turbine 1 to Turbine 11 of Castledockrell Wind Farm (henceforth to be referred to as the Proposed Development), may have on Biodiversity, and sets out the mitigation measures proposed to avoid, reduce, or offset any potential significant effects that are identified. The assessment has a particular focus on species and habitats of ecological importance. Impacts on avian receptors are considered in **Chapter 7** of this EIAR. These include species and habitats with national and international protection under the Wildlife Acts 1976 (as amended) and EU Habitats Directive 92/43/EEC. The full description of the Proposed Development is provided in **Chapter 4** of this EIAR.

### 6.1.1 Purpose and Structure of this Chapter

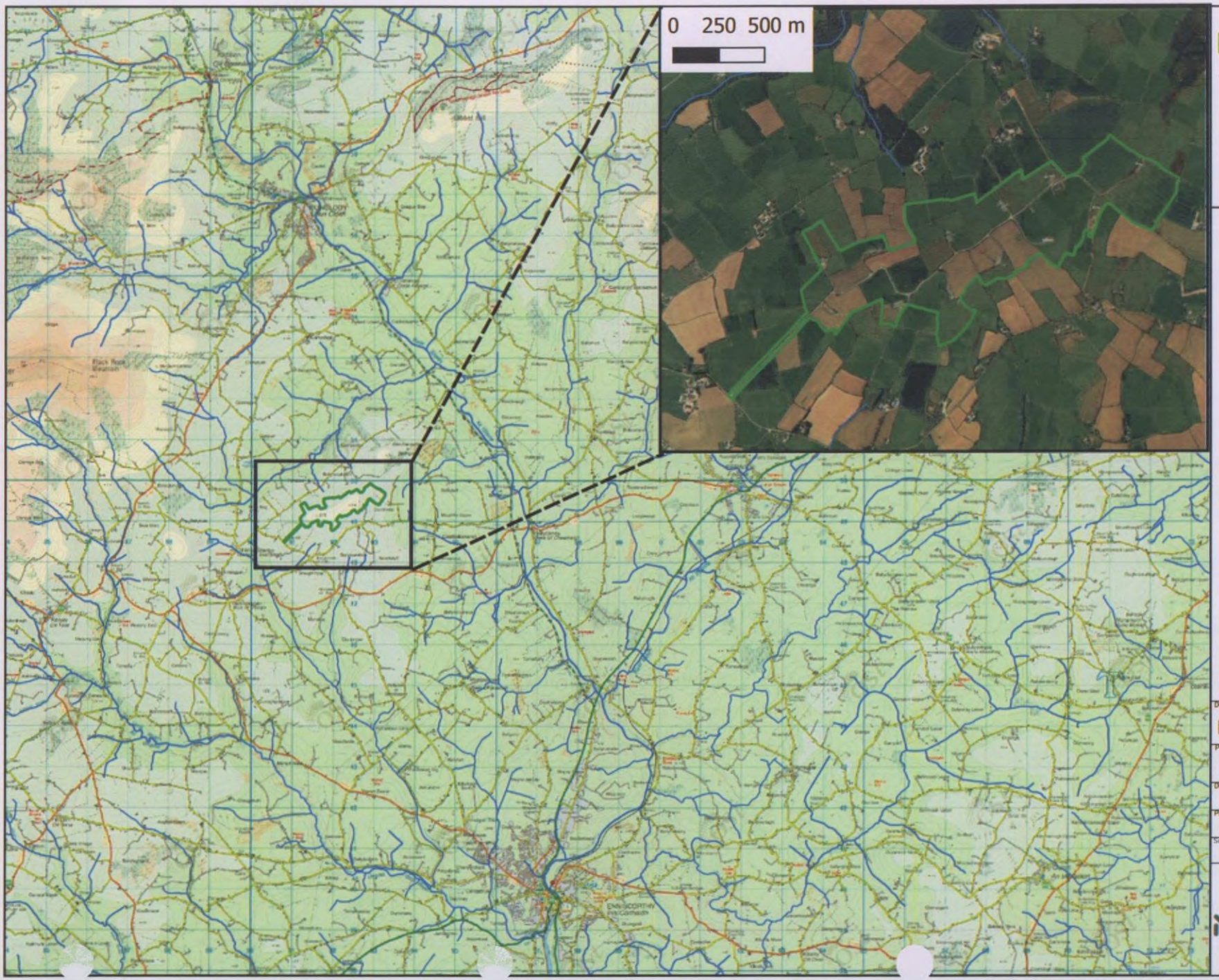
The purpose of this EIAR chapter is to assess the potential for impacts on biodiversity.

This chapter is structured as follows:

- The Introduction provides a description of the legislation, guidance, and policy context applicable to Biodiversity, Flora, and Fauna.
- This is followed by a comprehensive description of the ecological survey and impact assessment methodologies that were followed to inform the robust assessment of likely significant effects on ecological receptors.
- A description of the Baseline Ecological Conditions and Receptor Evaluation is then provided.
- This is followed by an Assessment of Effects which are described with regard to each phase of the development: construction phase, operational phase and decommissioning phase. Potential Cumulative effects in combination with other projects are fully assessed.
- Proposed mitigation and best practice measures to avoid, reduce or offset the identified effects are described and discussed. This is followed by an assessment of residual effects taking into consideration the effect of the proposed mitigation and best practice measures.
- The conclusion provides a summary statement on the overall significance of predicted effects on Biodiversity, Flora, and Fauna.

