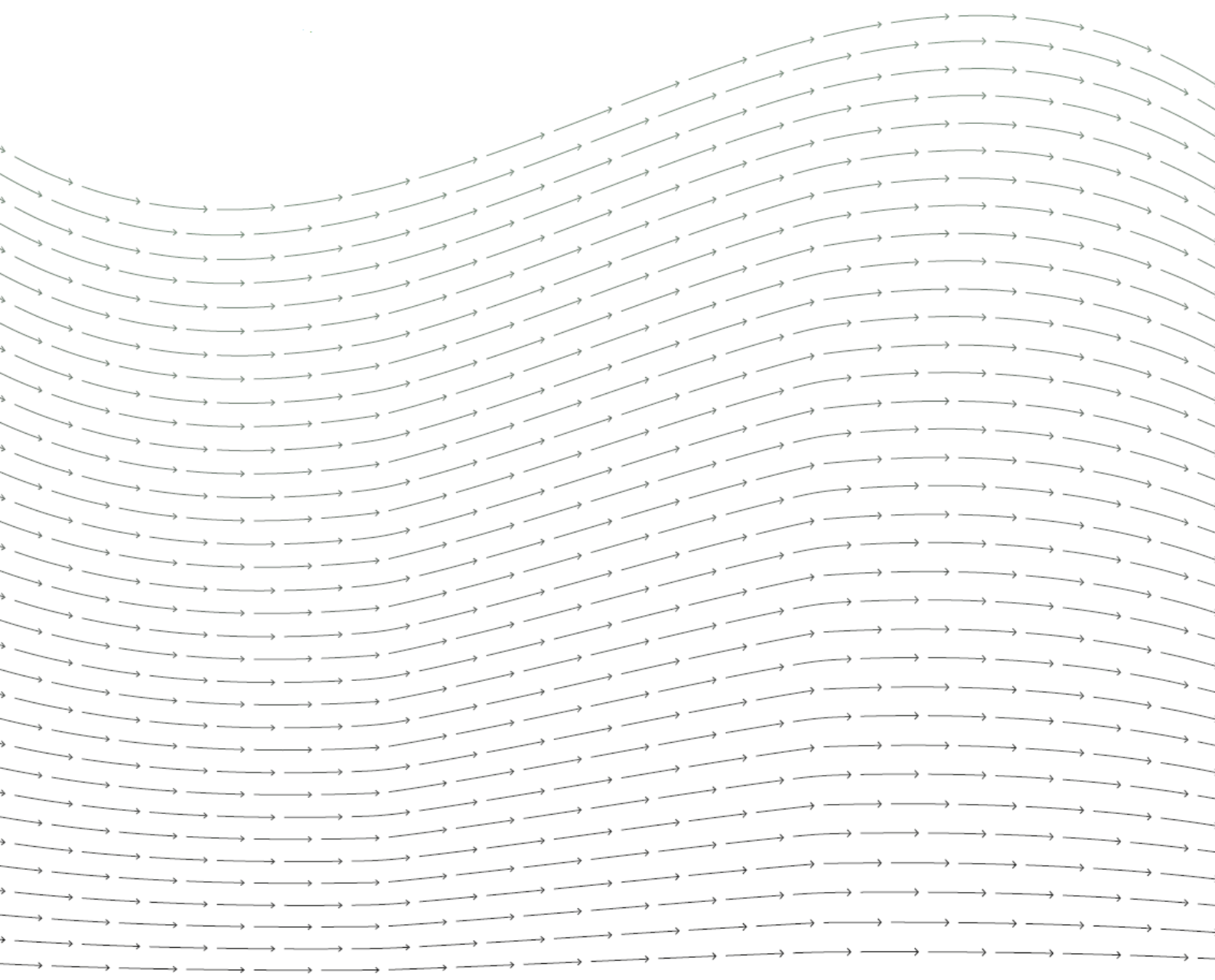




Ballach Wind Farm Environmental Impact Assessment Report Volume 1 – Main Text

Energiekontor UK Ltd

July 2025



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Ballach Wind Farm

Environmental Impact Assessment Report Volume 1 Chapter 1: Introduction

July 2025

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1 INTRODUCTION

Introduction

- 1.1 This Environmental Impact Assessment Report (EIA Report) is being submitted in support of an application by Energiekontor UK Ltd (the Applicant) for consent under Section 36 of The Electricity Act 1989 to install and operate a wind farm comprising 20 turbines and associated infrastructure on land approximately 4km northwest of Kilmorack, (the proposed development).
- 1.2 As the proposed development has a generating capacity exceeding 50MW, consent is provided under Section 36 of the Electricity Act 1989 however deemed planning consent would also be awarded under Section 57(2) of the Town and Country Planning (Scotland) Act 1997 (as amended). The Applicant in this instance requests that there is a ten-year consent implementation period (instead of the usual three) to allow for any grid related delays, should the proposed development be consented. This reflects the current situation with extensive grid delays and long-lead in times for connection.
- 1.3 The site location is contained within Figure 1.1, and full description of the proposed development is contained within Chapter 3: Project Description. For the purposes of this EIA Report, candidate turbines of up to 230m to blade tip have been assessed which would provide an associated capacity of approximately 144MW with an additional 5MW of battery storage capacity.
- 1.4 The approach to EIA Methodology can be understood within Chapter 2 of this Volume, whilst the Design Evolution of the proposed development is contained within Chapter 4. The planning and renewable energy policy context continues to evolve, and a current snapshot is provided within Chapter 5, with an analysis of the planning and policy compliance kept separate to this EIA Report, within a standalone Planning Statement.
- 1.5 This chapter sets out details with regards to the Applicant, the aims of this EIA Report, its structure, and the brief context to the rest of its content.

The Applicant – Energiekontor UK Ltd

- 1.6 Energiekontor UK Ltd (EK) is a renewable energy development company, formed in 1999.
- 1.7 It develops small to medium-sized onshore wind and solar farms throughout the United Kingdom. The company operates seven existing wind farms in the UK and has obtained planning consent for a further nine projects. Energiekontor also has several other wind and solar projects at various stages of the development process throughout the UK.
- 1.8 Energiekontor UK Ltd is part of the Energiekontor Group. The parent company, Energiekontor AG, was established in 1990 in Bremerhaven in Northern Germany. It has since grown to become one of the leading wind energy companies in Europe and is active in Germany, France, Portugal, the USA and the UK. The company has obtained consent

and built 118 onshore wind farms in Europe and commenced construction of the first 'no-subsidy' wind farm in the UK, Withernwick II in East Riding, Yorkshire.

Purpose of the EIA

- 1.9 The EIA Report includes a description of the Proposed Development, the location of the development, and its design evolution; summarises the findings of a comprehensive study of potential environmental effects; and, where adverse effects are identified, measures to avoid, reduce, or remedy such effects are described. At the time of the assessment for the proposed development, the EIA Report considers the likely significant effects (both beneficial and adverse) on the environment, identified in the EIA, during the construction, operational and decommissioning phases. In addition, any likely significant cumulative effects with other developments have also been considered within this EIA Report.

Structure of the EIA

- 1.10 The EIA Report has been presented in four volumes as follows:
- Volume 1: Written Statement, contains the main environmental assessment text, providing an assessment of the likely significant effects as per the requirements of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 ('the EIA Regulations');
 - Volume 2: Figures, contains the primary graphics, maps, drawings and illustrations to accompany Volume 1;
 - Volume 3: Visualisations is a volume which contains the visualisations provided for visual assessment to accompany Chapter 6: Landscape and Visual and Chapter 11: Cultural Heritage; and
 - Volume 4: Technical Appendices presents a volume of appendices to complement Volume 1, including technical reports, supplementary assessments and results of fieldwork.
 - Volume 5: The Highland Council Visualisations
- 1.11 The EIA Report should also be read in context with the following standalone documents:
- EIA Non-Technical Summary (NTS) which summarises the main findings of the EIA Report in accessible language;
 - Planning Statement, which provides an assessment of policy compliance in relation to the Development Plan and other important material policy considerations;
 - Pre-Application Consultation Report (PAC Report) which sets out the approach and results of public engagement; and
 - Design and Access Statement (DAS) which illustrates the approach to design and access.
- 1.12 Volume 1 of the EIA Report contains the following introductory and technical chapters:
- Chapter 1: Introduction;
 - Chapter 2: EIA Methodology;

- Chapter 3: Project Description;
- Chapter 4: Design Evolution;
- Chapter 5: Renewable Energy and Planning Policy;
- Chapter 6: Landscape and Visual;
- Chapter 7: Cultural Heritage
- Chapter 8: Ecology;
- Chapter 9: Ornithology;
- Chapter 10: Geology, Hydrology, Hydrogeology and Peat;
- Chapter 11: Noise;
- Chapter 12: Transport and Access;
- Chapter 13: Socio-economics and Tourism;
- Chapter 14: Other Issues; and
- Chapter 15: Schedule of Mitigation.

The EIA Team

- 1.13 As per the requirements of the EIA Regulations, the EIA Report has been prepared by competent experts in their respective fields. The introductory sections of each technical chapter (Chapter 6 to Chapter 14) have been prepared by external consultants and the expertise and credentials of these consultants is laid out.
- 1.14 The following consultancies have prepared the technical chapters listed above:
- WSP
 - Pell Frischmann
 - Greencat Renewables
 - RPS
 - Wildlife Consulting
- 1.15 All other chapters have been prepared by the Applicant's Project Manager, Calum Morris. Calum is an experienced Project Manager and Town Planner and holds an honours degree in Town Planning. He has approximately 13 years of experience in EIA and planning.

Summary of the Proposed Development

- 1.16 The proposed development is fully described within Chapter 3: Project Description, however in brief contains the following components:
- 20 turbines;
 - Associated turbine compound areas including foundations and hardstanding areas for erecting cranes at each turbine location;
 - On-site tracks connecting each turbine;
 - New and upgraded watercourse crossings;

- On-site substation;
- Underground cables linking the turbines to the substation, typically along internal tracks;
- An Energy Storage Compound to store batteries to a 5MW capacity which would be within the construction compound footprint;
- Formation up to 3 new borrow pits for the extraction of stone on-site (indicated on Figure 3.1);
- A temporary construction compound including provision for onsite concrete batching; and
- Outline Habitat Management provisions as proposed within Technical Appendix 8.4 within Volume 4 of this EIA Report.

1.17 The red line boundary provided within Figure 1.1 within Volume 2 of this EIA Report is referred to as 'the site boundary', whilst everything within that boundary is referred to as 'the Site' and occupies approximately 1267 hectares (ha).

Contacts for Further Information and Consultation

1.18 Copies of the full EIA Report and its associated standalone documents can be found on the Energy Consents Unit website by searching for Ballach Wind Farm. In addition, updates including a link to the case file are provided at www.energiekontor.com/ballach.

1.19 Alternatively, the Project Manager can be contacted for copies as appropriate. There is no charge for provision of electronic documents or hard copies of the Non-Technical Summary on request.

1.20 Full printed copies can also be requested. Due to the size and cost of printed documents, charges for these are as follows:

- Volume 1 – Main Text: £50
- Volume 2 - Figures: £300
- Volume 3 – NatureScot Visualisations: £500
- Volume 4 – Technical Appendices: £200
- Volume 5 – THC Visualisations: £500

1.21 Requests should be made to Calum Morris, Project Manager, Energiekontor UK Ltd, ballachwindfarm@energiekontor.com

1.22 Any representations to the application may be submitted:

- via the Energy Consents Unit website at: www.energyconsents.scot/Register.aspx;
- by email to the Scottish Government Energy Consents Unit mailbox at representations@gov.scot; or
- by post to the Scottish Government, Energy Consents Unit, 4th Floor, 5 Atlantic Quay, 150 Broomielaw, Glasgow, G2 8LU.

Ballach Wind Farm

Environmental Impact Assessment Report Volume 1 Chapter 2: EIA Methodology

July 2025

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Table 2.1: A Summary of Consultation Responses

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2 APPROACH TO THE ENVIRONMENTAL IMPACT ASSESSMENT

Introduction

2.1 This chapter of the Environmental Impact Assessment Report (EIA Report) provides a detailed account of the Environmental Impact Assessment (EIA) methodology. The following key information is included:

- Description of the EIA process;
- Approach taken to the assessment of the Proposed Development and the technical studies undertaken;
- Approach to determining scale and significance of effects, and the basis upon which predictions were made (e.g. professional knowledge and judgment, initial studies, desktop exercises, preliminary survey work); and
- Guidelines, methods and techniques used in the process of determining significance of effects.
- Subject specific methodology is outlined in each of the technical chapters; Chapters 6 through to 15.

EIA Process

2.2 EIA involves the compilation, evaluation and presentation of any potentially significant (both positive and negative) environmental effects resulting from a proposed development, to assist the decision-making authority (in this case the Energy Consents Unit) when considering and determining an application. Early identification of potentially adverse environmental effects also leads to the identification and incorporation of appropriate mitigation measures into the project design to avoid, reduce, and if possible, remedy identified significant adverse environmental effects.

2.3 The main activities in the EIA process can be summarised as follows:

- definition of the project to be assessed;
- description of the 'baseline' environment (i.e. the conditions that are likely to prevail before commencement of the project);
- definition of the scope of the assessment;
- scoping and consultation with interested parties;
- optimisation of the Proposed Development based on consultation and design;
- prediction of the likely environmental effects of the Proposed Development;
- evaluation of these effects in terms of their likely significance;
- description of the nature and effectiveness of measures / design evolution which could be adopted in order to mitigate likely significant adverse effects, and the way in which these measures are to be monitored to measure effectiveness;
- identification of residual effects;

- submission of EIA Report and publicity;
- review of adequacy of environmental information by The Highland Council and statutory consultees; and
- Determination of application based on the EIA Report content and other relevant documentation supporting the application.

2.4 The information that a developer is required to submit as part of the EIA process is specified in Regulation 5 and Schedule 4 of the EIA Regulations, and includes at least:

- a description of the development comprising information on the site, design, size and other relevant features of the development;
- a description of the likely significant effects of the development on the environment;
- a description of the features of the development and any measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment;
- a description of the reasonable alternatives studied by the developer, which are relevant to the development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment;
- a non-technical summary of the above information; and
- Any other information specified in schedule 4 relevant to the specific characteristics of the development and to the environmental features likely to be affected.

2.5 Regulation 5 states that in order to ensure the completeness and quality of the EIA Report,

“(a) the developer must ensure that the EIA report is prepared by competent experts; and

(b) the EIA report must be accompanied by a statement from the developer outlining the relevant expertise or qualifications of such experts”.

2.6 A statement of competency, setting out the qualifications and experience of the lead EIA Report coordinators/chapter authors is provided in Chapter 1, and Chapters 6 to 15.

2.7 The scoping, preparation and production of this EIA Report has been conducted in accordance with the latest Government Regulations and published good practice guidance including:

- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017;
- Planning Circular 1/2017: Environmental Impact Assessment Regulations 2017;

Approach to Technical Studies Undertaken

2.8 The EIA studies commenced at an early stage in the evolution of the Proposed Development. At the outset, with the objective of avoiding or minimising potential environmental effects, the findings of these baseline environmental studies played an important role in the design evolution of the Proposed Development (further details are contained within Chapter 4: Design Evolution). These studies defined the environmental

sensitivities and constraints associated with the Proposed Development, the Site, and its surroundings.

- 2.9 The technical EIA studies have been undertaken in accordance with relevant guidelines and procedures. The majority of this guidance is specific to EIA topics and is therefore referenced within the individual assessment chapters as necessary.
- 2.10 The majority of assessments involved consultations with statutory and non-statutory bodies, desk-based research, site inspections and surveys, impact prediction and input of mitigation to the design, where appropriate.
- 2.11 The content and conclusions of the EIA Report, which includes a clear, reasoned description of any likely significant adverse or beneficial effects of the Proposed Development, are based on a comprehensive assessment undertaken with all information available at the time of writing. Further details of the structure and content of the EIA Report assessment chapters is presented below.

Structure of EIA Report Technical Chapters

- 2.12 Each technical EIA Report chapter follows the sub-heading structure set out below where possible to ensure that the final document is transparent, consistent and accessible:
- Introduction and overview;
 - Legislation (where relevant), Policy and Guidance;
 - Stakeholder Consultation (where relevant);
 - Assessment Methodology and Significance Criteria;
 - Baseline Conditions;
 - Identification and Evaluation of Key Effects;
 - Cumulative Effects and Interaction of Effects;
 - Mitigation Measures and Monitoring;
 - Residual Effects;
 - Summary; and
 - References

Each chapter sub-heading is explained in further detail below.

Introduction and Overview

- 2.13 This introduces the assessment discipline and explains its purpose in the context of the Proposed Development, the nature of receptors to be considered, and how the Proposed Development might cause changes to baseline conditions.
- 2.14 The introduction includes a statement of competence from the author of the chapter.

Legislation, Policy and Guidance

- 2.15 This section includes a brief summary of policies of relevance to the environmental discipline and assessment. Where applicable, relevant legislation and assessment guidance is summarised.

Consultation

- 2.16 A wide range of stakeholders have been consulted on the Proposed Development, and the feedback received has been incorporated into the iterative design process described in Chapter 4. Further information can be found in the relevant chapters.

Assessment Methodology & Significance Criteria

- 2.17 This section provides an explanation of the methods used in undertaking the assessment with reference to published standards, guidance and best practice.
- 2.18 The application of significance criteria used is discussed within this section.
- 2.19 Assessment limitations are also set out within this section.

Baseline Conditions

- 2.20 This section includes the following:
- a description of the environment as it currently is and as it is expected to change if the Proposed Development were not to proceed (i.e. 'do-nothing' scenario);
 - baseline conditions set in context and that of the surroundings of the particular subject area to be affected; and
 - A description addressing the projected climate change and how likely the baseline is to change as a consequence of climate change.

