

Technical Appendix 6.1: Ecology Assessment Methodology



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Ravengill Energy Park

Ravengill Energy Park Limited

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Basis of Report

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1.0 Introduction

SLR (previously MacArthur Green¹) has prepared this Assessment Methodology appendix to accompany **Chapter 6: Ecology (EIAR Volume 2)** of the Environmental Impact Assessment Report (EIAR) on behalf of the Applicant.

The assessment methodology, including criteria for identifying and assessing sensitivity of ecological receptors, magnitude of change, cumulative effects, and significance criteria, is outlined below.

The significance of the potential effects of the Proposed Development has been assessed by professional consideration of the sensitivity of the ecological features and the spatial and temporal magnitude of the potential effects.

The assessment method follows Chartered Institute of Ecology and Environmental Management (CIEEM) (2024)² guidance, which is in line with the EIA Regulations³.

The assessment involves the following process:

- identifying the potential ecological effects of the Proposed Development on ecological features, including both positive and negative;
- considering the likelihood of occurrence of potential effects;
- defining the nature conservation value and conservation status of the ecological features present to determine sensitivity;
- establishing the magnitude of change associated with the potential effect (both spatial and temporal);
- based on the above information, making a professional judgement as to whether or not the resultant effect is significant in terms of the EIA Regulations;
- if a potential effect is determined to be significant, measures to avoid or reduce the effect are suggested, where required;
- considering opportunities for enhancement, where appropriate; and
- confirming residual effects after mitigation (including enhancement) and, in the event the remaining residual effects are assessed as significant, considering appropriate proposals for compensation (see CIEEM, 2024).

2.0 Sensitivity of Ecological Features

The sensitivity of the baseline conditions, including the importance of ecological features on or near to the Site, or the sensitivity of potentially affected receptors, has been assessed in line with best practice guidance, legislation, statutory designations and/or professional judgement.

Determination of the level of sensitivity of an ecological feature is based on a combination of the feature's nature conservation value and conservation status. Nature conservation value is defined on the basis of the geographic context shown in **Table 2-1**, which follows CIEEM (2024) guidance.

¹ Following acquisition, MacArthur Green became part of SLR Consulting Limited on 1 September 2025.

² CIEEM (2024). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester.

³ Scottish Government (2017) The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. Available at: <https://www.legislation.gov.uk/ssi/2017/101/contents>



Attributing a value to an ecological feature is generally straightforward in the case of designated sites, as the designations themselves are normally indicative of an importance level. For example, a Special Area of Conservation (SAC) designated under the Habitats Directive is implicitly of European (international) importance.

In the case of species, assigning value is less straightforward as contextual information about distribution and abundance is fundamental, including trends based on historical records. This means that even though a species may be protected through legislation at a national or international level, the relative value of the population on site may be quite different (e.g., the population within a site may consist of a single transitory animal, which within the context of a thriving local/regional/national population of a species, is therefore of local or regional value as opposed to national or international).

Determination of the level of importance of ecosystems, habitats and species is based on professional judgement and a combination of factors, such as level of protection, rarity, conservation status, population trends, and quality/extent of the feature in the study area. Published evaluation criteria (e.g., the Scottish Biodiversity List (NatureScot, 2025)⁴ and the Joint Nature Conservation Committee (JNCC) on the selection of biological Sites of Special Scientific Interest (SSSIs) (2022)⁵) are used where relevant.

In line with the CIEEM (2024) guidance, it is not necessary to carry out detailed assessment on features that are sufficiently widespread, unthreatened, and resilient to effects of the Proposed Development. However, those ecological features affected by the Proposed Development and deemed to be of at least local importance are termed Important Ecological Features (IEFs) and are taken forward for assessment.

Table 2-1 Approach to Valuing Ecological Features⁶

Value of Feature in Geographical Context	Description
International/European	An internationally designated site (e.g., SAC), or undesignated areas that meet the criteria for international designations, or qualifying species whose presence contributes to the maintenance of such a site.
	Species present in internationally important numbers (>1% of biogeographic populations).
National (UK)	A nationally designated site (e.g., SSSI, or a National Nature Reserve (NNR)), or sites meeting the criteria for national designation or qualifying species whose presence contributes to the maintenance of such a site.
	Species present in nationally important numbers (>1% of UK population).
Regional (Natural Heritage Zone or Local Authority Area)	Regionally significant and viable areas of key habitat identified in a regional Biodiversity Action Plan (BAP).
	Species present in regionally important numbers (>1 % of Natural Heritage Zone (NHZ) population).

⁴ NatureScot (2025). Scottish Biodiversity List. Available online from: <https://www.nature.scot/scotlands-biodiversity/scottish-biodiversity-strategy/scottish-biodiversity-list>

⁵ JNCC (2022). Guidelines for selection of biological Sites of Special Scientific Interest (SSSIs). Available online from: <https://jncc.gov.uk/our-work/guidelines-for-selection-of-sssis/>

⁶ As adapted from Hill, D., Fasham, M., Tucker, G., Shewry, M and Shaw, P. (2005). Handbook of Biodiversity Methods – Survey, Evaluation and Monitoring. Cambridge University Press, Cambridge.