The following defines terms utilised in this chapter:

- As defined above, for the purposes of this EIAR, the entire project is referred to as 'the Proposed Development'.
- For the purpose of this chapter, the term 'EIAR Study Area' or 'site' refers to the site green line boundary, comprising the entire area shown in Figure 6-1. This includes the existing Castledockrell Wind Farm infrastructure as well as the surrounding lands.
- "Key Ecological Receptor" (KER) is defined as a species or habitat occurring within the zone of influence of the development upon which likely significant effects are anticipated.
- "Zones of Influence" (ZOI) for individual ecological receptors refers to the zone within which potential effects are anticipated. ZOIs differ depending on the sensitivities of particular habitats and species and were assigned in accordance with best available guidance and through adoption of a precautionary approach.






N

Drawing Title
**EIAR Site Boundary**

Project Title
Castledockrell Wind Farm Extension of Operational Life

| Drawn By | Checked By |
|---|---|
| SC | PD |
| Project No. | Drawing No. |
| 210847 | 6-1 |
| Scale | Date |
| 1:120,000 | 06/03/2025 |

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# 6.2 Requirements for Ecological Impact Assessment

## National Legislation

The Wildlife Act 1976 (as amended) is the principal piece of legislation governing protection of wildlife in Ireland. The Wildlife Act provides strict protection for species of conservation value. The Wildlife Act conserves wildlife (including game) and protects certain wild creatures and flora. These species are therefore considered in this report as ecological receptors. Natural Heritage Areas (NHAs) and Proposed Natural Heritage Areas (pNHAs) are heritage sites that are designated for the protection of flora, fauna, habitats and geological sites. Only NHAs are designated under the Wildlife Act 1976 (as amended). These sites do not form part of the Natura 2000 network of European sites and the AA process, or screening for same, does not apply to NHAs or pNHAs. Proposed Natural Heritage Areas (pNHAs) were published on a non-statutory basis in 1995 but have not since been statutorily proposed or designated[1]. However, these sites are considered to be of significance for wildlife and habitats as they may form statutory designated sites in the future (NPWS, 2020).

The Flora (Protection) Order, 2022 (S.I. No. 235 of 2022) lists the species, hybrids and/or subspecies of flora protected under Section 21 of the Wildlife Acts. It provides protection to a wide variety of protected plant species in Ireland including vascular plants, mosses, liverworts, lichens and stoneworts. Under the Flora Protection Order it is illegal to cut, pick, collect, uproot or damage, injure or destroy species listed or their flowers, fruits, seeds or spores or wilfully damage, alter, destroy or interfere with their habitat (unless under licence).

## National Policy

Irelands 4th National Biodiversity Action Plan 2023-2030 (Department of Housing, Local Government and Heritage, 2024) (the "**NBAP**"). The NBAP strives for a "whole of government, whole of society" approach to the governance and conservation of biodiversity. It demonstrates Ireland's continuing commitment to meeting and acting on its obligations to protect Ireland's biodiversity for the benefit of future generations and will implement this through a number of key targets, actions and objectives. The Wildlife (Amendment) Act 2023 introduced a new public sector duty on biodiversity. The legislation provides that every public body, as listed in the Act, is obliged to have regard to the objectives and targets in the NBAP. The NBAP sets out five key objectives as follows:

- **Objective 1: Adopt a Whole-of Government, Whole of-Society Approach to Biodiversity.** Proposed actions include capacity and resource reviews across Government; determining responsibilities for the expanding biodiversity agenda providing support for communities, citizen scientists and business; and mechanisms for the governance and review of this National Biodiversity Action Plan.
- **Objective 2: Meet Urgent Conservation and Restoration Needs.** Supporting actions will build on existing conservation measures. Efforts to tackle Invasive Alien Species will be elevated. The protected area network will be expanded to include the Marine Protected Areas. The ambition of the EU Biodiversity Strategy will be considered as part of an evolving work programme across Government.
- **Objective 3: Secure Nature's Contribution to People.** Actions highlight the relationship between nature and people in Ireland. These include recognising the tangible and intangible values of biodiversity, promoting nature's importance to our culture and heritage and recognising how biodiversity supports our society and our economy.
- **Objective 4: Enhance the Evidence Base for Action on Biodiversity.** This objective focuses on biodiversity research needs, as well as the development and strengthening of long-term monitoring programmes that will underpin and strengthen future decision-making. Action will

[1] https://www.npws.ie/protected-sites/nha (accessed 23 September 2024).

also focus on collaboration to advance ecosystem accounting that will contribute towards natural capital accounts.

- **Objective 5: Strengthen Ireland's Contribution to International Biodiversity Initiatives.** Collaboration with other countries and across the island of Ireland will play a key role in the realisation of this Objective. Ireland will strengthen its contribution to international biodiversity initiatives and international governance processes, such as the United Nations Convention on Biological Diversity.