Identification and Evaluation of Key Effects

- 2.21 The candidate turbine is the Vestas V162. The turbine and associated infrastructure requirements have been used as a candidate in the assessments. The final turbine chosen will be dependent upon what is available within the maximum parameters assessed in the EIA Report.
- 2.22 The EIA Regulations require consideration, throughout assessments, of all likely significant environmental effects; direct / indirect; secondary; cumulative; positive / negative; short / medium / long-term; or permanent / temporary. In terms of how likely these potential significant environmental effects are to arise, the following is considered:
- 2.23 Direct effects are readily identified because of the physical connection between some element of the Proposed Development and an affected receptor;
- 2.24 Indirect effects require some additional pathway for the effect to arise, for example, a listed building may not be directly affected by any elements of a development, but, if a

proposed development changed the hydrology of the surrounding area, this may affect the archaeological preservation of the listed building, and therefore would be considered an indirect effect;

- 2.25 Secondary effects would typically require pathway connections, for example, an effect on receptor population A could have a secondary effect on receptor population B, if B was itself dependant on A in some way, as, for example, a food source; and
- 2.26 Cumulative effects would be those that the Proposed Development may have in combination with other wind farms which are at application stage, consented, under construction or operational (i.e. the incremental effects resulting from the Proposed Development if all other wind farms are assumed to be constructed/operated). These are commonly known as 'inter' cumulative effects. Interrelated effects (otherwise known as 'intra' cumulative effects) are separate discrete effects which may interact and combine to affect a single receptor i.e. noise and dust.
- 2.27 Likely significant environmental effects are considered in terms of their character, either beneficial (representing environmental gain) or adverse. There may also be cases where it is appropriate to identify the occurrence of change, but to note that the potential change is either neutral, and neither specifically beneficial nor adverse. The likelihood of the effect occurring is also considered, being unlikely, uncertain or likely to occur.
- 2.28 Likely significant environmental effects are also considered in terms of their duration. Effects can typically be:
- Temporary – these effects are likely to last for a period of a few days to a few months; they will be related to a particular activity and will cease immediately or soon after the activity ceases;
 - Short-term – this would normally be considered to be between a period of a few months to a few years depending on the effect being discussed and the environment's ability to recover from an effect;
 - Long-term – this would typically be a period of between a few years and the life of the Proposed Development; and
 - Permanent – this would typically mean an effect resulting in an irreversible change in the environment.
- 2.29 It is important that levels of effect are clearly defined on the basis of their significance. The approach taken in this EIA Report emphasises the use of professional judgement within a structure that combines receptor sensitivity (or importance) with magnitude of change arising from the Proposed Development to define significance of effect.
- 2.30 The EIA Regulations recognise that developments will affect environmental elements to differing degrees and not all of these are of sufficient concern to warrant detailed investigation or assessment through the EIA process. The EIA Regulations identify those environmental resources that warrant investigation as those that have 'potential to be significantly affected by the development (Schedule 4(4)). Those that are not deemed to have an effect can therefore be scoped out of the assessments.

- 2.31 The EIA Regulations do not define significance and it is, therefore, necessary to state how this will be defined for the Proposed Development. In certain circumstances it is possible for disciplines to use quantitative assessment methodology to predict effects / values that can be compared against published thresholds or indicative criteria. However, it is not always possible to use quantitative measurements/values and such some assessments rely on professional judgement, past experience or other evidence. This could be reference to the development description, available information about potential changes that are expected to be caused by the Proposed Development, and the receptors that may be affected.
- 2.32 Professional judgement (in combination with any published guidance) is used to assess the interaction of a receptor's sensitivity to change, and the magnitude of potential changes caused by the development to identify a level of effect. The Assessment methodology and Significance Criteria section within each Chapter provides an overview of how the assessment has been conducted for each discipline, and where any deviations from the methodology described above occurs.
- 2.33 For some of the topics that are assessed in this EIA Report there is published guidance about significance evaluation. Where such topic-specific guidance exists (even in draft) it will be used to inform the development of the significance evaluation methodologies used. For other topics, a **major or moderate** level of effect is generally of most importance to the decision-maker and these effects are considered **significant** in terms of the EIA Regulations. Where the level of effect is **minor or less**, these are generally **not significant** in terms of the EIA Regulations. Moreover, depending on the receptor being considered, it is possible that some potentially some lesser effects could be judged as significant in terms of the EIA Regulations, and where this is judged to be the case, the rationale for this conclusion will be provided in the technical assessments.
- 2.34 The temporal scope of the EIA will cover the period from commencement of the first phase of development (construction), through to operational phase (operation), up to the completion of operations and restoration of the Site (decommissioning). For ease of reporting the temporal scope will generally be considered in relation to the following key stages of the development:
- Construction – effects may arise from the construction activities themselves or from the temporary occupation of land. The effects are often temporary and of limited duration, although, there is the potential for construction activities to create permanent change;
 - Operation – effects are typically long-term (subject to any future decommissioning), though may also be related to operational emissions or effects that will stop if the operation stops; and
 - Decommissioning – effects may arise from the decommission activities themselves or from the temporary occupation of land. The effects would often be temporary and of limited duration and additional permanent change (unless associated with restoration) would normally be unlikely.
- 2.35 In its broadest sense, the spatial scope of an EIA is the area over which changes to the environment may occur as a consequence of the development. In practice, the EIA

focuses on those areas where these changes may result in likely significant effects on the environment.

- 2.36 As such, the spatial scope varies between the environmental topics assessed. For example, effects upon the landscape resource and visual effects are assessed within a much larger zone from the site boundary when compared to ecological related effects.
- 2.37 As part of the application, a micro-siting allowance of 100m will be sought to allow all turbines and infrastructure to be moved within a 100m radius should ground conditions or other factors justify this. For completeness, each assessment has given consideration as to the likely effects of moving onsite infrastructure to this extent.

2.38 *Cumulative Effects and Interaction of Effects*

- 2.39 As required by the EIA Regulations, it is also important to consider the possible effects that a proposal may have in combination with existing, consented or other proposed developments or activities. Likely cumulative effects have been defined as the likely effects that the Proposed Development may have in combination with other wind farms which are at application stage, consented, under construction or operational (i.e. the incremental effects resulting from the Proposed Development if all other wind farms are assumed to be constructed/operated).
- 2.40 Where relevant the approach to the cumulative effect assessments varies across technical disciplines and a rationale as to the scope of this assessment is provided in each chapter.
- 2.41 For the purposes of the EIA Report, the potential effects of the Proposed Development are considered in terms of effects on each of the discrete topic areas. In reality, topic areas such as ecology and hydrology are interrelated, and could combine to result in a significant effect on a given receptor. Schedule 4 of the EIA Regulations states that the EIA Report should include an assessment of “*the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development*”, and these are addressed within each of the EIA report chapters where relevant.

Mitigation Measures and Monitoring

- 2.42 There is much debate amongst practitioners and legal reviewers regarding pre-mitigation and post-mitigation assessments of effects. One crucial point of discussion is whether changes in design constitute mitigation or not. The approach taken here is that the pre-mitigation assessment of effects takes account of scheme design changes that relate to the number / location and scale of scheme elements and it also takes account of the adoption of standard guidelines. The post-mitigation assessment takes further account of specific / additional controls on the method of construction or operation. In most cases these should only relate to circumstances where a potentially significant effect is being reduced.
- 2.43 The development of mitigation measures to avoid, reduce or compensate for significant adverse environmental effects of a project is an intrinsic part of the EIA process. These measures can relate to site construction, or the completed development i.e. measures to

be undertaken during the operation of the development through appropriate site management or through the introduction of specific design elements.

- 2.44 This section of the EIA Report chapter describes the measures which would be implemented to avoid or ameliorate likely adverse effects and enhance the likely beneficial effects of the Proposed Development.
- 2.45 In many cases mitigation measures are inherent within the Proposed Development (either through design or operation), whereby likely significant adverse effects are avoided. However, not all effects can be avoided and there are mitigation measures to reduce these. Standard good practice measures employed during construction, for example, may also be considered to provide in-built mitigation and this is stated in the topic assessments where relevant. Any further survey requirements and monitoring required to gauge the effectiveness of proposed mitigation measures will be included where relevant. In such instances, these are proposed within the relevant technical chapter.

Residual Effects

- 2.46 This section describes the remaining effects of the Proposed Development assuming implementation of the proposed mitigation measures.

References

- 2.47 This section provides a detailed record of all data sources consulted and guidance used to inform the assessment.

Ballach Wind Farm

Environmental Impact Assessment Report Volume 1 Chapter 3: Project Description

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Table 3.2: Indicative programme of construction activities

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Figure 3.2: Typical Turbine Elevation

Figure 3.3: Typical Turbine Foundations

Figure 3.4: Typical Track Cross Sections

Figure 3.5: Typical Watercourse Crossing

Figure 3.6: Typical Construction Compound

Figure 3.7: Typical Crane Hardstanding

Figure 3.8: Typical Cable Trench Design

Figure 3.9: Typical Substation Elevations

Figure 3.10: Typical Substation Floor and Roof Plans

Figure 3.11: Energy Storage Compound Plan

Figure 3.12: Energy Storage Compound Elevation

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3 PROJECT DESCRIPTION

Introduction

- 3.1 This chapter provides an outline description of the Proposed Development, the Site, and its surroundings. It also describes the issues and constraints that have influenced the layout of the Proposed Development and the evolution of the design.
- 3.2 Details of the construction, operational and decommissioning phases of the Proposed Development are also considered in this chapter.
- 3.3 Details of the iterative design process that resulted in the final design as set out in this chapter are detailed in Chapter 4.
- 3.4 The Proposed Development will consist of the construction, 35-year operation and subsequent decommissioning of up to wind turbines.
- 3.5 Consent for a period of 10 years is required and requested for the Proposed Development given ongoing grid reform and associated delay.

The Site and Its Surroundings

- 3.6 The Site is located approximately 4km northwest of Kilmorack within the Erchless and Farley estates and lies entirely within the administrative boundary of the Highland Council. The present land use is open moorland with limited forestry found within the Site boundary.
- 3.7 The topography of the Site reaches a high point of 490m AOD at Beinn name Fitheach in the west. The northern boundary is bound by the Allt Goibhre. Access to the site is taken utilising the estate track to the south which runs from the A831 at Erchless Castle.
- 3.8 A number of watercourses cross the Site with a few scattered lochans. This includes Loch Ballach, Loch nan Eun and associated drainage channels. Other watercourses which lie within the Site boundary include Allt an Torta Dhuinn, Allt Tobar nan Cat and Allt a Chrochadair.
- 3.9 There are no environmental designations within the site boundary. In terms of other environmental designations within 10km of the site, these include:
 - Glen Strathfarrar NSA:
 - Strathpeffer WPA and
 - Wild Land Area 24: Central Highlands
- 3.10 Approximately 3km northwest of the site, sits the operational Fairburn Wind Farm (20 turbines, 100m to tip). 5km to the northwest of the site the proposed Fairburn Wind Farm Extension (14 turbines, 200m to tip) which is currently in the scoping stage.

Description of Proposed Development

- 3.11 The Proposed Development is illustrated on Figure 3.1 and would consist of the following principal components:
- Up to 20 turbines;
 - Associated turbine compound areas including foundations and hardstanding areas for erecting cranes at each turbine location;
 - On-site tracks connecting each turbine;
 - New and upgraded watercourse crossings
 - An energy storage compound to store batteries with a 5MW capacity which would be within the construction compound footprint;
 - Underground cables linking the turbines to the substation;
 - Up to 3 borrow pits for the extraction of stone on-site (indicated on Figure 3.1 as borrow pit search areas);
 - A temporary construction compound including provision for onsite concrete batching;
 - On-site substation; and
 - Habitat Management provisions as proposed within the Outline Habitat Management Plan.
- 3.12 The Proposed Development would be time-limited to 35 years from the first date of final commission. The construction phase would last approximately 18 months and decommissioning would last approximately six months.
- 3.13 Deemed planning permission is sought to permit a period of ten years between the date of the Decision Notice and expiry of consent (should works not be commenced) rather than the usual three years. This is to accommodate any potential grid delays.
- 3.14 The proposed development would provide approximately 134MW of installed capacity (depending on the turbine model chosen) in addition to 5MW of battery storage capacity. It is estimated by the Applicant that this installed capacity could generate approximately 557,344MWh of renewable electricity each year which would be expected to power the equivalent of approximately 160,989 homes on average each year or provide 3.1 million full battery charges for electric vehicles per year¹.
- 3.15 The application includes an allowance for micro-siting of the wind farm infrastructure. If planning permission is granted, the Applicant will commission detailed ground investigations and geotechnical surveys to determine the ground conditions. A 100m micro-siting allowance is sought for the wind turbines (with restrictions in place to safeguard constraint buffers as applicable), and all other new elements of the proposed development.

¹ ¹ Based on an average annual UK domestic electricity consumption figure of 3,462KWh as set out in the BEIS publication "Energy Consumption in the UK" December 2023.

¹ Based on a large electric vehicle requiring 180kWh for a full charge.

3.16 The construction and decommissioning of the wind turbines, ancillary equipment and on-site infrastructure are described in more detail in the following sections of this chapter and within Chapter 4: Design Evolution. The principal elements include:

- **Wind turbines** – 20 wind turbines (see Figure 3.2 for typical wind turbine elevations). The co-ordinates of the turbines are given in Table 3.1 below;
- **Turbine foundations** – The foundations of the turbines could be either reinforced concrete gravity structures or piled foundations. This would be dependent on the ground and hydrological conditions at the turbine location which would also determine the overall size of the support structure. Typical foundations for the size of turbine proposed are shown in Figure 3.3;
- **Crane hardstandings** – To provide a level and firm base for the cranes at the location of each turbine. Each would be approximately 0.7ha depending on the turbine model chosen and would be surfaced with coarse aggregate (see Figure 3.7 for a typical crane hardstanding layout);
- **Site tracks** – A total of approximately 17km of new or upgraded tracks to provide access for construction and maintenance vehicles from the Site access to the substation and wind turbines. These would be constructed at the commencement of the construction phase and would remain in-situ following decommissioning. They would have a running width of approximately 6m, the final width dependant on turbine supplier requirements. The tracks would feature local widening on corners and would be surfaced with coarse aggregate (see Figure 3.4 for typical track cross sections). Site tracks include new sections of track and upgrading of existing access tracks. New sections of track across areas of peat deeper than 1m would be floated, comprising a total of approximately 1km. Turning heads would also be required;
- **High voltage and control cables** – To form power and control circuits linking each turbine to the on-site substation, cables would be placed in trenches (dimensions to be determined by the ground conditions but typically 0.5m wide by 1m deep) routed alongside the tracks (see Figure 3.8 for typical cable trench construction details);
- **Borrow Pits** – As a source of material for the creation of other ground infrastructure. The borrow pit search area locations are identified in Figure 3.1;
- **Energy Storage Compound** - The energy storage equipment would be housed within ISO shipping containers with a 2.4m high palisade fence in a compound 17.5m by 32m. Battery containers will be positioned a minimum of 2.5m apart to facilitate access to all sides. Battery energy storage equipment will be factory assembled and delivered to site in standard 12.2m long x 2.4m wide ISO shipping containers. A plan and elevation are presented as Figures 3.11 and 3.12. Figure 3.1 shows the construction compound area that this would be housed within;
- **Construction compound/storage area** – The compound to facilitate construction of the Proposed Development, which would also provide a storage area for plant and materials and is temporary during the construction phase (see Figure 3.6 for a typical compound design);
- **Substation / switchgear housing building** – A 15m long x 10m wide single storey substation building will house the switchgear and control equipment, in addition to acting as a secure storage space (see Figure 3.9 for a typical substation / switchgear housing); and

- **Site access** – Access to the site will be from the A831 and a new junction bellmouth is proposed. This will incorporate the grading of the junction to fit the topography and join the existing forestry track.

Wind Turbines

- 3.17 Turbines would be of tubular steel construction, finished in a typical off-white matt colour and comprise three blades. The final turbine choice would be made post-consent during the procurement phase, but for the purposes of this EIA Report, representative candidate turbines of 200m and 230m tip with 163m rotor diameter and hub heights of 118.5m and 148.5m respectively.
- 3.18 Turbine co-ordinates, subject to a maximum of 100m micro-siting dependent upon localised constraints, are as follows within Table 3.1.

Table 3.1: Proposed Wind Turbine Coordinates (subject to a 100 m micrositing allowance)

Turbine	Easting	Northing	Tip Height (m)
1	244863	847520	200
2	245014	846919	200
3	244392	847847	230
4	244442	846961	200
5	243983	847192	200
6	244320	846348	200
7	243735	845779	230
8	243703	846349	200
9	243700	847738	230
10	242959	847265	230
11	243181	846851	200
12	243091	845800	230
13	242801	846189	200
14	242310	846787	200
15	243056	847914	230
16	242375	847396	230
17	242295	847834	230
18	241638	847776	230
19	240986	847643	230
20	240370	847601	230

- 3.19 To carry the power generated to the local electricity network, each turbine would require a transformer to step up to a high voltage. Transformers will be internal to the turbine.
- 3.20 Monitoring and controlling the performance of the wind turbines would be achieved by way of a sophisticated Supervisory Control and Data Acquisition (SCADA) system. The

SCADA system would gather data from all the turbines and provide the facility to control them from a remote location. Communication cables connecting to each turbine would be buried in the electrical cable trenches to facilitate this.