Value of Feature in Geographical Context	Description
Local	Areas of key habitat falling below criteria for selection as a SSSI (e.g., areas of semi-natural ancient woodland larger than 0.25 hectares (ha)).
	A site within the local area designated for nature conservation (e.g., Local Nature Reserves (LNRs) or Local Nature Conservation Sites (LNCS)).
	Areas of semi-natural ancient woodland smaller than 0.25 ha.
Negligible	Areas of habitat or species considered to appreciably enrich the ecological resource within the local context, e.g., species-rich flushes or hedgerows.
	Usually widespread and common habitats and species that do not meet the above criteria. Features falling below local value are not normally considered in detail in the assessment process.

3.0 Magnitude of Effect

The magnitude of potential effects refers to changes in the extent and integrity of an ecological feature. The following definition of ecological 'integrity' is found within Scottish Executive circular 6/1995 (updated by Scottish Executive (2000)):

"The integrity of a site is the coherence of its ecological structure and function, across its whole area, which enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified".

Although this definition is used specifically regarding European level designated sites (e.g., an SAC), it is applied to wider countryside habitats and species for the purposes of this assessment.

The magnitude of potential effects will be identified through consideration of the Proposed Development, the degree of change to baseline conditions predicted as a result of the Proposed Development, how the ecological features are likely to respond to the Proposed Development, the duration and reversibility of an effect and the application of professional judgement, best practice guidance and legislation. This change can occur during construction or operation of the Proposed Development, and effects can be beneficial, neutral or adverse.

Effects are determined in terms of magnitude in space and time. There are five levels of spatial effects and five levels of temporal effects, described in **Table 3-1** and **Table 3-2**.



Table 3-1 Definition of Spatial Effect Magnitude upon the IEFs

Magnitude of Effect	Definition
Very High	Would cause the loss, gain or improvement of the majority of a feature (>80 %) or would damage/enhance a feature sufficiently to immediately affect its integrity.
High	Would have a major effect on the feature or its integrity, for example more than 20 % habitat loss/damage or gain/improvement.
Medium	Would have a moderate effect on the feature or its integrity, for example between 10 and 20 % habitat loss/damage or gain/ improvement.
Low	Would have a minor effect upon the feature or its integrity, for example, less than 10 % habitat loss/damage or gain/improvement.
Negligible	Minimal change on a very small scale; effects not dissimilar to those expected within a 'do nothing' scenario.

Table 3-2 Definition of Temporal Effect magnitude upon the IEFs

Magnitude of Effect	Definition
Permanent	Effects continuing indefinitely beyond the span of one human generation (taken here as >30 years), except where there is likely to be substantial improvement after this period in which case the category Long Term may be more appropriate.
Long Term	Between 15 years up to (and including) 30 years.
Medium Term	Between 5 years up to (but not including) 15 years.
Short Term	Up to (but not including) 5 years.
Negligible	No effect.

4.0 Significance of Effect

The significance of potential effects is determined through a standard method of assessment based on professional judgement and available evidence, considering the sensitivity (nature conservation value and conservation status) of the IEF, and the nature and magnitude of change, in a reasoned way.

A 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for IEFs or for biodiversity generally. Broadly, significant effects include those which result from impacts on the structure and function of defined sites, habitats or ecosystems, and the conservation status of habitats and species (including extent, abundance and distribution)⁷.

Table 4-1 details the significance criteria that have been used in assessing the effects of the Proposed Development.

⁷ CIEEM (2024), at section 5.25 – 5.26



Table 4-1 Significance Criteria

Magnitude of Effects	Definition
Major	The effect is likely to result in a long term adverse or beneficial effect on the structure and function of defined sites, habitats or ecosystems or on the conservation status of habitat and species.
Moderate	The effect is likely to result in a medium term or partial adverse or beneficial effect on the structure and function of defined sites, habitats or ecosystems or on the conservation status of habitats and species.
Minor	The effect is likely to adversely or beneficially affect the feature at a low level by virtue of its limited duration and/or extent, but there will probably be no effect on the structure and function of defined sites, habitats or ecosystems or on the conservation status of habitats and species. The level of effect would be Minor and Not Significant.
Negligible	No material effect. The effect is assessed to be Not Significant.

Using these definitions in Table 4-1, it must be decided whether there would be any effects which would be sufficient to adversely affect the IEF to the extent that its conservation status deteriorates from that which would be expected should baseline conditions remain (i.e., the 'do nothing' scenario).

Major and moderate effects are considered to be significant within the context of the EIA Regulations.

Where adverse effects are identified, mitigation and/or compensation is considered to reduce or offset effects where possible, including avoidance or reduction through implementation of, and compliance with, best practice guidance and protected species legislation.

Residual effects are characterised as either adverse, neutral or beneficial and either significant or not significant, taking mitigation proposals into account.