Such policies have informed the evaluation of ecological features recorded within the study area and the ecological assessment process.

## European Legislation

The EU Habitats Directive (92/43/EEC) (together with the Birds Directive (79/409/EEC), as subsequently codified by Council Directive 2009/147/EC on the conservation of wild birds) forms the cornerstone of Europe's nature conservation within the EU. It is built around two pillars: the Natura 2000 network of protected sites and the strict system of species protection. The Habitats Directive protects over 1,000 animal and plant species and over 200 "habitat types" (e.g. special types of forests, meadows, wetlands, etc.), which are of European importance. The Habitats Directive and Birds Directive, which were transposed into Irish law through Part XAB of the Planning and Development Acts 2000-2019 (from a land use planning perspective) recognise the significance of protecting rare and endangered species of flora and fauna, and more importantly, their habitats.

Annex I of the Habitats Directive lists habitat types whose conservation requires the designation of Special Areas of Conservation (SAC). Priority habitats, such as Turloughs, which are in danger of disappearing within the EU territory are also listed in Annex I. Annex II of the Directive lists animal and plant species (e.g. marsh fritillary, Atlantic salmon, and Killarney fern) whose conservation also requires the designation of SAC. Annex IV lists animal and plant species in need of strict protection such as lesser horseshoe bat and otter, and Annex V lists animal and plant species whose taking in the wild and exploitation may be subject to management measures. In Ireland, species listed under Annex V include Irish hare, common frog, and pine marten. Species can be listed in more than one Annex, as is the case with otter and lesser horseshoe bat which are listed on both Annex II and Annex IV. The disturbance of species under Article 12 of the Habitats Directive (and in particular avoidance of deliberate disturbance of Annex IV species, particularly during the period of breeding, rearing, hibernation and migration and avoidance of deterioration or destruction of breeding sites or resting places) has been specifically assessed in this EIAR.

Council Directive 2009/147/EC on the conservation of wild birds (the "**Birds Directive**") instructs Member States to take measures to maintain populations of all bird species naturally occurring in the wild state in the EU (Article 2). According to Recital 1 of the Birds Directive, Council Directive 79/409/EEC on the conservation of wild birds was substantially amended several times and in the interests of clarity and rationality, the Birds Directive codifies Council Directive 79/409/EEC. Such measures may include the maintenance and/or re-establishment of habitats in order to sustain these bird populations (Article 3). A subset of bird species has been identified in the Directive and are listed in Annex I as requiring special conservation measures in relation to their habitats. These species have been listed on account of inter alia: their risk of extinction; vulnerability to specific changes in their habitat; and/or due to their relatively small population size or restricted distribution. Special Protection Areas (SPAs) are to be identified and classified for these Annex I listed species and for regularly occurring migratory species, paying particular attention to the protection of wetlands (Article 4).

In summary, the species and habitats provided National and International protection under these legislative and policy documents have been considered in this Ecological Impact Assessment. A detailed assessment of the likelihood of the Proposed Development having either a significant effect or an adverse impact on any relevant European Sites (i.e. SACs, cSACs, SPAs or cSPAs) has been carried out in the Appropriate Assessment Screening Report and Natura Impact Statement. A separate

**assessment has not been carried out in this chapter, to avoid duplication of assessments. However, the relevant conclusions have been cross-referenced and incorporated.**

## 6.3 Scoping/Review of Relevant Guidance and Sources of Consultation

The assessment methodology is based primarily upon the National Road Authority (NRA)'s Guidelines for Assessment of Ecological Impacts of National Road Schemes Rev 2 (NRA, 2009) (referred to hereafter as the NRA Ecological Impact Assessment Guidelines), and the survey methodology is based on the NRA Guidelines on Ecological Surveying Techniques for Protected Flora and Fauna on National Road Schemes (NRA, 2009). Although these survey methodologies relate to road schemes, these standard guidelines are recognised survey methodologies that ensure good practice regardless of the development type.

In addition, the following guidelines were consulted in the preparation of this document to inform the scope, structure and content of the assessment:

- Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater and Coastal (CIEEM, 2018, Updated 2022).
- EPA Guidelines on information to be included in Environmental Impact Assessment Reports (EPA, 2022).

In addition to the above, the following legislation applies with respect to habitats, fauna and water quality in Ireland and has been considered in the preparation of this report:

- The International Convention on Wetlands of International Importance especially Waterfowl Habitat (Concluded at Ramsar, Iran on 2 February 1971).
- S.I. No. 272 of 2009: European Communities Environmental Objectives (Surface Waters)
- Regulations 2009 and S.I. No. 722 of 2003 European Communities (Water Policy)
- Regulations 2003 which give further effect to EU Water Framework Directive (2000/60/EC).
- Planning and Development Acts 2000 – 2023.
- Regulation 49 and 50 of European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011).