Site Tracks

- 3.21 In summary the proposed development requires approximately 17km of new or upgraded tracks, which comprises:
- The construction of approximately 12km of new cut track;
 - The upgrade of approximately 5km of existing track;
 - The construction of approximately 2.01km of new floating track; and
- 3.22 Micrositing of 100m is sought for tracks as well as turbine positions in order to optimise post-Ground Investigation design and avoid any unforeseen constraints, and minimise cut and fill.
- 3.23 Where new sections of access track are required, whether cut or floating, these would have a running surface of approximately 6m with local widening at bends. The actual running width would be dependent on eventual turbine selection and manufacturer requirements. The routing of new access tracks has been designed to minimise track length, and to avoid environmental and technical constraints such as watercourse crossings and critical slope angles where practical to do so.
- 3.24 Following detailed Ground Investigation, localised re-profiling of existing tracks may be required to fulfil turbine manufacturer specifications on permissible gradients.
- 3.25 The construction of new cut tracks would involve the stripping and storage of topsoil and any peat deposits present (where applicable). Mineral soil and subsoil excavated during cut track construction would be set aside for re-use in site reinstatement at a later date. The crushed stone track would be laid to a nominal depth of up to 450mm and aggregates required for the access tracks would be obtained from the on-site borrow pits and/or local suppliers. The tracks would incorporate swales, cut-off ditches, settlement ponds and soakaways. All surface drainage will be controlled with regards to surface flow and sediment to ensure no untreated discharge to watercourses, even under heavy rain conditions. All drainage management mitigation will be carefully monitored daily by the Environmental Clerk of Works and suitably trained site staff.
- 3.26 The fill would be placed to a depth corresponding approximately to the original ground level. This would be levelled and compacted by compaction equipment and by the construction traffic that uses the track for access to the various parts of the Site.
- 3.27 Cross drains would be designed to divert the water at various points along the track alignment and to transmit it underneath the track. As far as is practicably possible, any water collected would be re-distributed via appropriately sized settlement ponds to replicate the original surface / sub-surface flows.

- 3.28 On completion of construction, the remaining excavated mineral soil and subsoil would be levelled alongside the access tracks or used to reinstate borrow pits. A typical new track cross section is shown on Figure 3.4.
- 3.29 Where new tracks are proposed across areas of peat deeper than 1m, floating construction techniques would be used. Generally, the process would incorporate an approximately 7m to 8m wide strip of geogrid laid on the surface of the turf. The additional width allows downward bearing pressure to be spread across the track rather than being focussed on a single line of soft substrate. A layer of approximately 700mm to 1000mm of crushed stone would then be laid on the geogrid to form the track, with the edges of the track forming batter slopes raised above the soft surface. The track would incorporate an upper layer of approximately 250mm hard-wearing rock and the geogrid system, which would be designed for floating road construction, would aim to avoid the potential for tracks to penetrate into the ground.
- 3.30 The batter described above will have excavated peat (layered as catotelm and then acrotelm) placed on top which would then be reseeded with native peatland species.
- 3.31 The access tracks would be retained throughout the operational life of the proposed development to enable maintenance of the turbines.

Turbine Compounds

- 3.32 At the location of each turbine foundation, a hardstanding area would be constructed to provide support for the cranes used for turbine erection. These hardstandings could also be used for storing turbine components, such as the nacelle, until they are installed. When not being used for turbine erection, the crane hardstanding may also be used as passing places at each turbine location where appropriate.
- 3.33 The layout of the turbine compound for this project is shown on Figure 3.7. Each hardstanding would cover an irregular shaped area of around 7,207m² to allow sections for cranes, laydown areas and turbine foundation, whilst the access road will pass through the centre of the compound.
- 3.34 Hardstandings are present for the main crane, an assist crane, for boom assembly and for the superlift ballast. The compound area also contains a storage and assembly area, a trestle area for blades and a storage area.
- 3.35 The hardstandings would be excavated to bedrock and any peat present would be appropriately stored and re-used (see Chapter 10: Geology, Hydrology and Hydrogeology).
- 3.36 The design of the wind turbine foundations would be a function of the loads from the turbine and the topographical, geotechnical and hydrological Site conditions. For the conditions typically encountered at the Site, the wind turbine foundations would likely be designed as reinforced concrete gravity structures and be subject to a final design depending upon ground conditions. A typical foundation for the size of turbine proposed for this project is shown on Figure 3.3.

- 3.37 The loads from the turbine, combined with the ground and hydrological conditions at the turbine location would also determine the overall size of the support structure.
- 3.38 Where the groundwater is below the bottom of the foundation, then the structure would be designed for dry and drained conditions, i.e. with no water pressure on the bottom of the foundation. Where there is a high groundwater table (above the underside of the foundation) the foundation would be designed for buoyant conditions arising from water pressure acting upwards on the underside of the structure. This would be subject to detailed Ground Investigation post-consent.
- 3.39 The first task in constructing each wind turbine foundation would be to remove any peat or mineral soil to the perimeter of the proposed foundation excavation, with the acrotelm and catotelm appropriately stored. The underlying subsoil would then be excavated to the required foundation depth, normally by conventional construction equipment. Excavated materials would be set aside for re-use as backfill around the foundation following completion of construction.
- 3.40 The foundation formation would then be prepared to receive concrete blinding by placing timber shuttering around the edge of the excavation. Concrete blinding would be poured on the foundation formation to level the area in preparation for fixing the steel reinforcement bars. The blinding would be a weak mix of concrete with low slump and would normally be placed fairly dry. Little if any loss of cement would therefore occur during placement of the lean-mix levelling layer.
- 3.41 A bottom mat of reinforcement would be placed on the weak mix concrete blinding. Additional reinforcement would be fixed to the bottom mat to form the main reinforcement cage for the foundation. Starter bars would then be fixed to the main cage to form the up stand, which would support the bottom tower section. Temporary shuttering would be placed on the reinforcement cage to ensure that there would be sufficient concrete cover to the top layer of steel. Side shuttering would also be positioned around the cage to form the sides of the concrete slab and to prevent loss of concrete and cement paste into the ground.
- 3.42 Concrete would then be poured to form the main slab either by a concrete pump or by being placed in small hoppers / skips that would be lifted over the area being concreted and then tipped. Conventional concrete lorries of approximately 8m³ capacity would be used for each foundation. During the pour, the concrete would be compacted using poker vibrators. As the concrete placements are completed, the temporary shuttering on the top steel would be removed, and the concrete tamped and floated to a smooth finish.
- 3.43 A curing compound is often used to stop the concrete drying out too quickly (which can lead to hairline cracking of the top surface). This is sprayed onto the surface concrete. Plastic sheeting or hessian may also be used to assist with curing of the concrete if considered appropriate. This reduces evaporation of water at the surface of the concrete and also assists in preventing shrinkage of cracking material.

Turbine Route to Site, Delivery and Erection

- 3.44 Turbines would likely be manufactured in Northern Europe and transported by boat to the Port of Nigg or Invergordon, where specialist vehicles would carry the blades and towers to site via police-escorted convoy. It is likely this would occur during the night to minimise disruption to residents and traffic.
- 3.45 The route to site is fully noted within Chapter 13: Transport and Access. Turbine components would land at either Port of Nigg or Invergordon, would travel south down the A9 to the Tore roundabout before heading west, passing Muir of Ord and Beauly before travelling along the A831 to the site entrance.
- 3.46 Mechanical installation would comprise the delivery and erection of turbine components at the turbine locations. Delivery of the turbine components would be undertaken by specialist contractors using purpose-built vehicles. Erection of the turbine components is normally undertaken by the turbine supplier using specialist heavy lifting subcontractors and cranes.
- 3.47 The connection of the tower to the foundation would be made by using holding down bolts or with a short cylindrical steel section embedded in the foundation slab. The choice of holding down system would depend on the wind turbine supplier. The sequence of construction of the connection between the tower and foundation depends on which system is used.
- 3.48 For a holding down bolt solution, the upstand foundation anchor bolt assembly would be placed, along with additional reinforcement in the upstand following completion of the base slab. At this stage, partial backfilling of the foundation would be undertaken to aid access to the turbine location during the rest of the foundation construction. Once the upstand reinforcement and anchor bolt assembly is complete, timber or steel shutters would be placed to form the upstand of the turbine foundation.
- 3.49 If the tower is connected to the foundation by a steel cylindrical section then the upstand reinforcement and holding down bolts would not be required. For this holding down solution, there would be only one phase of concrete pour because the embedded section would form a permanent shuttering for the mass concrete inside it.
- 3.50 Electrical ducts would then be placed through the shuttering and reinforcement (for the holding down bolt solution), or the steel cylinder. These would include conduits for the high and low voltage cables and earthing tapes. The configuration of the ducts and the earthing tape would depend on the turbine model being used and the nature of the electrical layouts. The holding down bolts are held in place within the shuttering by a template which would be fixed to the shuttering. Concrete would then be poured to form the foundation upstand. The upstand concrete would be compacted with poker vibrators in a similar way to that described for the base slab.
- 3.51 The wind turbine earthing ring and tails would then be placed within the backfill. In some cases, earthing rods would be needed around the foundations. The need for these would depend on the ground conditions at the Site. If required, they would be installed as self-boring rods, drilled into the ground, in contact with the weathered rock. The depth of the

rods would depend on the electrical characteristics of the ground. Once the earthing ring is completed, the cable ducts would be extended to the edge of the foundation and backfilling to the top of the upstand would commence.

- 3.52 The wind turbine foundation would then be backfilled. Weathered rock material from the foundation excavation would be used for the bulk of the backfill. It would then be placed in thin layers and compacted mechanically.
- 3.53 The bottom section of the wind turbine tower would be placed over the foundation bolts and fixed to the foundation. Cementitious grout would be placed between the bottom flange of the tower and the foundation. The grout would be retained in position by temporary formwork, which would prevent it from spilling outside the foundation. The material would be allowed to cure and the nuts would be tightened to pre-tension the bolts.
- 3.54 The area around each turbine tower and over the turbine foundations would be reinstated by using topsoil stripped during the foundation construction excavation and other surplus excavated material.

High Voltage Cabling

- 3.55 The turbines would be interconnected using armoured underground cables placed in trenches forming a power circuit within the Site. The underground cables would be taken into the on-site substation where the electrical control equipment would interface with the local distribution network.
- 3.56 The design of the high voltage (HV) cable trenches would be a function of the electrical rating of the cables, the ground conditions and the depth of protection required for the cables. The electrical rating and the ground conditions would provide data to assess the thermal performance of the cables. This would determine the likely spacing between each electrical circuit and therefore the width of the trench. Typical cable trench construction details are shown in Figure 3.8.
- 3.57 Cable trenches would be excavated using conventional construction equipment. The mineral soil would be dug out and set aside for re-use in the reinstatement of the trenches. The trench would then be excavated to the required overall depth. Subsoil material from the excavation would be temporarily stockpiled alongside the trench, but kept separate from any mineral soil. Detailed method statements for materials handling would be prepared in accordance with a restoration and management plan.
- 3.58 The cable would be placed on a bed of previously dug stone free excavated soil material. The trench would then be backfilled with excavated subsoil taken from the temporary stockpile alongside the trench and the top of the excavation reinstated with topsoil. Cable tiles or a warning marker tape would be laid in the trench during backfilling at a pre-specified depth. Any surplus excavated material would be stockpiled at an agreed location and used later in the reinstatement of the Site.

Site Substation – 132kV

- 3.59 The proposed development will potentially require a 90mx90m, 132kV substation compound which would be located to the north-east of the site as demonstrated within Figure 3.1. Within this there would be a requirement for a wind farm substation compound of 45m by 20m, with a separate compound belonging to SSE Networks which would be provided to their own specifications.
- 3.60 Wind farm substation buildings are typically of conventional masonry construction, on concrete foundations with a pitched roof constructed of trussed rafters finished in slates or tiles. A security slab of reinforced concrete can be incorporated into the roof construction. In most cases, cable ducts and trenches are formed in the slab of the building. The trenches can be up to 1.5m deep depending on the electrical requirements and the layout of the Site, and also on whether the switchgear in the control building utilises top or bottom entry cables. A typical substation building is illustrated on Figure 3.9.
- 3.61 The substation would house the switchgear and control equipment needed for the grid connection and would also provide some secure storage space that may occasionally be required for the wind farm. A typical substation floor and roof plan is illustrated in Figure 3.10. The building would not be permanently manned as the wind farm would be controlled remotely from a central control facility.

Watercourse Crossings

- 3.62 A total of 14 new watercourse crossings would be required, with further watercourse crossings on-site that may require to be upgraded. Technical Appendix 10.1 sets out a watercourse crossing inventory where requirements for each crossing are discussed in detail. The locations of these crossings can be viewed on Figure 3.1 within Volume 2 of this EIA Report.

Habitat Management

- 3.63 Habitat management proposals are required to provide enhancement of the natural environment during operation of the proposed development. These are fully described and explained within Technical Appendix 8.4 within a draft Habitat Management Plan (HMP). In outline, the measures include:
- Peatland Restoration measures;
 - New woodland and riparian planting;
 - Floating raft to enhance breeding opportunities for divers; and
 - Draft Deer Management Plan

Other Construction Considerations

- 3.64 All construction activities will be managed within the requirements of the Construction (Design and Management) Regulations 2015 and will not conflict with the Health and Safety at Work etc. Act 1974. The design of the Development has taken full account of these regulations

- 3.65 Best practice waste management guidelines and relevant regulations will be complied with as part of the construction programme. A Site Waste Management Plan (SWMP) will be prepared as part of the post-consent CEMP.

Pre-Construction Works

- 3.66 A detailed Construction Method Statement (CMS) would be produced by the construction contractors and agreed with the Council prior to the commencement of works. The CMS will typically include:
- A description of construction methods;
 - Pollution prevention measures, including dust, emissions, drainage design and materials management;
 - Water quality management and monitoring;
 - Mitigation measures;
 - Management of construction traffic (typically addressed separately in a traffic management plan);
 - Noise and vibration management; and
 - Public liaison.
- 3.67 Prior to commencement of construction, detailed Site surveys would be undertaken to provide data for the final design of the civil and electrical engineering infrastructure for the proposed development. These would comprise detailed topographical and geotechnical surveys and investigations.
- 3.68 The geotechnical survey would incorporate the excavation and sampling of trial pits at each turbine location and other infrastructure (e.g. substation) and possibly boreholes to obtain information about the underlying strata and groundwater conditions. This data will determine the need to microsite any infrastructure within the 100m tolerance.
- 3.69 All of the above will take cognisance of best practice guidance and be agreed with all applicable regulators.

Temporary Highway Works

- 3.70 Some off-site access works would be required including the temporary removal or relocation of street furniture, pruning/removal/replanting of shrubs/trees, and road widening. The detail of these enabling works would be provided in a detailed Traffic Management Plan, likely to be required by a condition to the consent.
- 3.71 Widening and resurfacing of the public road leading to the site entrance would also be required including the implementation of passing places. A running width of at least 5m would be required. Localised widening would be required on both sides of the road dependent on the position, so as to avoid watercourses and private property.
- 3.72 Should the proposed development obtain consent, a local planning application would be lodged for this localised widening following detailed analysis of ground conditions, vegetation and upon likely final turbine supplier.

Construction Works Duration and Sequencing

- 3.73 The exact commencement of construction works is not yet known given there is a long and complex series of consenting, grid works and procurement to complete. However, given a potential 18-month construction period, for the purposes of an EIA 'worst-case' scenario it is assumed that the earliest grid connection may be mid 2030's, and therefore the earliest construction could potentially commence is 2030.
- 3.74 There would be construction phasing, with civil engineering works progressing in some areas whilst turbines are being erected elsewhere. In order to minimise disruption to land use, site restoration would be undertaken as early as possible in development areas.
- 3.75 Should deemed planning permission be granted then, it is likely that construction hours would be restricted via means of a planning condition imposed by the Council as part of the consent.
- 3.76 At this stage it is proposed that construction activities on site shall only take place between the hours of 07:00 to 19:00 on Monday to Friday inclusive and 07:00 to 13:00 hours on Saturday, with no construction works on Sundays or Bank Holidays, unless otherwise agreed with the Council. Outside of these hours, there may be a requirement to take advantage of low wind speeds for the erection of turbines. In addition, turbine erection works cannot suddenly cease; in the event of a delay or complication it may be necessary to continue works beyond normal hours until they can end safely. Other activities that may take place outside these hours are limited to emergency works and dust suppression, unless otherwise agreed in writing by the Council.
- 3.77 It is proposed that the delivery of any construction materials or equipment, other than turbine blades, nacelles and towers, shall be restricted to the above hours, unless otherwise agreed in writing by the Council.
- 3.78 Depending on the time of year and the stage of the construction programme, temporary lighting may be required at the temporary compound and substation during working hours. It is not proposed that the lighting will be on outside of working hours, unless essential construction work outside normal working hours is required.

Construction Compound

- 3.79 The construction compound would be installed as soon as possible at the start of the construction phase, which would be the hub of construction operations.
- 3.80 The construction compound would be approximately 9,800m². The indicative location, shown in Figure 3.1, takes account of the local terrain and its distance from watercourses. Space would be provided for 'portacabin' style site offices; welfare and mess facilities; secure containers for tool and equipment storage; an area for the storage of various materials with bunding as required; and car parking areas. The compound would be secured by means of a perimeter fence and lockable gates if deemed necessary.
- 3.81 On completion of construction, the site compound would be removed and the area reinstated to its former condition in accordance with an approved method statement.

Energy Storage Compound

- 3.82 Prior to the commissioning of the wind turbines activities the Energy Storage Compound will be constructed using the western side of the temporary construction compound. Batteries would use lithium-ion technology and have been incorporated into wind farm developments for some time.
- 3.83 It is expected that there would be up to 5MW of battery storage capacity available.
- 3.84 Battery energy storage compound would be factory assembled and delivered to site in standard 12.2m long x 2.4m wide ISO shipping containers. Each container will be positioned on cast in-situ concrete foundations of approximately 1m² area, located at each corner of the container and centrally. The level of the foundations will be finished approximately 100mm above finished ground level to assist with drainage and air flow beneath the shipping container.
- 3.85 Battery containers will be positioned a minimum of 2.5m apart to facilitate access to all sides. Dependent upon design and manufacturer's requirements, access may be necessary from the sides of containers as well as from each end.
- 3.86 A Power Conversion System (PCS) container, of similar dimensions to the battery containers, would be located adjacent to each battery storage container. The contents of the container would be factory assembled and tested. Foundations for PCS containers would be similar to the battery containers. A transformer, located either within the PCS container or externally, would transform the LV to EHV or HV voltages depending on the voltage of the point of connection to the local network, or vice versa. The battery and PCS containers would be connected via underground cables. If the unit transformer is located externally, underground cables will connect the PCS and transformer. Underground cables would take power to and from the proposed wind farm control building. Switchgear, communications and protection equipment would be located within the proposed wind farm control building, located to the east. The battery containers, PCS and transformer(s) will be located within a secure compound fenced with steel palisade fencing 2.4m high. A standard double width gate would facilitate personnel and vehicle access into the compound. The compound would be surfaced with crushed aggregate, suitably compacted in layers and incorporating geotextile / geomembrane where necessary. The depth of the aggregate will be dependent upon the underlying geology and suitable to support all anticipated loadings with minimal deflection / rutting.