5.0 Cumulative Assessment

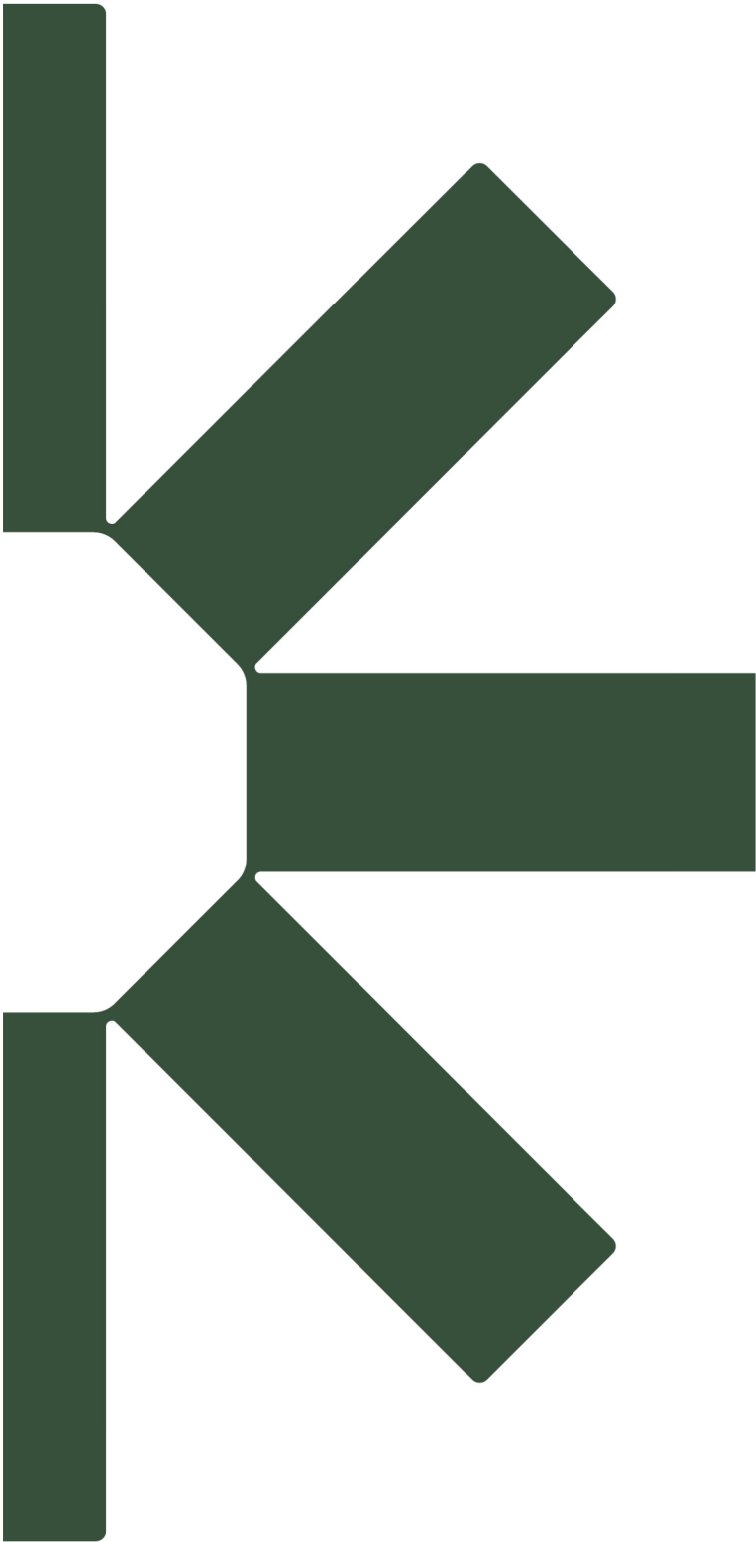
Cumulative effects can result from individually insignificant, but collectively significant actions taking place over a period of time or concentrated to a particular location. NatureScot guidance (NatureScot, 2025⁸) sets out that cumulative effects require the assessment of the effects of the Proposed Development together with other developments, projects or activities⁹.

In the interests of focusing on the potential for significant effects, this assessment considers the potential for cumulative effects with other onshore wind farm EIA developments within 5 km of the Proposed Development. The context in which these effects are considered is heavily dependent on the ecology of the features assessed. For example, for water vole (*Arvicola amphibius*) it may be appropriate to consider effects specific to individual catchments, should the distance between neighbouring catchments be sufficient to assume no movement of animals between them, whereas for blanket bog, the region or NHZ may be the relevant spatial scale. Therefore, where it is considered necessary, an assessment of cumulative effects will be made for each feature, appropriate to its ecology.

⁸ NatureScot (2025). Guidance - Assessing the cumulative impacts of onshore wind farms on birds. Available online from: <https://www.nature.scot/doc/guidance-assessing-cumulative-impacts-onshore-wind-farms-birds>.

⁹ Note that while this guidance focuses on ornithology, the principle applies considering cumulative impacts on non-avian ecology (similarity seen in NatureScot (2021). Guidance - Assessing the cumulative landscape and visual impact of onshore wind energy developments).





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