This assessment has been prepared with respect to the various planning policies and strategy guidance documents listed below:

- Wexford County Development Plan 2022-2028
- Regional Spatial and Economic Strategy for the Southern Region, Project Ireland 2040
- Irelands 4th National Biodiversity Action Plan 2023 - 2030

### 6.3.1 Statement of Authority

Ecological baseline surveys, including bat surveys, were conducted by MKO ecologists; Pádraig Desmond (BSc. Ecology), Laura Gránicz (BSc., MSc. Biology), Nathan Finn (BSc. Environmental Science, MSc.), Laura McEntegart (BSc. Botany), Neil Campbell (BSc. Botany, MSc.), Stephanie Corkery (B.Sc. Ecology, M.Sc.) and Cathal Bergin (BSc. Wildlife Biology). All surveyors have the relevant academic qualifications and experience in undertaking habitat and ecological assessments.

This EIAR chapter has been prepared by Stephanie Corkery (B.Sc. Ecology, M.Sc.) and Ciara Hackett (BSc.), and reviewed by Pádraig Desmond and Colin Murphy (B.Sc. Ecology, MSc.). Pádraig is an experienced ecologist with over 4 years professional experience in ecological consultancy. Colin has been working in Ecological Consultancy for 5 years.

**Colin Murphy**

Colin Murphy is a Project Ecologist with over five years of experience in private consultancy. Colin holds a B.Sc (Hons) in Ecology and Environmental Biology from University College Cork and a M.Sc in Ecosystem Science and Policy from University College Dublin.

Colin has experience in producing Habitats Directive Assessments, Ecological Impacts Assessment Reports (EcIA), Biodiversity Net Gain Assessments and preparing Biodiversity Chapters in Environmental Impact Assessment Reports (EIAR) for a variety of wind farm planning applications, as well as commercial, residential and infrastructure projects. Colin's key strengths and expertise are Ecological Constraints identification, Ecological Impact Assessment, Habitats Directive Assessment, Project Management and GIS Mapping.

Colin has extensive experience in conducting a wide range of ecological surveys including habitat surveys, invasive species surveys, bat surveys, winter wildfowl and waders' surveys and protected species surveys (marsh fritillary, otter and badger). Colin is also experienced in providing Ecological Clerk of Work (EcOW) and site supervision on a wide variety of project, including residential and commercial construction projects and wastewater treatment plant upgrade works.

Colin is currently managing a team of four junior ecologists and main tasks include organizing team workload, reviewing outputs and liaising with clients.

**Pádraig Desmond**

Pádraig is a Project Ecologist with MKO with five years post graduate ecological experience, four years of which have been in ecological consultancy. Pádraig holds a BSc (Hons) in Ecology and Environmental Biology from University College Cork. Pádraig took up his position with MKO in December 2021, prior to which he worked as a Junior Ecologist with Envirico. Through these consultancy roles Pádraig has gained excellent experience in producing ecological reports such as Natura Impact Statements, Ecological Impact Assessments, Biodiversity chapters, Invasive Species Management Plans, and Constraints Reports for a wide range of projects including small private developments to housing developments and renewable energy projects such as solar and wind farms. Prior to the above roles, Pádraig worked as a field ecologist for the Department of Conservation in New Zealand, where he developed a strong field-based skill set.

Pádraigs key strengths and areas of expertise are in terrestrial ecology, including vegetation surveys, habitat identification, invasive species surveys, mammal surveys, Appropriate Assessment and Ecological Impact Assessment. Pádraig is also skilled in GIS.

**Stephanie Corkery**

Stephanie is an Ecologist with MKO with over three years of experience in professional ecological consultancy. Stephanie holds a BSc. in Ecology and Environmental Biology, an MSc. in Marine Biology, and a HDip in Sustainability in Enterprise, all from University College Cork. Since joining MKO as a graduate in March 2022, Stephanie has worked on a wide variety of projects including wind farms, large scale residential developments, and County Council projects. Stephanie's key strengths include organising and carrying out both terrestrial and marine mammal surveys, as well as general ecological walkover surveys and bat surveys. She is also experienced in GIS, acoustic data analysis for bat species, and in preparing Appropriate Assessment Screening Reports (AASR), Natura Impact Statements (NIS), Ecological Impact Assessments (EcIA), Biodiversity Chapters, and Bat Reports. Stephanie is also a JNCC Certified Marine Mammal Observer and has completed the ACCOBAMS Course for Highly Qualified Marine Mammal Observers (MMO) and Passive Acoustic Monitoring operators (PAM).

## 6.4 Methodology

The following sections describe the methodologies followed to establish the baseline ecological condition of the EIAR Study Area and surrounding area. Assessing the impacts of any project and associated activities requires an understanding of the ecological baseline conditions prior to and at the time of the project proceeding. Ecological Baseline conditions are those existing in the absence of proposed activities (CIEEM, 2022).

### 6.4.1 Desk Study

The desk study undertaken for this assessment included a thorough review of available ecological data on the 31st of January 2025. This included the following:

- Review of online web-mappers: National Parks and Wildlife Service (NPWS), EPA (Envision), Water Framework Directive (WFD) and Inland Fisheries Ireland (IFI).
- Review of the publicly available National Biodiversity Data Centre (NBDC) web-mapper
- Inland Fisheries Ireland (IFI) Reports, where available.
- Records from the NPWS web-mapper and review of specially requested records from the NPWS Rare and Protected Species Database for the hectads in which the Proposed Development is located.
- Review of existing reports and assessments in relation to the Proposed Development.