Concrete Requirements

- 3.87 Onsite batching will occur as the physical size of the compound can accommodate this and that the nearest ready-mix location is located some distance away which is suboptimal for mass concrete pours. It is assumed that this would occur within the construction compound area.

Maintenance

- 3.88 Wind farm maintenance would be carried out by the turbine supplier and later by suitably qualified contractors to carry out regular inspections and maintenance activities.

- 3.89 Routine maintenance and servicing would necessitate monthly visits to the Site by a maintenance crew (if necessary), typically two persons in a small van or similar sized vehicle. Maintenance staff would be able to park on the turbine compound for each turbine and would utilise access tracks for maintenance visits to the substation.
- 3.90 Routine servicing would include the performance of tasks such as maintaining bolts to the required torque, adjustment of blades and inspection of welds in the tower. In addition, oil sampling and testing from the main gearbox would be required and oil and components replaced at regular intervals.
- 3.91 In the event of any unexpected breakdowns on-site, such as the failure of a generator, appropriate maintenance works would be carried out as soon as practicable. The replacement of major components may require a crane and heavy transport vehicles.
- 3.92 On-going track maintenance, if required, would generally be undertaken in the summer months when tracks are dry. Safe access for maintenance purposes would be maintained all year round. Maintenance of the public access features, such as boards and bin emptying would occur regularly.

Commissioning of Mechanical and Electrical Equipment

- 3.93 The testing and commissioning of a wind farm is normally undertaken by the turbine supplier. It involves a series of tests on the high voltage electrical network, the electrical equipment in the turbines and control building and the SCADA system. No construction activities are required and it only entails the use of small vehicles.

Reinstatement and Removal of Temporary Works

- 3.94 On completion of construction, all temporary fencing and the temporary construction compound would be removed from Site and all areas disturbed by the works would be reinstated. Reinstatement works would be subject to a Construction Method Statement to be approved by the Council.

Construction Methodology and Programme

- 3.95 This chapter provides an outline description of the methodology and programme that would be employed during the construction phase of the proposed development.
- 3.96 It is estimated that the construction of the proposed development would take up to 18 months and would consist of the operations set out below.
- 3.97 The programme of construction deliveries shown in Table 3.2 has taken into account of all that is currently known about the Site and proposed development. The precise duration and timing of each activity may be modified, as necessary, to take into account the findings of the pre-construction works and surveys. The use of construction method statements through a planning condition will provide the detail design and time frame.

Table 3.2: Indicative monthly programme of construction activities

Activity	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Site Mobilisation																		
Required felling																		
Construction of main construction compound																		
Track and turbine compound construction																		
132kv Substation construction																		
Energy Storage Compound																		
Excavating trenches and laying electrical and communication cabling																		
Turbine delivery and installation																		
Turbine fit out, restoration and grid connection																		
Turbine commissioning																		

Wind Farm Operation

Operational Timescales and Decommissioning

- 3.98 Following construction and commissioning, the proposed development would be operational and generating electricity for a period of approximately 35 years, after which it would be decommissioned and removed, or alternatively, a further application could be made to extend the period of operation.
- 3.99 If a further application is not submitted, decommissioning would involve the total removal of above-ground infrastructure. This would involve retention of existing access tracks for estate operations. Reinstatement of the Site would be carried out in accordance with an approved method statement. A decommissioning bond would be agreed with the Council and this is expected to be enforced by way of an appropriately worded planning condition.

Maintenance

- 3.100 Wind farm maintenance would be carried out by the turbine supplier and later by suitably qualified contractors to carry out regular inspections and maintenance activities.
- 3.101 Routine maintenance and servicing would necessitate monthly visits to the Site by a maintenance crew (if necessary), typically two persons in a small van or similar sized vehicle. Maintenance staff would be able to park on the crane pad for each turbine and would utilise access tracks for maintenance visits to the substation.
- 3.102 Routine servicing would include the performance of tasks such as maintaining bolts to the required torque, adjustment of blades and inspection of welds in the tower. In addition, oil sampling and testing from the main gearbox would be required and oil and components replaced at regular intervals.
- 3.103 In the event of any unexpected breakdowns on-site, such as the failure of a generator, appropriate maintenance works would be carried out as soon as practicable. The replacement of major components may require a crane and heavy transport vehicles.
- 3.104 On-going track maintenance, if required, would generally be undertaken in the summer months when tracks are dry. Safe access for maintenance purposes would be maintained all year round.

Ballach Wind Farm

Environmental Impact Assessment Report Volume I Chapter 4: Design Evolution

July 2025

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Version Control Sheet

Date	Version	Prepared by	Checked By	Comments
13/06/25	1	CM	JMD	

4 DESIGN EVOLUTION

Introduction

- 4.1 This chapter describes the site selection and iterative design process that has concluded with the final design as described in Chapter 3: Project Description.

Design Strategy

- 4.2 The overall design layout principle of the Proposed Development has been to achieve a coherent and compact design, which minimises direct and indirect adverse effects on the local and wider landscape, while balancing commercial considerations and maximising energy production. Figures 3.1 and 4.3 show the final design layout submitted as part of this application.
- 4.3 The site boundary, whilst larger than turbine envelope, was drawn to allow flexibility in layout, infrastructure and for potential habitat management if required.

Site Selection Methodology and Alternatives

- 4.4 The overall approach to wind farm site selection is to identify areas of land where the siting of a wind farm would result in minimal environmental effects, be free from overriding technical constraints, and be economically viable. This involves:
- A review of the planning context for renewables in Scotland and at the local authority level;
 - A Geographical Information System (GIS) constraints analysis;
 - Analysis of wind speed data;
 - Consideration of proximity to potential electricity connection points; and
 - A review of suitable site access points and related transportation issues.
- 4.5 In reviewing the option of alternatives, the Proposed Development is the result of GIS 'sieve' mapping, whereby alternate areas for development have been scoped out as less suitable. This chapter describes this initial selection process, as well as the iterative design process which demonstrates the alternate plans considered before arriving at the proposed layout illustrated in Figure 3.1.

Review of Planning Context

- 4.6 Information on the planning context for renewables in the local planning authority of The Highland Council was reviewed as part of the site search exercise, focusing on the relevant Development Plans, national policy and other relevant material considerations. This exercise also highlighted any pertinent guidance or planning policies pertaining to The Highland Council which were applicable to the Proposed Development.

- 4.7 The Proposed Development is located in an undesignated area of the *Rugged Massif - Inverness* Landscape Character as defined by the NatureScot Landscape Character Assessment (2019), approximately 5.5km south-west of Muir of Ord in the Highlands.
- 4.8 The southwestern boundary of the Site is located adjacent to the Central Highlands Wild Land Area (WLA). None of the proposed turbines, however, are located within the WLA. There are a number of other designated landscapes within 45km including National Scenic Areas (NSAs) and Special Landscape Areas (SLAs).
- 4.9 National Landscape Designations (within 45km):
- Cairngorms National Park, located 43km to the south-east of the Site;
 - Glen Strathfarrar National Scenic Area (NSA), located 8km to the south-west of the Site;
 - Glen Affric NSA, located 23km to the south-west of the Site;
 - Wester Ross NSA, located 35km to the north-west of the Site;
 - Dornoch Firth NSA, located 42km to the north-east of the Site; and
 - Kintail NSA, located 43km to the south-west of the Site.
- 4.10 Local Landscape Designations (within 20km):
- Strathconon, Monar and Mullardoch Special Landscape Area (SLA), located 7.5km to the south-west of the Site;
 - Ben Wyvis SLA, located 14.5km to the north of the Site; and
 - Loch Ness and Duntelchaig SLA, located 15km to the south-east of the Site.

Wild Land Areas

- 4.11 There are eight WLAs within the 45km Study Area, the most relevant to the Proposed Development is the Central Highlands WLA, located adjacent to the south-west.

GIS Constraints Mapping

- 4.12 A GIS 'sieve mapping' exercise was carried out in order to further inform the search process. This involved identifying and mapping constraints to wind farm development in order to identify potential sites. The various constraints considered as part of the site selection exercise for the Proposed Development included but were not limited to:
- Radio and microwave signal – using known constraints to identify areas which could be affected by existing radio and microwave signals;
 - Aviation interests – including local licensed aerodromes and visibility to radars, both military and civilian;
 - Hydrological, geological and hydrogeological constraints – including effects on groundwater, water resources and local geology;

- Landscape designations – including National Parks, special landscape areas, and local landscape designations;
- Ecological designations – including Ramsar sites, Special Protection Areas, Special Areas of Conservation and Sites of Special Scientific Interest;
- Cultural heritage designations – including Gardens and Designed Landscapes, Registered Battlefields, World Heritage Sites, Listed Buildings, Properties in Care, Conservation Areas and Scheduled Ancient Monuments;
- Potential Grid Connection points - the capacity of the local grid network to accept the likely output from a proposed wind farm is critical to the technical feasibility of a development. The connection voltage and the distance from the wind farm can have a significant effect on the commercial feasibility of a development proposal; and
- The pattern of settlement – with buffers provided around residential properties and settlements.

Wind Speed Data

- 4.13 The predicted wind resource in any given location is an important consideration in identifying potentially suitable wind farm sites. The electricity that can be generated by a wind farm is directly linked to wind speed. Wind speed generally increases with height above ground level and the amount of electricity generated increases disproportionately with increases in wind speed. This in turn affects the carbon emission savings and the commercial viability of a site. Potential wind farm sites are therefore reviewed in relation to a number of publicly available data sources in the first instance, including the NOABL wind speed database¹.

Access Suitability

- 4.14 A desktop exercise was undertaken to ensure that appropriate access was available for the transportation of wind turbine components. Full details are provided in Volume 1, Chapter 12.

Selection of the Site

- 4.15 Following a site search based on this methodology and criteria, the Site was selected due to a number of factors, including:
- Energy capture – software modelling indicates that the Site offers a strong wind resource with few obstacles or areas of pronounced topography close enough to interrupt wind flow;
 - Environmental designations – the Site is sufficiently removed from any important statutory wildlife designations which could have the potential to constrain wind farm development;

¹ The NOABL wind speed database was created by the Department of Trade and Industry and provides annual mean wind speeds on a kilometre grid square basis.

- Landscape – the Site is sufficiently removed from any nationally or locally designated landscapes (if site is subject to localised designations, set this out and why it's appropriate to be within it);
- Residential separation distances – the Site is able to provide separation distances in excess of 1km from the nearest residential properties while having potential for a high installed capacity;
- Transport infrastructure – the Site benefits from suitable access for turbine component delivery; and
- Grid connection – the Applicant has consulted with the local Transmission Network Operator and National Energy System Operator (NESO) to accommodate the electricity generated by the Proposed Development.

Design Evolution

- 4.16 The design process took place over a number of months and the Proposed Development has been progressively revised and refined during this time to take account of the information arising from pre-application consultation with stakeholders, and the findings of the EIA. As a result, the design and EIA process has been highly iterative and all aspects of the final design, including the location of the wind turbines, crane hardstandings, the site access, layout of the access tracks, the locations of the substation and construction compound have been influenced by various technical, environmental and planning considerations.
- 4.17 The design of the Proposed Development has been optimised to produce a project which balances the use of land available with the overall impact of the development. This is based mainly on the following technical, economic and environmental considerations:
- Ground conditions and existing land use: the layout design minimises the impact to areas of peat. Watercourses and critical slope gradients have also been avoided where possible;
 - Residential properties: a residential buffer / stand-off distance of at least 1km from residential properties has been included;
 - Distance between turbines: to minimise the turbulent interaction between turbines they should be spaced in a suitable manner to minimise wind wake effects;
 - Environmental constraints: The assessment chapters of this EIA Report discuss these considerations and issues; and
 - Landscape and visual amenity: Chapter 6 of this EIA Report covers this in depth. The design of the Proposed Development seeks to match the turbines with the scale of the landscape. Due to the location of the site, the landscape and visual aspects of the proposal were key in designing the turbine locations and heights. Computer modelling was used as a tool to aid design and wireframes were generated for views from key locations around the Site.
- 4.18 The positioning of the turbines, through the design, has been continually altered to account for the proximity of constraints as these have been assessed, and as EIA studies have progressed. Stakeholder consultation has been based on both the milestone

iterations detailed below, and a number of other designs between principle iteration stages. The principle iterations are shown in Figures 4.1, 4.2, and 4.3.

Layout 1 – EIA Scoping

- 4.19 The First Iteration consisted of 36 wind turbines of up to 230m in height to blade tip, illustrated in Figure 4.1.
- 4.20 This layout was the basis for the Scoping Report submitted in August 2024 with the resultant Scoping Opinion provided by Scottish Ministers in November 2024. The Scoping layout presented a theoretical maximum number of turbines which could be accommodated on site and took account of the following environmental and technical constraints:
- Application of a 50m buffer on watercourses;
 - Application of a 2km residential buffer;
 - Ornithological considerations relating to the site;
 - Avoidance of ecological designations
 - Phase 1 peat depths; and
 - Landscape designations.
- 4.21 At this stage of the project, a key focus of this design was to determine landscape suitability whilst considering the initial buildability of the turbine locations.
- 4.22 This layout was also presented at a public exhibition, held in Kilmorack Village Hall in January 2025, where feedback from the local community was gathered.
- 4.23 During the first consultation period, feedback was provided by members of the public who attended, as well as feedback being received online (as set out within the accompanying PAC report). This feedback helped shape the emerging designs of the proposed development in a number of ways.
- 4.24 It was evident that the development site was popular for recreational purposes. Mountain biking, horse riding and walking. Given this, the design sought ways to ensure this would still be possible. This gave focus to the layout and design of the wind farm to ensure that public connectivity can still be achieved through the site to facilitate these pursuits. By utilising and upgrading many of the existing tracks on site, allowed the development to maintain accessibility for users of the area.
- 4.25 Feedback received on the number of turbines proposed, as well as the heights of turbines proposed was another topic which was raised during the consultation. This was taken into account at the next design review and saw a reduction in the number of turbines then being proposed.

Layout 2 – Pre Application

- 4.26 Illustrated in Figure 4.2, the Second Iteration comprised 24 wind turbines of up to 230m to blade tip, but with a number of turbines now lowered to 200m to blade tip. This layout was the basis for the pre-application sought from The Highland Council. The layout maintained

the buffers around watercourses and residential properties and also took account of ecological and ornithological onsite constraints. Following further survey works undertaken within the site boundary, the layout was amended to avoid areas of deep peat where possible, and areas of pocket bog. The angle of the slopes within the site boundary were also taken into consideration for construction purposes.

- 4.27 As a follow on from the initial discussions with the landscape officer at The Highland Council, and feedback from the community consultation feedback, further detail into views of the development from the wider highland area were considered. A design process was carried out with The Highland Council to ensure that a true representation of the development could be assessed from a variety of views within the 45km study area of the proposed development. As a result of this, a Viewpoint assessment list of 27 locations was agreed in accordance with the council and NatureScot. This also included nighttime viewpoint locations to capture the effects of visible aviation lighting in the hours of darkness. This was an increase in an additional 5 viewpoints from the list originally proposed at the initial design meeting with The Highland Council in August 2024.
- 4.28 Based on an updated ZTV (zone of theoretical visibility), we are able to identify areas on the map where it would be beneficial to reduce turbine visibility on receptors. Using a number of design mitigation techniques; the surrounding landscape, site topography, reducing the development area of the site and finally, reducing the turbine heights, it was possible to reduce the theoretical visibility of the proposal upon the study area.
- 4.29 Key examples of this included a significant reduction in views when viewed from the west of the site, notably the Glenstrathfarrar National Scenic Area, the Glen Affric National Scenic Area and the Central Highland Wild Land Area 24. By removing a number of turbines away from the western boundary of the site, and down the steeper areas of the site comprising the Beinn nam Fithich (493m AOD) saw a much visibly reduced development from these areas.
- 4.30 To the east of the site lay a number of populated settlements, firstly the local dispersed settlements of Torgormack, Breakachy and Kilmorack, to the larger villages of Beaully and Muir of Ord. Taking account of feedback from the first public consultation, a key theme was to reduce as best possible the visual impact of the proposed development for those living in these settlements. By moving placement of turbines away from the eastern edge of the site boundary, the views of turbines perceived from these settlements was reduced, benefiting from the screening of higher land between the site and these locations.
- 4.31 Consideration was also given to settlements north of the site, such as Fairburn, and Contin. Not only is Contin a village north of the site, but it is also located on the A835 and is popular route for road users heading to and from Ullapool. By reducing the number of turbines on the site, and by altering the heights of turbines along the northern boundary of the site helped to limit visibility from these locations, with no visibility from Fairburn and very limited views from Contin.
- 4.32 To the south of the site lie a number of designated hill fort assets, again these were a key factor in the redesign of the site based on inputs received during the Scoping Response from Historic Environment Scotland.

- 4.33 From a cumulative perspective, this layout was also influenced by the existing Fairburn Wind Farm, located to the north of the site, as well as the in scoping proposal “Fairburn Extension” which sits adjacently north of the site.
- 4.34 The second iteration of the proposal was then finalised and presented to the Highland at a formal pre application meeting, along with various statutory consultees who also attended. Wirelines and photomontages were prepared to test the visual effects from several locations and demonstrate areas within the study area where the development may have visibility.
- 4.35 Finally, infrastructure design for this layout was developed at this stage and sought to reduce the visual impact of onsite tracks, as well as take into account other constraints such as watercourses and deep peat. The infrastructure has also been designed to utilise as much of the existing on site track as possible, whilst still allowing these tracks to be utilised by the hill walkers, mountain bikers and horse riders who currently use this track to and from the Orrin Reservoir.

Layout Three – Application Layout

- 4.36 Illustrated in Figure 4.3, the Third Iteration comprised 20 wind turbines of up to 230m to blade tip. This composition of turbines resulted in an overall mix of 9x turbines at 200m to blade tip and 11x 230m turbines to blade tip.
- 4.37 Following further feedback from the pre-application process and public consultation exercises carried out, work was undertaken to determine the appropriate height for turbines, when combining predicted wind yield, commercial factors, transportation factors, visual impact, residential amenity and ecological and ornithological considerations. Cultural heritage considerations were considered throughout and phase 2 peat probing was undertaken to identify peat depths on and around turbine and infrastructure placement.
- 4.38 A review of the phase 2 peat depths allowed the final infrastructure layout to be designed around the final turbine positions, with the general principles of sufficient space and gradient for ancillary infrastructure generally followed throughout the turbine positioning process (i.e. turbines were not placed where it would be difficult to link them via road, for example).
- 4.39 The peat survey results showed that the majority of infrastructure had been placed on areas of no or shallow peat depths with the exception of a small number of changes:
- T20 crane pad moved slightly and track leading into new turning head at T20;
 - Track south of T9 moved by about 20m to east;
 - Turning head at T11 moved slightly north;
 - New additional turning head to SW of T5, and one directly south of T5 move slightly;

- Turning head south of T13 moved slightly south; and
- Substation moved slightly north to be on shallower peat.

4.40 These changes were consulted with SEPA following previous discussions to confirm acceptability of the proposal turbine layout and infrastructure before being finalised.

4.41 Infrastructure design is available in Figure 3.1 and is detailed further within the EIA Report, however the following can be noted as key design principles or notes:

- Track layout accommodates the abnormal loads associated with turbine deliveries. The exiting track dissecting the site will be upgraded with improvements to levels, widths and strengthening, to ensure where possible the track is being utilised and result in the creation of as little new track as possible on site.
- Crane pads have been positioned where possible to ensure that, when on steeper gradients, they will be cut into the land from rather than being raised resulting in more fill required on site.
- Watercourse crossings were minimised as far as possible, along with areas of deepest peat. This was agreed with SEPA during pre-application consultation.
- The substation compound was situated to the south of the proposed development in order to minimise the footprint of a grid connection corridor that will inevitably travel south – southeast.
- The borrow pit search areas identified on site have been selected to utilise areas where there is no or shallow peat and with availability suitable material that can be extracted to use on site with as little visual impacts as possible.

4.42 This 'final' design iteration was presented at public exhibitions with wire lines and photomontages produced to visually demonstrate the designs appearance from key viewpoints in the surrounding area. Information detailing the public exhibition and consultation process is displayed within the PAC report.

Summary of Design Evolution

4.43 The wind farm layout in its proposed form takes account of stakeholder feedback received during pre-application discussions, as well as environmental and technical constraints identified throughout the site selection and iterative design process. In designing a layout which is simple in composition and restrained in size, the final design results in a development which takes into account the constraints associated with the site.

4.44 Alternatives were considered during this process and addressed as described above. The proposed development was then frozen and taken forward for Environmental Impact Assessment as is discussed within this Volume.

Ballach Wind Farm

Environmental Impact Assessment Report Volume 1 Chapter 5: Renewable Energy and Planning Policy

July 2025

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5 RENEWABLE ENERGY AND PLANNING POLICY

Introduction

- 5.1 This chapter provides an outline of the national and local planning policies, guidance and other material considerations that are considered to be relevant in underpinning the EIA Report for the proposed development.
- 5.2 To maintain the impartiality of the Environmental Impact Assessment Report (EIA Report), this chapter does not assess whether the Proposed Development would comply with the identified policies. A separate Planning Statement which assesses the conformity of the Proposed Development with the Development Plan and other material considerations is also submitted as part of the planning application. The Planning Statement is separate from the EIA Report.
- 5.3 Whilst this EIA Report relates to an application for consent under Section 36 of the Electricity Act 1989 ('the Electricity Act'), deemed planning consent is also sought under Section 57(2) of the Town and Country Planning (Scotland) Act 1997 (as amended) (the TCPA).
- 5.4 While the Development Plan is the starting point for the decision-making process, it must be considered in the context of both the policy hierarchy (governed by Scottish Government policy) which in turn is informed by the wider suite of Scottish, UK and international policy and law relating to renewable energy development and climate change.
- 5.5 This review of the relevant policy and material considerations therefore adopts the following structure:

The Development Plan

- National Planning Framework 4 (NPF4, 2023);
- The Highland-wide Local Development Plan (2012);
- The Inner Moray Firth Local Development Plan (IMFLP (2024)); and
- Onshore Wind Energy: Supplementary Guidance (2016) with addendum, Dec 2017).

Material Planning Considerations

- Scottish and UK Renewable energy and climate change legislation and policy.

Planning Policy

The Development Plan

National Planning Framework 4

- 5.6 Formally adopted in February 2023, National Planning Framework 4 (NPF4) now forms part of the Development Plan alongside the LDP.
- 5.7 A key provision legislated within section 13 of the Planning (Scotland) Act 2019 is that Section 24 of the Town and Country Planning (Scotland) Act 1997 is now amended to state that in the event of any incompatibility between a provision of NPF4 and the provision of an LDP, then whichever of them is later will prevail.
- 5.8 NPF4 states that the global climate emergency has resulted in the need for reductions in greenhouse gas emissions and changes required to adapt to future impacts of climate change. NPF4 further states that while significant steps have been taken towards the decarbonisation of energy and land use, choices remain on how Scotland can sustainably utilise national assets.
- 5.9 This is reinforced by Scotland's Climate Change Plan, backed by legislation, which has set the approach to achieving net zero emissions by 2045, however significant progress towards this goal must be met by 2030.
- 5.10 NPF4 provides clear policy and legislative support for renewables and specifically onshore wind energy as a principle, in order to reach our Net Zero obligations by 2045 as set out in law.
- 5.11 The Scottish Government is clear and unequivocal about the requirement for new onshore wind generation through legislation and policy.
- 5.12 The inclusion of 'Strategic Renewable Electricity Generation and Transmission Infrastructure' as a 'national development' demonstrates the importance that the Scottish Government places upon the increase in onshore renewable generation. Annex B of NPF4 provides a statement of need. This states that "*a large and rapid increase in electricity generation from renewable sources will be essential for Scotland to meet its Net Zero emissions targets.*"
- 5.13 Wind farms in excess of 50MW generating capacity will comprise national development. The proposed development exceeds this threshold and therefore be classed as a national development. Page 97 of NPF4 sets out that national developments are described as "*significant developments of national importance that will help to deliver the spatial strategy*". It adds that "*their designation means that the principle for development does not need to be agreed in later consenting processes.*"
- 5.14 In conclusion, there is and remains a clear support at a national level for the further development of renewable and low carbon technologies however greater emphasis has been placed on the pace at which these technologies are rolled out. It is then appropriate to examine the contents of particular policies of NPF4.

- 5.15 **Policy 1: Tackling the climate and nature crises** acts as an overarching policy which in turn filters into each individual policy detailed within NPF4, stating that when considering all development proposals, significant weight should be given to the global climate and nature crises, in order to ensure that they are recognised as a priority in all plans and decisions.
- 5.16 The intent behind Policy 1 is to encourage, promote and facilitate development that addresses the global climate emergency and nature crisis. The proposed development inherently seeks to address the climate crisis by providing low carbon energy and reduces greenhouse gas emissions by contributing to a more sustainable energy mix across Scotland.
- 5.17 Therefore, NPF4 introduces a key, prominent policy which states that the global climate emergency is a priority, and significant weight must be attached to this. Onshore wind, as a national development, accords fully with the aspirations of this policy and can draw immediate and full support.
- 5.18 **Policy 2: Climate change and Mitigation** aims to encourage, promote, and facilitate development that minimises emissions and adapts to the current and future impacts of climate change. Policy 2 states:
- a) *Development proposals will be sited and designed to minimise lifecycle greenhouse gas emissions as far as possible.*
 - b) *Development proposals will be sited and designed to adapt to current and future risks from climate change.*
 - c) *Development proposals to retrofit measures to existing developments that reduce emissions or support adaptation to climate change will be supported.*
- 5.19 **Policy 3: Biodiversity** requires that “development proposals contribute to the enhancement of biodiversity, including where relevant restoring degraded habitats and building and strengthening nature networks”, integrating “nature-based solutions where possible”. It states that for national developments, proposals will only be supported where it can be demonstrated that the biodiversity resource is in a “demonstrably better state than without intervention”. The measures taken to do this must “be proportionate to the nature and scale of development” with those measures being able to be “secured within a reasonable timescale with reasonable certainty”.
- 5.20 **Policy 4: Natural Places** of NPF4 reinforces the need for the protection, restoration and enhancement of natural assets making best use of nature-based solutions. Part a) of this policy states that development proposals which would have an unacceptable impact upon the natural environment by virtue of type, location or scale will not be supported.
- 5.21 Criteria is provided for proposals that impact upon European or national designations, such as SACs, SPAs, National Parks, National Scenic Areas, SSSIs, Ramsar sites. Part d) discusses impacts upon local designations and states where a site is designated as a “local nature conservation site or landscape area in the LDP, it will only be supported where development will not have significant adverse effects on the integrity of the area and qualities for which it has been identified.” Part ii) of d) states the second criteria for support, which is where “any significant adverse effects on the integrity of the area are

clearly outweighed by social, environmental or economic benefits or at least local importance."

- 5.22 Part e) states that the precautionary principle is to be applied.
- 5.23 Part f) states that development proposals that are likely to have an adverse effect upon species protected by legislation will only be supported where it meets the statutory test.
- 5.24 **Policy 5: Soils** focuses on the protection of carbon-rich soils, the restoration of peatlands and the minimisation of disturbance to soils from development with wording as follows:

Development proposals on peatland, carbon-rich soils and priority peatland habitat will only be supported for:

- i) Essential infrastructure and there are a specific locational need and no other suitable site;*
- ii) The generation of energy from renewable sources that optimises the contribution of the area to greenhouse gas emission reductions targets;*
- iii) Small-scale development directly linked to a rural business, farm, or croft;*
- iv) Supporting a fragile community in a rural or island area; or*
- v) Restoration of peatland habitats.*

- 5.25 The design of the proposed development has aimed to maximise the most amount of renewable energy with the least amount of infrastructure possible. By applying this principle, the proposed development layout, including turbines and associated infrastructure, has been designed to avoid the areas of deep peat identified, wherever possible, and areas where peat landslide may occur.
- 5.26 **Policy 6: Forestry, Woodland, and Trees** states under part c) that proposals involving woodland removal will "only be supported where they achieve significant and clearly defined additional public benefits in accordance with relevant Scottish Government policy on woodland removal".
- 5.27 **Policy 7: Historic Assets and Places** details under part a) that "development proposals with a potentially significant impact on historic assets or places will be accompanied by an assessment which is based on an understanding of the cultural significance of the historic asset and/or place". Part h) is also useful and relevant, where it is stated the development proposals affecting scheduled monuments will only be supported "*where i) direct impacts on the scheduled monument are avoided, ii) significant adverse effects on the integrity of the setting are avoided or iii) exceptional circumstances have been demonstrated to justify the impact on a scheduled monument and its setting and impacts on the monument or its setting have been minimised*".
- 5.28 The key policy pertaining to energy is **Policy 11: Energy**, which contains the intent to 'encourage, promote, and facilitate all forms of renewable energy development onshore and offshore. This includes energy generation, storage, new and replacement transmission and distribution infrastructure and emerging low-carbon and zero emissions technologies including hydrogen and carbon capture utilisation and storage (CCUS).'

- 5.29 At a local level, the policy also states that Local Development Plans (LDPs) should seek to realise their areas' full potential for electricity and heat from renewable, low carbon and zero emission sources by identifying a range of opportunities for energy development.
- 5.30 Policy 11 a) sets out that development proposals for all forms of renewable, low-carbon and zero emissions technologies will be supported, which include:
- i) *wind farms including repowering, extending, expanding, and extending the life of existing wind farms;*
 - ii) *enabling works, such as grid transmission and distribution infrastructure;*
 - iii) *energy storage, such as battery storage and pumped storage hydro;*
 - iv) *small scale renewable energy generation technology;*
 - v) *solar arrays;*
 - vi) *proposals associated with negative emissions technologies and carbon capture; and*
 - vii) *proposals including co-location of these technologies.*
- 5.31 Policy 11 reiterates support for renewable and low carbon technologies, however there is a clear and direct reference to onshore wind farms, recognising this form of energy generation as a key component to achieving the outcomes of Policy 11 as well as wider overarching climate change policy and legislation which aim to expand renewable, low-carbon and zero emissions technologies at a national level.
- 5.32 While repowering, extensions and expansions are also supported, the creation of new onshore wind development must be supported to ensure there is a continued pipeline of new onshore wind farm schemes, such as the proposed development, which can be revisited for future repowering, extension, and expansion. In addition, the policy also includes support for battery storage which has been included as part of the development with 5MW of storage proposed.
- 5.33 Policy 11 (e) provides further information on the topics which should be addressed as part of renewable, low-carbon and zero emissions technologies. It states that:
- In addition, project design and mitigation will demonstrate how the following impacts are addressed:*
- i) *impacts on communities and individual dwellings, including, residential amenity, visual impact, noise, and shadow flicker;*
 - ii) *significant landscape and visual impacts, recognising that such impacts are to be expected for some forms of renewable energy. Where impacts are localised and/ or appropriate design mitigation has been applied, they will generally be considered to be acceptable;*
 - iii) *public access, including impact on long distance walking and cycling routes and scenic routes;*
 - iv) *impacts on aviation and defence interests including seismological recording;*
 - v) *impacts on telecommunications and broadcasting installations, particularly ensuring that transmission links are not compromised;*

- vi) *impacts on road traffic and on adjacent trunk roads, including during construction;*
- vii) *impacts on historic environment;*
- viii) *effects on hydrology, the water environment and flood risk;*
- ix) *biodiversity including impacts on birds;*
- x) *impacts on trees, woods, and forests;*
- xi) *proposals for the decommissioning of developments, including ancillary infrastructure, and site restoration;*
- xii) *the quality of site restoration plans including the measures in place to safeguard or guarantee availability of finances to effectively implement those plans; and*
- xiii) *cumulative impacts.*

- 5.34 Throughout the EIA Report, each topic listed within Policy 11 (e) has been fully assessed.
- 5.35 Policy 11 states that “in considering these impacts, significant weight will be placed on the contribution of the proposal to renewable energy generation targets and on greenhouse gas emission targets”.
- 5.36 A key point of policy is that Policy 11e) ii) recognises that where some landscape and visual impacts are to be expected, localised impacts and/ or the application of appropriate design mitigation has been employed, then effects are considered to be acceptable.

Highland-wide Local Development Plan

- 5.37 The Highland-wide Development Plan (HwLDP) was adopted in 2012 and sets out the general planning policies for the Highland Council area. The HwLDP should be read in conjunction with any Local plans which are still in place. The HwLDP is currently undergoing consultation with an anticipated adoption date of a new HwLDP expected in early 2028. Key consideration is therefore given to the existing plan and at this stage, limited weight can be given to the replacement plan.
- 5.38 The leading policy of the HwLDP which relates to Renewable Energy Development is **Policy 67: Renewable Energy Development.**
- 5.39 THC sets out their position in relation to renewable energy developments through this policy and supporting text. THC recognise the benefits associated with renewable energy developments and will seek to enter into agreements with developers on behalf of local communities for environmental and socio-economic purposes. THC acknowledge that socio-economic impacts that are related to the nature and scale of renewable energy development will be a material consideration in the assessment or determination of planning applications.
- 5.40 Policy 67 states that renewable energy developments should relate well to the source needed for its operation and that THC will consider:

- The contribution of the proposed development towards meeting renewable energy generation targets; and
 - Any positive or negative impacts it is likely to have on the local; and national economy.
- 5.41 The policy confirms that proposals will also be assessed against other policies of the Development Plan, the Highland Renewable Energy Strategy and the Onshore Wind Energy Supplementary Guidance and Planning Guidelines and will have regard to other material considerations, including proposals able to demonstrate significant benefits such as by making effective use of existing and proposed infrastructure or facilities. The Highland Council's Supplementary Guidance forms part of the development plan for THC and supplements the key principles of the Development Plan.
- 5.42 THC will support proposals where they are satisfied that they are located, sited, and designed such that they will not be significantly detrimental overall. Either individually or cumulatively with other developments having regard in particular to any of the significant effects on the following:
- Natural, built, and cultural heritage features;
 - Species and habitats;
 - Visual impact and impact on the landscape character of the surrounding area (reflecting the scale and character of the landscape seeking to minimise landscape and visual impact, subject to any other considerations);
 - Amenity at sensitive locations (including residential properties, workplaces, recognised visitor sites);
 - Safety and amenity of (regularly) occupied properties and grounds in relation to noise, ice throw, shadow flicker and shadow throw;
 - Ground and surface water, aquatic ecosystems, and fisheries;
 - Aviation, defence, or emergency service operations, including flight activity, navigation and surveillance systems and associated infrastructure or on aircraft flight paths or MoD low-flying areas;
 - Other communications installations or the quality of radio or TV reception;
 - The amenity of users of any Core Path or other established public access for walking, cycling or horse riding;
 - Tourism and recreation interests; and
 - Land based traffic and transport interests.
- 5.43 Policy 67 includes a requirement that seeks the removal of the development and associated equipment typically restoration of the site.
- 5.44 Proposals for the extension of existing renewable energy facilities will be assessed against the same criteria and material considerations as apply to proposals for new facilities. In all cases, if consent is granted, THC will approve appropriate conditions relating to the removal of the development and associated equipment and to the restoration of the site, whenever the consent expires, other than in circumstances where fresh consent has been secured to extend the life of the project, or the project ceases to operate for a specific period

5.45 The Onshore Wind Energy Supplementary Guidance (THC 2016) replaced parts of the Highland Renewable Energy Strategy (THC 2016). It identifies areas to be afforded protection from wind farms; other areas with constraints; and broad areas of search for wind farms (as per the Scottish Planning Policy (2014) document that guided it). It sets out criteria for the consideration of proposals. It seeks to ensure that developers are aware of the key constraints to such development and encourage them to take those constraints into account at the outset of the preparation of proposals. It seeks to steer proposals, especially those for larger wind farms, away from the most constrained areas and ideally towards the least constrained areas and areas of particular opportunity. It also sets out criteria which will apply to the consideration of proposals irrespective of size and where they are located, enabling proposals to be considered on their merits. It seeks submission as part of the planning application of key information required for the assessment of proposals and provide certainty for all concerned about how THC will consider applications.