### 6.4.2 Scoping and Consultation

MKO undertook a scoping exercise during preparation of this EIAR in August and November 2023, as described in **Chapter 2,** Section 2.7 of this EIAR. This included consultation with the relevant bodies such as An Taisce, Bat Conservation Ireland, BirdWatch Ireland, Butterfly Conservation Ireland, Inland Fisheries Ireland, Irish Peatland Conservation Council, and Irish Wildlife Trust, to name a few.

Copies of all scoping responses are included in Appendix 2-1 of this EIAR. The recommendations of the consultees have informed the EIAR preparation process and the contents of this chapter. Table 2-7 in **Chapter 2** of this EIAR describes where the comments raised in the scoping responses received have been addressed in this assessment.

### 6.4.3 Field Surveys

A comprehensive survey of the biodiversity of the entire site was undertaken on various dates in 2023 and 2025, as outlined in Section 6.4.3.1 below. The following sections fully describe the ecological surveys that have been undertaken and provide details of the methodologies, dates of survey and guidance followed.

#### 6.4.3.1 Multi-disciplinary Walkover Surveys

Prior to the commencement of multidisciplinary walkover surveys of the Proposed Development, the habitats within the site were initially assessed from aerial photography.

##### 6.4.3.1.1 *Habitat classification*

Ecological baseline surveys, including bat surveys, were conducted on the dates listed below. The site was systematically and thoroughly walked in a ground-truthing exercise with the habitats on site assessed, classified and mapped using aerial imagery. All survey efforts were carried in accordance with NRA Guidelines on Ecological Surveying Techniques for Protected Flora and Fauna on National Road Schemes (NRA, 2009). The 2023 surveys were undertaken by Pádraig Desmond (BSc.), Laura Gránicz

(BSc., MSc.), Nathan Finn (BSc., MSc.), and Neil Campbell (BSc., MSc.) of MKO. A further ecological baseline survey was undertaken in 2025 by Stephanie Corkery (B.Sc., M.Sc.) of MKO to further ground-truth the results of the surveys undertaken in 2023.

- 3rd of May 2023
- 13th of June 2023
- 11th of July 2023
- 20th of July 2023
- 21st of July 2023
- 3rd of October 2023
- 12th of February 2025

Additionally, Collision Monitoring Surveys, as described in Appendix 6-2, were undertaken by Cathal Bergin (BSc.), Jessica Sara Barbara (BSc., MSc.) and Dr. Caroline Finlay (PhD), who are LANTRA accredited Conservation Detection Dog Handlers on the following dates:

- 28th November 2022
- 29th November 2022
- 16th December 2022
- 17th December 2022
- 11th January 2023
- 12th January 2023
- 23rd February 2023
- 27th March 2023
- 28th March 2023
- 26th April 2023
- 27th April 2023
- 30th May 2023
- 20th June 2023
- 26th July 2023
- 28th July 2023
- 20th August 2023
- 31st August 2023
- 26th September 2023
- 24th October 2023

The multi-disciplinary ecological walkover surveys were undertaken in accordance with NRA (2009) Guidelines. This survey provided baseline data on the ecology of the EIAR Study Area and assessed whether further, more detailed habitat or species-specific ecological surveys were required. The multi-disciplinary ecological walkover survey comprehensively covered the entire EIAR Study Area.

Habitats were classified in accordance with the Heritage Council's 'Guide to Habitats in Ireland' (Fossitt, 2000). Habitat mapping was undertaken with regard to guidance set out in 'Best Practice Guidance for Habitat Survey and Mapping' (Smith *et al.*, 2011).

Habitats considered to be of ecological significance and with the potential to be impacted as part of the Proposed Development were identified and classified as Key Ecological Receptors (KERs).

Plant nomenclature for vascular plants follows '*New Flora of the British Isles*' (Stace, 2019).

The walkover surveys were designed to detect the presence, or suitable habitat for a range of protected faunal species that may occur in the vicinity of the EIAR Study Area.

The ecological walkover survey timing falls within the recognised optimum period for vegetation surveys/habitat mapping, i.e. April to September (Smith *et al.*, 2011).

**Other targeted survey methodologies undertaken at the site are described in the following subsections.**

## 6.4.3.2 Terrestrial Fauna Surveys

The results of the desk study, scoping replies, incidental records of protected species during ecological survey work and multidisciplinary walkover surveys were used to inform the scope of targeted ecological surveys required. Dedicated surveys for terrestrial fauna were undertaken at the times set out below with the methodologies followed also provided below. During the multidisciplinary walkover surveys, records of invertebrates including butterflies, damselflies, dragonflies, moths, beetles etc. were kept where recorded.