5.46 Other relevant policies within the HwLDP are detailed below, listed by the general EIA topic applicable.

Landscape and Visual / Design

5.47 **HwLDP Policy 28: Sustainable Design** states that “The Council will support development which promote and enhance the social, economic and environmental wellbeing of the people of Highland”.

5.48 The policy notes that the impact of proposals on individual and community residential amenity will be considered. Reference is also made to sensitive siting considerations as well as the impact on various resources including habitats, Freshwater systems, Species, Landscape, Cultural Heritage, and Scenery.

5.49 **HwLDP Policy 29: Design Quality and Place-making** details that “Applicants should demonstrate sensitivity and respect towards the local distinctiveness of the landscape”.

5.50 **HwLDP Policy 30: Physical Constraints** states that ‘Developers must consider whether their proposals would be located within areas of constraints as set out in Physical Constraints: Supplementary Guidance. The main principles of the guidance are:

- to provide developers with up-to-date information regarding physical constraints to development in Highland; and
- to ensure proposed developments do not adversely affect human health and safety or pose risk to safeguarded sites.

5.51 Where a development is affected by any of the constraints detailed within the guidance, developers must demonstrate compatibility with the constraint or outline appropriate mitigation measures to be provided.’

5.52 **HwLDP Policy 36: Development in the Wider Countryside** for the purpose of this policy is defined as ‘outwith Settlement Development Areas’ and proposals will be assessed for the extent to which they are acceptable in relation to a number of criteria including

siting and design, compatibility with landscape character, capacity, and development which would address drainage constraints.

- 5.53 **HwLDP Policy 61: Landscape** advises that “*New developments should be designed to reflect the landscape characteristics and special qualities identified in the Landscape Character Assessment of the area in which they propose*”.
- 5.54 This will include consideration of the appropriate scale, form, pattern, and construction materials, as well as the potential cumulative effect of developments where this may be an issue.’

Ecology and Ornithology

- 5.55 **Policy 51: Trees and Woodland** states that trees, woodland, and hedges will be protected and where appropriate a woodland management plan will be required to secure management of an existing resource. Where required, additional tree/hedge planting will be requested to compensate removal, as per the requirements of THC’s Trees, Woodland, and Development Supplementary Guidance.
- 5.56 **Policy 58: Protected Species** details that ‘Where there is good reason to believe that a protected species may be present on site or may be affected by a proposed development, we will require a survey to be carried out to establish any such presence and if necessary, a mitigation plan to avoid or minimise any impacts on the species, before determining the application.
- 5.57 Development that is likely to have an adverse effect, individually and/or cumulatively, on European Protected Species will only be permitted where:
- There is no satisfactory alternative;
 - The development is required for preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment; and
 - The development will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.
 - Development that is likely to have an adverse effect, individually and/or cumulatively, on protected bird species will only be permitted where:
 - There is no other satisfactory solution; and
 - The development is required in the interests of public health or public safety.
- 5.58 This will include but is not limited to avoiding adverse effects, individually and/or cumulatively, on the populations of the following priority protected bird species:
- Species listed in Annex 1 of the EC Birds Directive;
 - Regularly occurring migratory species listed in Annex II of the Birds Directive;
 - Species listed in Schedule 1 of the Wildlife and Countryside Act 1981 as amended; and
 - Birds of conservation concern.

- 5.59 Development that is likely to have an adverse effect, individually and/or cumulatively on other protected animals and plants will only be permitted where the development is required for preserving public health or public safety.'
- 5.60 **Policy 59: Other Important Species** stipulates that "The Council will have regard to the presence of and any adverse effects of development proposals, either individually and/or cumulatively, on the Other Important Species which are included in the lists below, if these are not already protected by other legislation or by nature conservation site designations:
- *Species listed in Annexes II and V of the EC Habitats Directive;*
 - *Priority species listed in the UK and Local Biodiversity Action Plans;*
 - *Species included on the Scottish Biodiversity List.*
- 5.61 THC will use conditions and agreements to ensure detrimental effect on these species is avoided."
- 5.62 **Policy 60: Other Important Habitats** states that 'The Council will seek to safeguard the integrity of features of the landscape which are of major importance because of their linear and continuous structure or combination as habitat "stepping stones" for the movement of wild fauna and flora (Article 10 Features). The Council will also seek to create new habitats which are supportive of this concept.
- 5.63 The Council will have regard to the value of the following Other Important Habitats, where not protected by nature conservation site designations (such as natural water courses), in the assessment of any development proposals which may affect them either individually and/or cumulatively:
- Habitats listed in Annex I of the EC Habitats Directive;
 - Habitats of priority and protected bird species (see Glossary);
 - Priority habitats listed in the UK and Local Biodiversity Action Plans;
 - Habitats included on the Scottish Biodiversity List.
- 5.64 THC will use conditions and agreements to ensure that significant harm to the ecological function and integrity of Article 10 Features and Other Important Habitats is avoided. Where it is judged that the reasons in favour of a development clearly outweigh the desirability of retaining those important habitats, THC will seek to put in place satisfactory mitigation measures, including where appropriate consideration of compensatory habitat creation.'

Geology, Hydrology and Soils

- 5.65 **Policy 55: Peat and Soils** states that development proposals should demonstrate how they have avoided unnecessary disturbance, degradation or erosion of peat and soils.
- 5.66 **Policy 63: Water Environment** states that 'The council will support proposals that do not compromise the objectives of the Water Framework Directive (2000/60/EC), aimed at the protection and improvement of Scotland's water environment'.

- 5.67 **Policy 64: Flood Risk** requires development proposals within or bordering medium to high-risk flood risk areas will need to demonstrate compliance with Scottish Planning Policy through the submission of suitable information which may take the form of a Flood Risk Assessment.
- 5.68 **Policy 66: Surface Water Drainage** requires that 'All proposed development must be drained by Sustainable Drainage Systems (SuDS) designed in accordance with The SuDS Manual (CIRIA C697) and, where appropriate, the Sewers for Scotland Manual 2nd Edition. Planning applications should be submitted with information in accordance with Planning Advice Note 69: Planning and Building Standards Advice on Flooding paragraphs 23 and 24. Each drainage scheme design must be accompanied by particulars of proposals for ensuring long-term maintenance of the scheme.'
- 5.69 **Policy 72: Pollution** states that 'Proposals should demonstrate the level of impact that they may have on the environment with regard to these types of pollution and if the impact is likely to be significant then how it could be mitigated'.

Cultural Heritage

- 5.70 **Policy 57: Natural, Built and Cultural Heritage** sets out a number of considerations which development proposals will have to take into account in order to ensure the protection heritage features. These features fall into three categories:
1. Local/regional importance: development must not have an unacceptable impact on the natural environment, amenity, and heritage resource;
 2. National importance: any significant adverse effects must be clearly outweighed by social or economic benefits of national importance; and
 3. International importance: Where THC are unable to ascertain that a proposal will not adversely affect the integrity of a site, it will only be allowed if there is no alternative solution and that there are 'imperative' reasons of overriding public interest. The policy states 'Where a priority habitat or species (as defined in Annex 1 of the Habitats Directive) would be affected, development in such circumstances will only be allowed if the reasons for overriding public interest relate to human health, public safety, beneficial consequences of primary importance for the environment, or other reasons subject to the opinion of the European Commission (via Scottish Ministers). Where we are unable to ascertain that a proposal will not adversely affect the integrity of a site, the proposal will not be in accordance with the development plan within the meaning of Section 25(1) of the Town and Country Planning (Scotland) Act 1997'.

Other Issues

- 5.71 **Policy 77 Public Access** states that 'Where a proposal affects a route included in a Core Paths Plan or an access point to water, or significantly affects wider access rights, then The Council will require it to either:
- retain the existing path or water access point while maintaining or enhancing its amenity value; or

- ensure alternative access provision that is no less attractive, is safe and convenient for public use, and does not damage or disturb species or habitats.

5.72 For a proposal classified as a Major Development, the Council will require the developer to submit an Access Plan. This should show the existing public, non-motorised public access footpaths, bridleways, and cycleways on the site, together with proposed public access provision, both during construction and after completion of the development (including links to existing path networks and to the surrounding area, and access point to water).'

The Inner Moray Firth Local Development Plan (IMFLP)

- 5.73 The IMFLP was adopted by THC in July 2024 and sets out the policies and land allocations to guide development in the area over a 10-year period.
- 5.74 The IMFLP sets out a strategic vision for the area and includes a number of development allocations. The Plan does not include any specific designations or planning policies relating to onshore wind energy developments or the Site.
- 5.75 The IMFLP is not accompanied by any relevant appropriate supplementary guidance.

Onshore Wind Energy: Supplementary Guidance (2016)

5.76 In addition to the local development plans, The Highland Council have issued the "Onshore Wind Energy: Supplementary Guidance, November 2016" and "Addendum Supplementary Guidance: Part 2b Highland Strategic Capacity December 2017", hereafter referred to as the "Supplementary Guidance", which set out how Highland Council will manage onshore wind energy development proposals in line with Section 22 of the Town and Country Planning (Scotland) Act 1997 as amended by the Planning etc. (Scotland) Act 2006.

Landscape and Visual

- 5.77 The EIA Report should illustrate the design process undertaken to avoid and mitigate any significant adverse landscape and visual effects. The following key aspects (as listed in paragraph 4.11 of the SG) may be relevant in the assessment of a proposal and should be considered when preparing an application:
- The capacity of the local landscape character (as defined within a Landscape Character Assessment) to accommodate the proposal;
 - Special Landscape Areas;
 - National Parks or National Scenic Areas and mapped wild land areas;
 - Settlement and residential buildings – developments should not be 2 km from either, unless proper consideration for any adverse effects can demonstrated, and those effects minimised or mitigated; and
 - Impact to important public views – e.g. popular viewpoints, road network, tourist routes, public footpaths, core paths and other recognised visitor locations.

5.78 As stated in Paragraph 4.14 of the SG, “where effects are unavoidable, appropriate mitigation will be required to overcome or otherwise minimise impacts. For example, this may include:

- Careful siting of turbines to seek to reduce overall impact of the scheme;
- Amending turbine configurations, including hub height, rotor diameter, and blade rotation speed;
- Adjusting the number of turbines;
- Considering turbine colour, including any variation from the typical off-white/ pale grey colours;
- Design and arrangement of any lighting required to minimise its impact;
- Undergrounding of any power lines connecting individual turbines to any on-site sub-station;
- Undergrounding or sensitive treatment of those power lines connecting any wind farm sub- station to the electricity distribution system;
- Arrangements for any transformers for individual turbines (the Council expects these to be accommodated and enclosed within the turbine mast in order to reduce the landscape and visual impact of the development);
- Length, route, visibility, methods, and materials used in the construction of access tracks.”

5.79 The Supplementary Guidance also states that the following criteria detailed in Table 5.1 “do not set absolute requirements, but rather seek to ensure developers are aware of key potential constraints to development.”

Table 5.1: Landscape & Visual Criteria in Section 4 of the Supplementary Guidance.

Criteria	Measure	Development Threshold
Criterion 1: Relationship between Settlements/Key locations and wider landscape respected.	The extent to which the proposal contributes to perception of settlements or key locations being encircled by wind energy development	Turbines are not visually prominent in the majority of views within or from settlements/Key Locations or from the majority of its access routes.
Criterion 2: Key Gateway locations and routes are respected.	The extent to which the proposal reduces or detracts from the transitional experience of key Gateway Locations and routes.	Wind Turbines or other infrastructure do not overwhelm or otherwise detract from landscape characteristics which contribute the distinctive transitional experience found at key gateway locations and routes
Criterion 3: Valued natural and cultural landmarks are respected	The extent to which the proposal affects the fabric and setting of valued natural and cultural landmarks	The development does not by its presence, diminish the prominence of the landmark or diminish its relationship to its setting.
Criterion 4: The amenity of key recreational routes and	The extent to which the proposal affects the amenity of	Wind Turbines or other infrastructure do not

Criteria	Measure	Development Threshold
ways is respected.	key recreational routes and ways (e.g. Core Paths, Munros and Corbetts, Long Distance Routes etc.)	overwhelm or otherwise significantly detract from the visual appeal of key routes and ways
Criterion 5: The amenity of transport routes is respected	The extent to which the proposal affects the amenity of transport routes (tourist routes as well as rail, ferry routes and local road access)	Wind Turbines or other infrastructure do not overwhelm or otherwise significantly detract from the visual appeal of transport routes
Criterion 6: The existing pattern of Wind Energy Development is respected	The degree to which the proposal fits with the existing pattern of nearby wind energy development, considerations include: ▪ Turbine height and proportions, ▪ density and spacing of turbines within developments, ▪ density and spacing of developments, ▪ typical relationship of development to the landscape. ▪ previously instituted mitigation measures ▪ Planning Authority stated aims for development of area	The proposal contributes positively to existing pattern or objectives for development in the area.
Criterion 7: The need for separation between developments and/ or clusters is respected	The extent to which the proposal maintains or affects the spaces between existing developments and/ or clusters	The proposal maintains appropriate and effective separation between developments and/ or clusters
Criterion 8: The perception of landscape scale and distance is respected	The extent to which the proposal maintains or affects receptors' existing perception of landscape scale and distance.	The proposal maintains the apparent landscape scale and/or distance in the receptors' perception.
Criterion 9: Landscape setting of nearby wind energy developments is respected	The extent to which the landscape setting of nearby wind energy developments is affected by the proposal.	Proposal relates well to the existing landscape setting and does not increase the perceived visual prominence of surrounding wind turbines.
Criterion 10: Distinctiveness of Landscape character is respected	The extent to which a proposal affects the distinction between neighbouring landscape character types, in areas where the variety of character is important to the appreciation of the landscape.	Integrity and variety of Landscape Character Areas are maintained.

Public Access

- 5.80 The Supplementary Guidance (THC, 2016) states that all proposals should seek to avoid significant adverse impacts on the quality and quantity of public access including any impact on a route included in a Core Paths Plan, an access point to water, wider access rights or Rights of Way as provided by the Scottish Rights of Way Society (refer to Chapter 13 of this EIAR, Socio Economic & Tourism Assessment).
- 5.81 THC encourage the improvement of path networks and creation of new access opportunities. THC also encourage the erection of information boards at entrances to sites to make members of the public aware of relevant information and any potential risks.
- 5.82 Should any negative impacts upon public access be identified through the EIA process then appropriate mitigation should be undertaken, including the following:
- “Retention of any existing path or water access point while maintaining or enhancing its amenity value; or
 - Alternative access provision maintaining the same level of amenity, safety, and convenience for public use.”
- 5.83 An Access Plan illustrating the existing public, non-motorised public access footpaths, bridleways and cycleways on the site, together with proposed public access provision, both during construction and after completion of the development (including links to existing path networks and to the surrounding area, and access points to water) should be provided for any Major Development.
- 5.84 The right of responsible access must be maintained during construction. Reference should be made to the SNH’s Guidance for the Preparation of an Outdoor Access Plan (SNH, 2010) and The Land Reform (Scotland) Act 2003.

Noise Assessment

- 5.85 Noise assessments submitted in support of applications for large wind turbines (rotor diameter >16m) should be undertaken in accordance with ETSU-R-97 and the Institute of Acoustics “Good Practice Guide”. The Noise Assessment for the proposed development can be found in Chapter 11.
- 5.86 Assessment of proposals by THC will focus on the following key principles:
- a) “Highland Council's expectation is that all proposals will seek to achieve noise limits at sensitive locations that are at the lower end of the range indicated in national guidance, and we may seek limits lower than that in certain circumstances. This is because, in effect, national guidance addresses an average and therefore does not account for Highland's generally lower level of background noise. For example, Highland has a generally low density of development and less noise-generating industry and transport infrastructure, with certain features like motorways not present. The specific limit will depend on area specific factors and applicants are strongly encouraged to engage with the Council at the earliest opportunity to discuss noise limits of their proposal.

- b) Further to the above, the selection of proxy background monitoring locations should also reflect this approach. Monitoring locations should be chosen which have very similar characteristics to the properties they will represent. Where such locations do not exist or cannot be used, the expectation is that monitoring locations with the lowest background levels will be chosen to represent other properties. Applicants are advised to liaise with the Council to discuss monitoring locations prior to installation of equipment.
- c) Where noise from more than one wind turbine development may have a cumulative impact at any noise sensitive location, applicants must ensure this is adequately assessed in accordance with best practice, which includes consideration of both predicted and consented levels.
- d) Research into amplitude modulation is ongoing and currently there is no accepted best practice for measuring, monitoring, or setting limits. Should any such guidance become available, Highland Council will expect developers to follow its recommendations."

Natural and Historic Environment

5.87 To comply with the supplementary guidance, developments should:

- Provide sufficient information to enable the Council to carry out an appropriate assessment to determine whether significant effects are likely;
- Consider Special Landscape Areas within the Highlands where relevant;
- Demonstrate there will be no impact to the natural environment resources of Highland;
- Avoid significant adverse effects on the siting, context or setting of historic environment assets;
- Seek to avoid any adverse impacts on species protected within the HwLDP. This includes those in Schedule 2 and 4 of the Conservation (Natural Habitats. &c.) Regulations 1994 as amended (European Protect Species); and
- Consider impacts to the wider natural heritage beyond designated areas, including.

Operational Efficiency of Other Communications

5.88 The siting of wind turbines must have regard to radio, TV, telecoms, and other communication systems.

5.89 Developments shall be assessed by consultation with relevant operators.

5.90 Planning conditions or legal agreements may require developers to correct any electromagnetic interference at their own expense. The Joint Radio Company should be contacted for joint screening for telemetry or microwave links in use by either electricity or gas utilities.

Operational Efficiency of Wind Energy Developments

5.91 Existing and consented wind farms' operational efficiency should not be compromised by adjacent development proposals. For example:

- where a new adjacent wind farm proposal could reduce the wind resource of the existing or consented scheme;
- where a new adjacent proposal for another type of use, for example a large industrial building, could reduce the wind resource of the existing or consented scheme; or
- where there is an allocated development site for another type of use (e.g. an allocated housing site in an adopted Local Development Plan) that may have the potential to limit the efficiency of the proposal (e.g. by requiring mitigation).

- 5.92 Mitigation measures should be proposed only as a last resort as this has potential to adversely impact on the efficiency of the scheme.
- 5.93 To find out more about the location of windfarm developments and proposals, applicants should refer to the Highland Windmap and the Council's ePlanning webpages.

Water Environment

- 5.94 The Proposed Development should consider the requirements of the Water Framework Directive and show how no significant adverse effects will occur individually or cumulatively on the water environment.
- 5.95 There should remain a minimum buffer of 50m between any works and the water environment.
- 5.96 Where impacts on the water environment cannot be avoided, developers will be expected to demonstrate how these impacts will be mitigated. The water environment includes ground water, surface water (including water supplies), and groundwater dependent terrestrial ecosystems. The measures proposed to protect the environment during construction should be included in a Construction Environmental Management Plan and a detailed Schedule of Mitigation (SoM). SEPA's Planning Guidance on Windfarm Developments (39) provides detailed advice.
- 5.97 SEPA, Scottish Water and other relevant should be consulted prior to submission of the planning application to discuss their proposals and to ensure they meet necessary requirements. This opportunity may be available through the 'Pre-application Advice' service The Highland Council provides.

Peat

- 5.98 Geotechnical and hydrological information regarding peat should be provided. Including the risk of landscape and identify the presence of peat on site.
- 5.99 The following key factors will be taken into account by THC where a proposed development has potential to affect peat and should be included within the Peat Management Plan (PMP) and CEMP Plans:
- Site investigation should begin early in the EIA design process. Where peat is found to be present on site, geotechnical and hydrological information, including information

on the risk of landslide and peat slide related to the development should be provided.

- Peat survey and site assessment should inform the siting and design of wind turbines and all associated infrastructure. Through this assessment, impacts on peat should be avoided, for example, by careful siting of the windfarm components to avoid deep peat, and avoid altering hydrological regimes. The information gathered for such site options should be clear, concise and shows detailed mapping of peat depth and all proposed development activities together (e.g. Turbines, access tracks and proposed borrow pits), as well as details of the basic peatland characteristics.
- The 'carbon rich soils, deep peat and priority peatland habitat (CPP)' map produced by SNH should be taken into consideration. Classes 1 & 2 on that map are a Group 2 constraint in the Spatial Framework, a nationally important mapped environmental asset. The map indicates where the resource is likely to be found and should be used to guide development away from the most sensitive resources. Therefore, if a proposal is brought forward in an area identified as CPP, and it is found that the development will be located on carbon rich soils, deep peat or priority peatland habitat, it is unlikely to be supported unless it can be demonstrated through the Environmental Impact Assessment process that any significant effects on the qualities of the area(s) can be substantially overcome through siting and design or by suitable mitigation. Impacts must consider all stages from project inception to wind farm operation and decommissioning.
- Mitigation of effects on peat and mapped CPP may include construction methods such as the use of floating tracks or piling for turbine foundations. It may also take the form of habitat restoration or habitat improvements, which may be achieved in areas of the site not being developed, and possibly on other peatland sites. Proposed restoration and improvements should be presented in a draft Habitat Management Plan that provides sufficient information to demonstrate how proposals will be implemented and managed.
- When considering applications, The Highland Council will expect to receive clear information about the whole life carbon balance of the proposal. This can be undertaken, for example, by using a 'Carbon Calculator.' Schemes applying under Section 36 of the Electricity Act (1989) are required to use the carbon calculator."

Safety and Amenity at Sensitive Locations

5.100 Highland Council 'consider all residential buildings to be particularly sensitive to wind energy development' and so developers are expected to 'clearly demonstrate how potential impacts on amenity have been avoided or mitigated against' if the development is within 2km of residential buildings and settlements. Developments should also consider:

- Landscape and Visual Impacts-All proposals should seek to avoid or mitigate impacts on landscape and visual amenity. The principles guide assessment of these issues is set out in the 'Landscape and Visual Effects' section of the Supplementary Guidance;
- Noise – a full assessment should be completed using the recommended methodology;

- Shadow Flicker – THC recommend that developments are located at least 11 rotor diameters from nearby residential properties;
- Safety – Turbines should be located at least a distance equal to twice the height of the turbine to blade tip from public roads and railways; and
- Mitigation by conditions- THC may impose planning conditions to ensure adequate mitigation of impacts on amenity at sensitive locations. Scottish Government's planning advice discusses these matters further and provides further guidance and assessment methods.

Tourism and Recreation

5.101 Consideration must be given to how a development will influence tourism and recreation within the local area (and this is covered in Chapter 13 of this EIAR). As a result, the following factors will be taken into consideration by THC when assessing the proposed development:

- a) Relevant research into the potential effects of wind farms on tourism and recreation (for example, Scottish Government's commissioned report into the economic impacts of wind farms on Scottish tourism and Visit Scotland's Wind Farm Consumer Research (2011));
- b) The potential for socio-economic benefits to be derived from development proposals, for example, evidence of community benefit discussions. Further information can be found in the section on 'Socio-economic benefits of onshore wind development';
- c) The potential for effects on industries for which Highland's landscape is important - for example tourism and recreation; and
- d) The potential for secondary effects for tourism and recreation, such as a change in land use that causes adverse effects, for example, a change from forestry to a wind farm, or where there are potential benefits like improved public access in the area.

Airport, Defence and Emergency Service Operations

5.102 All proposals should seek to avoid significant adverse effects, individually and cumulatively, on airport, defence, or emergency service operations. This includes flight activity; navigation and surveillance systems; and associated infrastructure. This is covered in Chapter 13 of this EIAR.

5.103 The following factors should be taken into consideration by developers when designing and siting the proposed development:

- MOD Safeguarding Extents;
- Health and Safety Executive Safeguarding Zones;
- NATS En Route Plc Safeguarding Maps;
- Department of Trade and Industry 'Wind Energy and Aviation Interest – Interim Guidance;'
- Airport Safeguarding Surfaces; and
- Private Airfields.

Traffic and Transport

- 5.104 The Supplementary Guidance suggests that development sites should be ideally 'chosen where the road network has suitable alignment, width and strength to carry abnormal loads, and the construction traffic associated with the scale of the development proposed.'
- 5.105 Proposals for the use of the public roads and mitigation works will require the approval of the Roads Authority. Developers will be required to enter into a Section 96 (Roads Scotland Act) agreement with the Council to cover damage to the public roads by construction traffic and may be required to provide a bond as surety. Developers should consider measures to reduce the impact of construction traffic on the road network.
- 5.106 The passage of abnormal loads required for the transport of turbine components can be problematic and should be given very early consideration in the planning of projects.
- 5.107 A Transport Assessment was carried out to establish the transport impacts of the construction traffic associated with the development, the suitability of the existing road network, the impact on existing road users and adjacent communities, and the requirement for any mitigation works. Where trunk roads are to be used for transporting abnormal loads, a trunk roads assessment should be undertaken in consultation with Transport Scotland, further guidance is available from the Transport Scotland website. Equally, where temporary or permanent mitigation is proposed to the trunk road network will require to be discussed and agreed with Transport Scotland.

Electricity and Gas Infrastructure

- 5.108 An appropriate separation distance should be maintained between the proposed development and electricity transmission underground cables, overhead lines, and underground gas transmission pipelines. Developers are advised to consult the relevant grid company for further advice on whether the work they are intending to undertake has the potential to affect their infrastructure. Developers are also strongly advised that they should obtain their written consent prior to submission of the planning application, this will help to provide a fuller understanding of the constraints present and how the development will overcome them.

Borrow Pits

- 5.109 Aggregate and other mineral resources required for a proposal should be sourced from local quarries, rather than creating borrow pits on-site.
- 5.110 On-site borrow pits may be used where it can be clearly demonstrated that there are significant environmental or economic benefits compared to obtaining material from local quarries. Where on-site borrow pits are proposed, information should be provided about what potential environmental impacts may arise if material sourced from borrow pits is found not to be suitable for all required construction activities.

Construction Environmental Management Plans

- 5.111 Major developments and developments subject to Environmental Impact Assessment should follow a robust project environmental management process, following the approach set out in the Council's Guidance Note for construction environmental management plans.
- 5.112 The Highland Council encourage early consultation regarding construction plans.

Restoration Bonds

- 5.113 Robust financial guarantees secured either by bond of caution (Bond) or by irrevocable letter of credit (LoC) from an appropriate bank should in place over the lifespan of the proposed project. Parent Company Guarantees will not be accepted. THC will review these to ensure that the value of bond is sufficient to restore the site at the end of the permission.
- 5.114 Applicants should be clear from the outset about any elements of their proposed scheme that they intend to retain once the site is restored so that these can be factored into any assessments.
- 5.115 Further information about restoration and decommissioning are included in the following guidance:
- Heads of Planning Scotland Position Statement on the Operation of Financial Mechanisms to Secure;
 - Decommissioning, Restoration and Aftercare of Development Sites;
 - Siting and Designing Wind Farms in the Landscape (66) Decommissioning and Restoration Plans for onshore wind farms; and Planning for development: What to consider and include in Habitat Management Plans (68) SNH Commissioned Report 591: Research and guidance on restoration and decommissioning of onshore wind farms.

Other Material Considerations

- 5.116 This section sets out the most relevant material policy considerations at the time of writing and includes national planning policy in Scotland, the latest developments in Scottish and UK Government policy.

UK Renewable Energy Policy and Legislation

- 5.117 The UK Government is legally committed to the delivery of a reduction in emissions to 'net zero' by 2050 (with the Scottish Government committing to 2045).
- 5.118 This section identifies recent shifts in UK-wide Renewable Energy Policy to accommodate this and summarises some key documents including:
- The Clean Power 2030 Action Plan (December 2024)
 - The CCC Annual Report to UK Parliament (July 2024);

- National Audit Office report 'Achieving Net Zero' (December 2020);
- The UK's Sixth Carbon Budget (December 2020);
- The UK Energy White Paper (December 2020); and
- The UK Net Zero Strategy (October 2021).

The Clean Power 2030 Action Plan

- 5.119 The Clean Power 2030 Action Plan, published in December 2024 by the UK Government, clearly highlights the requirement for rapid deployment of new clean energy capacity across the whole of the UK. The document reflects the shared renewable ambitions of the UK, Scottish and Welsh Governments and in accepting the government's central role in steering the creation of this new energy system, the document sets out the expectations for the 2030 capacities of key technologies at national and regional level.
- 5.120 Focusing on onshore wind specifically, the target set out within the document aims for 27-29 GW of capacity. Combined with large targets for other technologies such as solar and offshore wind, the key aim is to significantly reduce dependence on fossil-fuels – particularly gas.
- 5.121 In order to deliver the capacity, there is a requirement to deploy these technologies at a very significant scale and pace, which can only be delivered by taking rapid action to unblock delivery challenges. The ability to maximise the efficiency of the electricity system today and in future, is critical to delivering decarbonisation and a key step to achieve net zero by 2050.
- 5.122 Whilst the proposed development is unlikely to meet the 2030 target date for generation of clean power, it is clear that onshore wind forms a key part of the clean power mix for 2030 and beyond to 2035.

The CCC Annual Report to UK Parliament (July 2024))

- 5.123 The CCC published a landmark report entitled 'Net Zero – UK's Contribution to Stopping Global Warming in May 2019. The foreword sets out that "the CCC has reviewed the latest scientific evidence on climate change, including last year's IPCC special report on global warming of 1.50C and considered the appropriate role of the UK in the global challenge to limit future temperature increases." It adds, "Net Zero is a more fundamental aim than previous targets. By reducing emissions produced in the UK to zero, we also end our contribution to rising global temperatures."
- 5.124 The report makes recommendations for the UK economy including a new tougher emissions target of net zero green gases by 2050, therefore ending the UK's contribution to global warming within 30 years. This replaces the previous target of an 80% reduction by 2050 from a 1990 baseline and accords with the obligations under the Paris Agreement.
- 5.125 The report makes clear that at a UK level "current policy is insufficient for even the existing targets."

- 5.126 In June 2019, the Prime Minister Theresa May brought forward legislation to turn Net Zero into law, and the UK became the first major economy in the world to pass legislation to end its global warming contribution by 2050. The target is now legally binding via the provisions of the Climate Change Act 2008 (2050 Target Amendment) Order 2019.
- 5.127 The CCC Annual Report to Parliament (2020) offered an update on the progress towards Net Zero following adoption of the Net Zero Target.
- 5.128 The report states that in terms of building a resilient post-Covid economy, *“success requires that net zero emissions and improved climate resilience are integral,”* whilst investments towards achieving net zero will *“help create jobs and stimulate economic recovery, whilst changing the course of UK emissions and improving our resilience to climate change.”*
- 5.129 The National Audit Office offered an update report ‘Achieving Net Zero’ in December 2020 regarding progress on achieving Net Zero following the change to legislation in June 2019.
- 5.130 Key points from the report include that reducing emissions to achieve net zero will require wide ranging changes to the UK economy including further investment in renewable energy, changes *“unprecedented in their overall scale.”*
- 5.131 Page 22 of the report sets out that a national fourfold increase in renewable energy capacity is needed.
- 5.132 The CCC set out the Sixth UK-wide carbon budget in December 2020 with recommendations from 2033 to 2037. This sets out the path the UK must follow to achieve Net Zero by 2050.
- 5.133 A key point includes the CCC's clear statement that new demand for electricity will mean that demand will rise 50% by 2035 and perhaps doubling or trebling by 2050.
- 5.134 The UK Energy White Paper in December 2020 set out a major shift in UK policy and highlights the importance of renewable forms of electricity. Page 38 states that a key objective is to *“accelerate the deployment of clean electricity generation through the 2020s”*.
- 5.135 The UK Government then published the UK Net Zero Strategy in October 2021 which sets out the long-term pathway to net zero by 2050, setting out the UK Government's plans to reduce emissions from each sector of the economy. It sets out within page 103 that the Government will support sustained deployment of low carbon generation and that there is a need to continue to drive rapid deployment of renewables.

Scottish Renewable Energy Policy

- 5.136 A climate emergency was declared in Scotland in 2019 by both the Scottish Government and the Highland Council.
- 5.137 When it was enacted, the Climate Change (Scotland) Act 2009 set world leading greenhouse gas emissions reduction targets, including a target to reduce emissions by

80% by 2050. However, the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 amends the 2009 Act and sets even more ambitious targets – which reflect the recommendations of the Committee on Climate Change (CCC) for a net zero greenhouse gas (GHG) emissions target by 2045 at the latest, with challenging interim stages – a 75% reduction target by 2030 and 90% by 2040.

5.138 This section identifies recent shifts in Scottish Renewable Energy Policy and summarises some key documents including:

- The Scottish Energy Strategy (2017)
- Draft Energy Strategy and Just Transition Plan (2023)
- Climate Change (Emissions Reduction Targets) (Scotland) Act (2019)
- Climate Change Committee (CCC) Report to Scottish Parliament – Progress in reducing emissions in Scotland (March 2024)
- The Update to the Climate Change Plan (December 2020);
- The Green Industrial Strategy (September 2024)
- The Onshore Wind Policy Statement (2022); and
- Onshore Wind Sector Deal (2023).

Scottish Energy Strategy (2017)

5.139 The Scottish Energy Strategy 2017 sets out the Scottish Government's overarching position on many forms of energy, including onshore wind. Specifically, it states that "onshore wind must continue to play a vital role in Scotland's future" ..." which can be done in a way which is compatible with Scotland's magnificent landscapes..." These reiterate the findings of the Onshore Wind Policy Statement and aim to drive Scotland towards Net Zero by 2045, with a clear focus on the delivery of 12GW of new installed capacity by 2030.

Draft Energy Strategy and Just Transition Plan (2023)

5.140 The Draft Energy Strategy and Just Transition Plan (2023) states that we need to transform the way Scotland generates, transports, and uses energy, in order to realise climate change ambitions. The requirement for an additional 12GW of onshore wind is a key policy facet of this document.

Climate Change (Emissions Reduction Targets) (Scotland) Act 2019

5.141 The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 bill, introduced to Parliament on 23rd May 2018, was subsequently passed in September 2019.

5.142 The Bill raises the ambition of further reducing greenhouse gas emissions by amending the targets set out within the Climate Change (Scotland) Act 2009, hence superseding them and sets a legally binding net zero target for all greenhouse gases by 2045. This target date is five years ahead of the current date set for the rest of the UK and aims to ensure Scotland contributes to the worldwide efforts to deliver on the Paris Agreement. It requires net zero by 2045 at the latest.