### 6.4.3.2.1 *Bat Surveys*

A full detailed description of survey methodologies undertaken at the site throughout 2023 is provided in the Bat Report included as Appendix 6-1 to this report, along with details of the survey times and the surveyors who carried out the bat survey and assessment work. Survey design and effort in 2023 was created in accordance with the best practice guidelines available at the time, 'Bat Surveys: Good Practice Guidelines' prepared by the Bat Conservation Trust (Hundt, 2012). Surveys undertaken were undertaken in strict accordance with those prescribed in NatureScot (2021), (Previously SNH, 2019) 'Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation'. This is in line with standard best practice industry guidelines. The mitigation outlined in this report has been designed in accordance with NatureScot, 2021. Consideration was also given to the Northern Ireland Environment Agency (NIEA) Natural Environment Division (NED) Guidance, which was produced in August 2021 (amended May 2022), following the completion of the bat surveys at the EIAR Study Area.

Additionally, a full detailed description of the Collision Monitoring Survey methodologies undertaken at the site throughout 2022 and 2023 are provided in Appendix 6-2, along with details of the survey times and the surveyors.

### 6.4.3.2.2 *Non-volant Mammal Surveys*

#### Badger surveys

As part of the multidisciplinary survey, a search for indications of badger was carried out. This search was conducted in order to determine the presence or absence of badger within EIAR Study Area. This involved a search for all potential signs of badger activity within the site (latrines, badger paths and setts). Following the results of the multi-disciplinary surveys, no requirement for further, more detailed surveys for badger was identified.

The badger surveys covered the entire EIAR Study Area. The badger survey was not constrained by vegetation given the nature of the habitats within the site and the timing of the surveys (NRA 2009).

#### Marsh Fritillary Surveys

Following the desk study and as per the National Biodiversity Data Centre (NBDC) map viewer, marsh fritillary are known to occur within the hectad (S94), in which the EIAR Study Area is located. Therefore, as part of the multidisciplinary survey, a search for potential suitable habitat for marsh fritillary was carried out. This included a search for devil's- bit scabious (*Succisa pratensis*) which is the food plant for the larval stage of this species.

## 6.4.3.3 Aquatic Surveys

Although there are no mapped watercourses within the EIAR Study Area, kick sampling was carried out at watercourses down gradient of the Proposed Development site in order to inform baseline

conditions. These were carried out on the 20th and 21st of July 2023. Representative locations along watercourses were chosen for the assessment.

Biological water quality was assessed through kick-sampling each of these watercourses. Macro-invertebrate samples were converted to Q-ratings as per Toner et al. (2005). The applied Q ratings followed the EPA water quality classes and Water Framework Directive status categories. All riverine samples were taken with a standard kick sampling hand net (250mm width, 500µm mesh size) from areas of riffle/glide utilising a two-minute sample, as per ISO standards for water quality sampling (ISO 10870:2012). Large cobble was also washed at each site where present. The results of the surveys are provided in Appendix 6-3. Aquatic plant species protected under Flora (Protection) Order, 2022 (S.I. No. 235 of 2022) were searched for during all aquatic surveys.

#### 6.4.3.3.1 *Aquatic Surveys*

Invertebrate sampling was conducted on the 20th and 21st of July 2023. Kick samples were collected, in line with EPA methods, from the full width of stream beds. Five streams were sampled at the following locations (given in Irish Grid):

- Location 1 – S93032 45842
- Location 2 – S90419 47425
- Location 3 – S91716 49767
- Location 4 – S92418 50327
- Location 5 – S94297 50137

Kick Sample locations are shown in Figure 6-2 below.

### 6.4.3.4 Invasive species survey

During the multi-disciplinary walkover surveys, a search for non-native invasive species was undertaken. The survey focused on the identification of invasive species listed under the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (As Amended) (S.I. 477 of 2021).

### 6.4.3.5 Survey Limitations

The field survey was carried out during suitable weather conditions and the site was fully accessible. There were no barriers to access, and the weather conditions were suitable for this type of survey. In relation to bat surveys, these were undertaken within the optimal bat survey season.

Seasonal factors that affect distribution patterns and habits of species were taken into account when conducting the surveys. The potential of the site to support certain populations (in particular those of conservation importance that may not have been recorded during the field survey due to their seasonal absence or nocturnal/cryptic habits) was assessed.


## Map Legend

- Aquatic Survey Locations
- WFD Mapped Watercourses
- EIAR Study Area



Drawing Title
**Kick Sample Locations**

Project Title
Castledockrell Wind Farm Extension of Operational Life

| Drawn By | Checked By |
|---|---|
| SC | PD |
| Project No. | Drawing No. |
| 210847 | 6-2 |
| Scale | Date |
| 1:30,000 | 16/10/2024 |

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## 6.4.4 Methodology for Assessment of Impacts and Effects

### 6.4.4.1 Identification of Target Receptors and Key Ecological Receptors

The methodology for assessment followed a precautionary screening approach with regard to the identification of KERs. Following a comprehensive desk study "target receptors" likely to occur in the zone of influence of the development were identified. The target receptors included habitats and species that were protected under the following legislation:

- Annexes of the EU Habitats Directive.
- Qualifying Interests (QI) of Special Areas of Conservation (SAC) within the likely zone of influence.
- Special Conservation Interests (SCI) of Special Protection Areas (SPA) within the likely zone of influence.
- Species protected under the Wildlife Act 1976 (as amended).
- Species protected under the Flora Protection Order 2022.

### 6.4.4.2 Determining Importance of Ecological Receptors

The importance of the ecological features identified within the study area was determined with reference to a defined geographical context. This was undertaken following a methodology that is set out in Chapter 3 of the 'Guidelines for Assessment of Ecological Impacts of National Roads Schemes' (NRA, 2009). These guidelines set out the context for the determination of value on a geographic basis with a hierarchy assigned in relation to the importance of any particular receptor. The guidelines provide a basis for determination of whether any particular receptor is of importance on the following scales:

- International
- National
- County
- Local Importance (Higher Value)
- Local Importance (Lower Value)

The Guidelines clearly set out the criteria by which each geographic level of importance can be assigned. Locally Important (lower value) receptors contain habitats and species that are widespread and of low ecological significance and of any importance only in the local area. Internationally Important sites are either designated for conservation as part of the Natura 2000 Network (SAC or SPA) or provide the best examples of habitats or internationally important populations of protected flora and fauna. Specific criteria for assigning each of the other levels of importance are set out in the guidelines and have been followed in this assessment. Where appropriate, the geographic frame of reference set out above was adapted to suit local circumstances. In addition, and where appropriate, the conservation status of habitats and species is considered when determining the significance of ecological receptors.

Any ecological receptors that are determined to be of National or International, County or Local importance (Higher Value) following the criteria set out in NRA (2009) are considered to be Key Ecological Receptors (KERs) for the purposes of ecological impact assessment if there is a pathway for effects thereon. Any receptors that are determined to be of Local Importance (Lower Value) are not considered to be Key Ecological Receptors.

### 6.4.4.3 Characterisation of Impacts and Effects

The Proposed Development will result in a number of impacts. The ecological effects of these impacts are characterised as per the CIEEM 'Guidelines for Ecological Impact Assessment in the UK and

Ireland' (2022). These guidelines are the industry standard for the completion of Ecological Impact Assessment in the UK and Ireland. This chapter has also been prepared in accordance with the corresponding EPA guidance (EPA 2022). The headings under which the impacts are characterised follow those listed in the guidance document and are applied where relevant. A summary of the impact characteristics considered in the assessment is provided below:

- **Positive or Negative.** Assessment of whether the proposed development results in a positive or negative effect on the ecological receptor.
- **Extent.** Description of the spatial area over which the effect has the potential to occur.
- **Magnitude** Refers to size, amount, intensity and volume. It should be quantified if possible and expressed in absolute or relative terms e.g. the amount of habitat lost, percentage change to habitat area, percentage decline in a species population.
- **Duration** is defined in relation to ecological characteristics (such as the lifecycle of a species) as well as human timeframes. For example, five years, which might seem short-term in the human context or that of other long-lived species, would span at least five generations of some invertebrate species.
- **Frequency and Timing.** This relates to the number of times that an impact occurs and its frequency. A small-scale impact can have a significant effect if it is repeated on numerous occasions over a long period.
- **Reversibility.** This is a consideration of whether an effect is reversible within a 'reasonable' timescale. What is considered to be a reasonable timescale can vary between receptors and is justified where appropriate in the impact assessment section of this report.

#### 6.4.4.4 Determining the Significance of Effects

The ecological significance of the effects of the Proposed Development are determined following the precautionary principle and in accordance with the methodology set out in Section 5 of CIEEM (2022).

For the purpose of Ecological Impact Assessment (EcIA), 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local (CIEEM, 2022).

When determining significance, consideration is given to whether:

- Any processes or key characteristics of key ecological receptors will be removed or changed.
- There will be an effect on the nature, extent, structure, and function of important ecological features.
- There is an effect on the average population size and viability of ecologically important species.
- There is an effect on the conservation status of important ecological habitats and species.

The EPA Guidelines on information to be included in Environmental Impact Assessment Reports (EPA, 2022) and the *Guidelines for assessment of Ecological Impacts of National Road Schemes*, (NRA, 2009) were also considered when determining significance and the assessment is in accordance with those guidelines.

The terminology used in the determination of significance follows the suggested language set out in the EPA Guidelines (2022) as shown in Table 6-1.

*Table 6-1 Criteria for Descriptions of Effects, based on EPA (2022) guidelines.*

| Significance of Effects | Definition |
|---|---|
| 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. |

As per TII (NRA, 2009) and CIEEM (2022) best practice guidelines, the following key elements should also be examined when determining the significance of effects:

- The likely effects on 'integrity' should be used as a measure to determine whether an impact on a site is likely to be significant (NRA, 2009).
- A 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives (CIEEM, 2022).

In the context of EcIA, 'integrity' refers to the coherence of the ecological structure and function, across the entirety of a site, that enables it to sustain all of the ecological resources for which it has been valued (NRA, 2009). Impacts resulting in adverse changes to the nature, extent, structure and function of component habitats and effects on the average population size and viability of component species, would affect the integrity of a site, if it changes the condition of the ecosystem to unfavourable.

### Integrity

In the context of EIAR, 'integrity' refers to the coherence of the ecological structure and function, across the entirety of a site, that enables it to sustain all the ecological resources for which it has been valued (NRA, 2009). Impacts resulting in adverse changes to the nature, extent, structure and function of component habitats and effects on the average population size and viability of component species, would affect the integrity of a site, if it changes the condition of the ecosystem to unfavourable.

### Conservation status

An impact on the conservation status of a habitat or species is considered to be significant if it will result in a change in conservation status. According to CIEEM (2022) guidelines the definition for conservation status in relation to habitats and species are as follows:

- Habitats – conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and its typical species within a given geographical area.
- Species – conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.

As defined in the EU Habitats Directive 92/43/EEC, the conservation of a habitat is favourable when:

- Its natural range, and areas it covers within that range, are stable or increasing.
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future.
- The conservation status of its typical species is favourable.

The conservation of a species is favourable when:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats.
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future.
- There is and will probably continue to be, a sufficiently large habitat to maintain its population on a long-term basis.

According to the NRA/CIEEM methodology, if it is determined that the integrity and/or conservation status of an ecological feature will be impacted on, then the level of significance of that impact is related to the geographical scale at which the impact will occur (i.e. local, county, national, international).

#### 6.4.4.5 Incorporation of Mitigation

Section 6.7 of this EIAR assesses the potential effects of the Proposed Development to ensure that all effects on sensitive ecological receptors are adequately addressed. Where significant effects on sensitive ecological receptors are predicted, mitigation is incorporated into the project design or layout to address such impacts. The implemented mitigation measures avoid or reduce or offset potential significant residual effects, post mitigation.

#### 6.4.4.6 Assessment Limitations

The information provided in this assessment accurately and comprehensively describes the baseline ecological environment following surveys on numerous dates during the optimal seasons, provides an accurate prediction of the likely ecological effects of the Proposed Development; prescribes best practice and mitigation as necessary; and describes the residual ecological impacts. The specialist studies, analysis and reporting have been undertaken in accordance with the appropriate guidelines. The habitats and species on the site were readily identifiable and comprehensive assessments were made during the field visit. No significant limitations in the scope, scale or context of the assessment have been identified.

## 6.5 Establishing the Ecological Baseline

### 6.5.1 Desk Study

The following sections describe the results of a survey of published material that was consulted as part of the desk study for the purposes of the ecological assessment. It provides a baseline of the ecology known to occur in the existing environment. Material reviewed includes the Site Synopses for designated sites within the zone of influence, as compiled by the National Parks and Wildlife Service (NPWS) of the Department of Culture, Heritage and the Gaeltacht, bird and plant distribution atlases and other research publications.

## 6.5.1.1 Designated Sites

### 6.5.1.1.1 *Identification of the Designated Sites within the Likely Zone of Influence of the Proposed Development*

The potential for the Proposed Development to impact on sites that are designated for nature conservation was considered in this Biodiversity Chapter.

Special Areas of Conservation (SACs) and Special Protection Areas for Birds (SPAs) are designated under the EU Habitats Directive and EU Birds Directive, respectively and are collectively known as 'European Sites'. The potential for significant effects and/or adverse impacts on the integrity of European Sites is fully assessed in the AA Screening Report and Natura Impact Statement that accompanies this application. As per EPA Guidance 2022, "***a biodiversity section of an EIAR, for example, should not repeat the detailed assessment of potential effects on European sites contained in documentation prepared as part of the Appropriate Assessment*** process" but should "***refer to the findings of that separate assessment in the context of likely significant effects on the environment, as required by the EIA Directive***". Section 6.7.5 of this EIAR provides a summary of the key assessment findings with regard to European Designated Sites.

Natural Heritage Areas (NHAs) are designated under Section 18 the Wildlife (Amendment) Act 2000 and their management and protection is provided for by this legislation and planning policy. The potential for effects on these designated sites is fully considered in this EcIA.

Proposed Natural Heritage Areas (pNHAs) were designated on a non-statutory basis in 1995 but have not since been statutorily proposed or designated. However, the potential for effects on these designated sites is fully considered in this EcIA.

The following methodology was used to establish which sites that are designated for nature conservation have the potential to be impacted by the Proposed Development:

- Initially the most up to date GIS spatial datasets for European and Nationally designated sites and water catchments were downloaded from the NPWS website (www.npws.ie) and the EPA website (www.epa.ie) on the 24/09/2024. The datasets were utilised to identify Designated Sites which could feasibly be affected by the Proposed Development.
- All designated sites surrounding the development site were identified. In addition, the potential for connectivity with European or Nationally designated sites at distances further from the Proposed Development was also considered in this initial assessment.
- A map of all the National Sites within the likely zone of influence is provided in Figure 6-3 with all European sites shown in Figure 6-4.
- Table 6-2 provides details of all relevant Nationally designated sites as identified in the preceding steps and assesses which are within the likely Zone of Influence. All European Designated Sites are fully described and assessed in the Screening for Appropriate Assessment and Natura Impact Statement reports submitted as part of this planning application.
- The designation features of these sites, as per the NPWS website (www.npws.ie), were consulted and reviewed at the time of preparing this report 24/09/2024.

Where potential pathways for Significant Effect are identified, the site is included within the Likely Zone of Influence and further assessment is required.