- 5.143 Whilst the target of net zero for 2045 remains, a statement made by the Climate Change Committee explained that the delay of the governments Climate Change Plan has meant that the goal of achieving a 75% reduction target by 2030 is fundamentally unachievable. As such, on the 18th of April 2024, the Scottish Government stated that:

'In light of the UK-wide Climate Change Committee's (CCC) recent rearticulation that the 2030 target for emissions reduction is not achievable, this will no longer be a statutory target.'

- 5.144 Despite the removal of the 75% emission reduction target, setting a net-zero target by 2045 is an ambitious target and places Scotland at the forefront of efforts to combat climate change.

Climate Change Committee (CCC) Report to Scottish Parliament – Progress in reducing emissions in Scotland (March 2024)

- 5.145 As set out above, the CCC Report presented to the Scottish Parliament entitled 'Progress in reducing emissions in Scotland' in March 2024. The related press release states that Scotland's 2030 climate goals are no longer credible due to continued delays to the updated Climate Change Plan and other related climate policies.

- 5.146 The press release states that a path to Scotland's post-2030 targets remain however stronger action is needed to reduce emissions across the economy. It states that there has been some progress in delivering renewable electricity generation in Scotland with the aim to develop 8-11 GW of offshore wind and 20 GW on onshore wind capacity, both by 2030. However, the report notes that "The growth in onshore wind capacity has slowed, however, and is slightly off track to deliver its 2030 target, which will require operational capacity to more than double." Page 40 states that in terms of onshore wind, Scotland must increase the deployment rate by more than a factor of 4 to an average annual rate of 1.4 GW.

The Update to the Climate Change Plan (December 2020);

- 5.147 In December 2020, the Scottish Government published an update to the Climate Change Plan, covering the period 2018 to 2032, and responding to the new requirement in Scotland to meet net zero by 2045. This is a key strategic document on our green recovery following on from COVID-19. Page 9 in particular sets out the strategic goal of achieving "decarbonisation across the whole energy system, including electricity, transport, industry and buildings" and "integrating climate change action into all of the decisions we make across Government".

- 5.148 The Update sets out the intention to prepare an Energy Strategy in 2021 and an updated Electricity Generation Policy Statement by 2022. Page 19 refers to a 2032 'pathway' whereby decisions take account of benefits across all energy sectors as well as economic and social benefits they create across Scotland. By 2032 it is intended that we will generate at least the equivalent of 50% of our energy from renewable sources. It is stated on page 18, importantly, that "there will be a substantial increase in renewable generation, particularly through new offshore and onshore wind capacity".

- 5.149 The planning and consenting systems are recognised (p78) as remaining a “critical enabler of rapid renewables deployment in Scotland”. The Climate Change Plan Update expects that renewable energy generation is expected to increase substantially between now and 2032 with an expectation of the development of between 11 and 16GW of new capacity to meet a rapidly increasing electricity demand.

The Green Industrial Strategy (September 2024)

- 5.150 In September 2024, the Scottish Government published a Green Industrial Strategy (GIS). The Executive Summary sets out the mission of the GIS, which states:

"This Green Industrial Strategy's mission is to ensure that Scotland realises the maximum possible economic benefit from the opportunities created by the global transition to net zero".

- 5.151 The strategy sets out five opportunity areas for Scotland where identified strengths are most likely to lead to growth and the potential to develop internationally competitive economic clusters. The points focus on maximising Scotland's wind economy, developing carbon capture, utilisation, and storage, supporting the green economy by way of professional and financial services, expanding upon the hydrogen sector and establishing Scotland as a competitive centre for clean energy intensive industries of the future.

- 5.152 When focusing on onshore wind specifically, it is referred to detail at page 21 where the strategy states:

"Onshore wind is the biggest single technology in Scotland's current mix of renewable electricity generation, comprising 62% of installed capacity.

A thriving onshore wind sector is therefore critical to the decarbonisation in Scotland and the UK. As set out in our 2022 Onshore Wind Policy Statement, Government and industry are focused on delivering at least 20 GW of onshore wind by 2030 (doubling current capacity) and recent pipeline analysis shows that we should be on track to deliver this.

This trajectory is underpinned by the Onshore Wind Sector Deal which sets out a set of specific collaborative actions which include commitments by both the Scottish Government and the onshore wind industry to help deliver the 20 GW ambition.

A supportive policy environment and successful industry collaboration via the Onshore Wind Strategic Leadership Group confirms the shared commitment of Government and industry to achieve this successful and responsible growth.

The onshore wind workforce is highly skilled and opportunities in installation, consulting, operations, and maintenance are anticipated to rise in response to growth ambitions. Specialised engineering consultancy services such as wind farm design and financial due diligence related to onshore developments are expected to grow and offer additional export potential. There is commercial opportunity in circular supply chains related to the UK wind industry. Scotland's established, and now ageing onshore wind assets may also offer opportunities for innovative solutions in remanufacturing, recycling, and decommissioning end of life assets."

- 5.153 It is evident that in order to progress the Government's objectives with regard to wind energy, clear support for new investment and growth in onshore wind development is needed. Realisation of the economic and social opportunities can only be achieved through the development and consenting of additional wind energy developments. Such deployment will not only be critical towards achieving the net zero target, given the important contribution that wind energy will make in that regard, but will also help deliver the Government's clear green infrastructure mission.

The Onshore Wind Policy Statement (2022)

- 5.154 The Onshore Wind Policy Statement (OWPS, 2022) replaces the previous version published in 2017 and makes it explicitly clear that seeking greater security of supply and lower cost electricity are now key drivers alongside the need to deal with the climate emergency. It requires a minimum installed capacity of 20GW of onshore wind by 2030, requiring an additional 12GW installed between 2023 and 2030.
- 5.155 The OWPS states that deployment of onshore wind is "mission critical for meeting our climate targets" as an "affordable and reliable source of electricity generation."

The Onshore Wind Sector Deal (2023)

- 5.156 The Onshore Wind Sector Deal, published in September 2023, provides a framework of commitments between Scottish Government and the onshore wind sector in order to support the rapid development and deployment of onshore wind, including the identification of barriers and potential solutions and actions to, for example, decrease consenting times. It is very clear that the Scottish Government wishes to see quicker deployment of onshore wind and is actively supporting the sector to do so.

Summary

- 5.157 This chapter outlines the key national and local planning policies, guidance and other material considerations that are relevant to the proposed development, and which inform the EIA Report and design.
- 5.158 To maintain the impartiality of the EIA Report, the chapter does not assess whether the proposed development would comply with the identified policies. A separate Planning Statement which assesses the compliance of the proposed development with the Development Plan and other material considerations is also submitted as part of the application. The Planning Statement is separate from the EIA Report.

Ballach Wind Farm

Environmental Impact Assessment Report Volume 1 Chapter 6: Landscape and Visual

July 2025

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6 LANDSCAPE AND VISUAL

Introduction

- 6.1 This chapter assesses the landscape and visual effects of the proposed development. It should be read with reference to the Project Description in EIA Volume 1, Chapter 3. All additional material relating to this chapter can be found in Volumes 2, 3, 4 and 5 which includes the figures, visualisations, and appendices respectively.
- 6.2 Landscape and Visual Impact Assessment (LVIA) is one of the key components of the EIA for wind farms due to the introduction of tall elements into the landscape. The proposed development has been considered against the requirements of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. In addition, reliance has been placed on relevant planning policy as discussed in Chapter 5, noting the adoption of the Scottish Government's National Planning Framework 4 (NPF4) in February 2023.
- 6.3 The LVIA and cumulative assessment (CLVIA) reported in this chapter has been produced by chartered landscape architects at WSP. The objective of this assessment has been to determine the landscape and visual effects of the proposed development on the existing landscape resource and visual amenity. The following landscape and visual receptors have been assessed:
- Landscape character, key characteristics, and elements;
 - Designated landscapes and Wild Land Areas; and
 - Views and visual amenity experienced by residents, tourists, visitors, recreational and transport users.
- 6.4 The proposed development is located approximately 4km northwest of Kilmorack and 7.5km east of Beaulay in the Highlands within an undesignated area of the *Rugged Massif - Inverness* landscape character as defined by the NatureScot Landscape Character Assessment (2019).
- 6.5 In summary, the proposed development comprises up to 20 wind turbines with nine turbines (T1, T2, T4, T5, T6, T8, T11, T13 and T14) up to a maximum blade tip height of 200m and the remaining 11 turbines (T3, T7, T9, T10, T12 and T15-20) up to a maximum blade tip height of 230m, and associated infrastructure including visible aviation warning lighting on T2, T3, T7, T14, T17 and T20. Infrastructure associated with the proposed development includes one site entrance via the A831, internal access tracks and hardstanding areas, crane pads, up to three borrow pits, one temporary construction compound, energy storage compound and grid connection infrastructure (including one on-site substation and underground cables linking the turbines to the substation).
- 6.6 The assessment process has encompassed time-limited periods for the construction, operation, and decommissioning of the proposed development, the latter of which entails a reversal of many of the landscape and visual effects. Although the operation period for the proposed development is for the duration of 35 years (described in the assessment as

'long-term' and reversible), it has been assessed in the same manner as permanent development.

Chapter Structure

- 6.7 The chapter is supported by a number of Technical Appendices (as set out within Volume 4: Technical Appendices), comprising:
- Technical Appendix 6.1: Methodology and Glossary;
 - Technical Appendix 6.2: Viewpoint Analysis;
 - Technical Appendix 6.3: Night-time Assessment;
 - Technical Appendix 6.4: Wild Land Assessment; and
 - Technical Appendix 6.5: Glen Strathfarrar NSA Additional Wirelines.
- 6.8 Figures illustrating this chapter are contained within Volume 2 and 3 and include plans and visualisations of the proposed development, the latter of which are presented to accord with the NatureScot (NS) guidance¹. Further figures illustrating plans and visualisations in support of the Night-time Assessment, Wild Land Assessment and Technical Appendix 6.5: Additional NSA Wirelines are contained in Volume 4 whilst visualisations presented to accord with the Highland Council (THC) guidance² are contained within Volume 5.
- 6.9 Other key relevant chapters include Chapter 3: Project Description, Chapter 4: Design Evolution, Chapter 5: Renewable Energy and Planning Policy, Chapter 7: Cultural Heritage, Chapter 13: Socio-Economics and Tourism and Chapter 14: Forestry.

Variations and Micro-siting

- 6.10 Post consent, the location of the proposed nine turbines would be subject to micro-siting of up to +/-100m. Viewpoint analysis confirms that a horizontal micro-siting allowance of up to +/-100m is unlikely to significantly alter the ZTV pattern or change the overall results of the LVIA with the exception of the outer turbines, particularly those closest to the individual residential properties. Any horizontal micro-siting allowance of up to +/-100m remains subject to the existing site constraints which in practice would notably limit this movement within the site area.
- 6.11 Variations to the turbine dimensions, within the overall maximum blade tip heights, could affect the overall appearance and proportion of the turbines and each option would need to be considered on a case-by-case basis. Although unlikely, increases to the turbine hub height (smaller rotor diameter) within the overall blade tip height and micro-siting may however alter the number of aviation warning lights that are visible from some locations and consequently alter the night-time assessment.

¹ Scottish Natural Heritage (2017). Visual Representation of Wind Farms: Good Practice Guidance, Version 2.2

² Highland Council (2016). Visualisation Standards for Wind Energy Developments.

Landscape Planning Policy and Guidance

- 6.12 The LVIA process has taken account of relevant legislation, national and local planning requirements in relation to wind farm development, as described in Chapter 5: Renewable Energy and Planning Policy, and the Planning Statement which accompanies this Section 36 Application. This includes NPF4 (Scottish Government, 2023), the Highland-wide Local Development Plan (HwLDP) (2012) and the Inner Moray Firth Local Development Plan 2 (IMFLDP2) (2024). Further information on strategic landscape planning guidance from Scottish Natural Heritage (SNH) / NS³ and The Highland Council (THC) is provided here.

National Planning Framework 4

- 6.13 NPF4 was adopted by the Scottish Ministers on 13th February 2023, following approval by the Scottish Parliament in January 2023. This replaces NPF3 and Scottish Planning Policy (SPP). NPF4 now forms part of the statutory development plan for any area in Scotland.
- 6.14 NPF4 Annex B sets out statements of need for national development and provides that onshore electricity generation from renewables exceeding 50 megawatts (MW) capacity is strategically important, accordingly classifying it as a national development (category 3: Strategic Renewable Electricity Generation and Transmission Infrastructure). Inclusion as a national development establishes the general need for renewable projects of strategic scale across Scotland.
- 6.15 NPF4 supports development which helps to meet Scotland's greenhouse gas emissions targets and states *"The global climate emergency and the nature crisis have formed the foundations for the spatial strategy as a whole. The regional priorities share opportunities and challenges for reducing emissions and adapting to the long-term impacts of climate change, in a way which protects and enhances our natural environment (page 8)."*
- 6.16 Relevant landscape policies in NPF4 include:
- Policy 1 Tackling the Climate and Nature crisis;
 - Policy 3 Biodiversity;
 - Policy 4 Natural places;
 - Policy 6 Forestry, woodland and trees; and
 - Policy 11 Energy.
- 6.17 Policy 4, 'c' advises that where development proposals affect National Scenic Areas (NSA) they will only be supported where:
- *"i. The objectives of designation and the overall integrity of the areas will not be compromised; or*
 - *ii. Any significant adverse effects on the qualities for which the area has been designated are clearly outweighed by social, environmental or economic benefits of national importance.*

³ Previously Scottish Natural Heritage (SNH).

6.18 Policy 4 'd' advises that in the case of locally designated landscape areas in the LDP, development will only be supported where:

- *i. Development will not have significant adverse effects on the integrity of the area or the qualities for which it has been identified; or*
- *ii. Any significant adverse effects on the integrity of the area are clearly outweighed by social, environmental or economic benefits of at least local importance.*

6.19 Policy 4 'g' advises that "Development proposals in areas identified as wild land in the Nature Scot Wild Land Areas map will only be supported where the proposal:

- *i. will support meeting renewable energy targets; or,*
- *ii. is for small scale development directly linked to a rural business or croft, or is required to support a fragile community in a rural area.*

All such proposals must be accompanied by a wild land impact assessment which sets out how design, siting, or other mitigation measures have been and will be used to minimise significant impacts on the qualities of the wild land, as well as any management and monitoring arrangements where appropriate. Buffer zones around wild land will not be applied, and effects of development outwith wild land areas will not be a significant consideration."

6.20 In relation to the project design and LVIA, Policy 11, 'e' advises that "In addition, project design and mitigation will demonstrate how the following impacts are addressed:

- *...ii. significant landscape and visual impacts, recognising that such impacts are to be expected for some forms of renewable energy. Where impacts are localised and/or appropriate design mitigation has been applied, they will generally be considered to be acceptable;*
- *iii. public access, including impact on long distance walking and cycling routes and scenic routes; ...*
- *x. impacts on trees, woods and forests;*
- *xi. proposals for the decommissioning of developments, including ancillary infrastructure, and site restoration; ... and*
- *xiii. cumulative impacts."*

Highland Council Planning Policy

6.21 At a local planning policy level, the Highland-wide Local Development Plan (HwLDP) (2012) and in particular Policy 67: Renewable Energy Development and THC's Onshore Wind Energy Supplementary Guidance (2016)⁴ (OWESG) are relevant. Policy 67 provides support for proposals which are "*located, sited and designed such that they will not be significantly detrimental overall*". The policy details the following landscape related criteria against which wind energy developments will be assessed:

- *"... natural, built and cultural heritage features;*

⁴ Accessed online at <https://www.highland.gov.uk/onshorewind>

- *visual impact and impact on the landscape character of the surrounding area (the design and location of the proposal should reflect the scale and character of the landscape and seek to minimise landscape and visual impact, subject to any other considerations);*
- *amenity at sensitive locations, including residential properties, workplaces and recognised visitor sites (in or outwith a settlement boundary);*
- *the amenity of users of any Core Path or other established public access for walking, cycling or horse riding; and*
- *tourism and recreation interests."*

6.22 Other policies noted include Policy 36: Development in the wider countryside; Policy 57: Natural Built and Cultural Heritage; Policy 61: Landscape; Policy 77: Public Access; and Policy 78: Long Distance Routes.

Supplementary Guidance: Onshore Wind Energy

6.23 THC's 'Onshore Wind Energy Supplementary Guidance' (OWESG) was adopted by the Council in November 2016 and now forms part of the Development Plan. The Guidance makes it clear at the outset that sections related to various land use planning topics are informative and not exhaustive, and proposals will continue to be assessed by all relevant policies in the HwLDP.

6.24 THC's OWESG, paragraphs 4.10-17 advises that wind farm development "*should seek to avoid significant adverse landscape and visual effects individually and cumulatively*". Whilst the avoidance of significant effects is sought through the design process it should be noted that significant adverse landscape and visual effects as a result of wind farm development cannot be avoided due to the scale and height of wind turbines. In this respect, paragraph 4.14 of the OWESG advises that "*where effects are unavoidable, appropriate mitigation will be required to overcome or otherwise minimise impacts. For example, this may include:*

- *a) Careful siting of turbines to seek to reduce overall impact of the scheme;*
- *b) Amending turbine configurations, including hub height, rotor diameter, and blade rotation speed;*
- *c) Adjusting the number of turbines;*
- *d) Considering turbine colour, including any variation from the typical off-white / pale grey colours;*
- *e) Design and arrangement of any lighting required to minimise its impact;*
- *f) Undergrounding of any power lines connecting individual turbines to any on-site sub-station;*
- *g) Undergrounding or sensitive treatment of those power lines connecting any wind farm sub- station to the electricity distribution system;*
- *h) Arrangements for any transformers for individual turbines (the Council expects these to be accommodated and enclosed within the turbine mast in order to reduce the landscape and visual impact of the development);*

- *i) Length, route, visibility and methods and materials used in the construction of access tracks."*

6.25 Whist all of the above have been considered and included as part of the embedded mitigation for the proposed development, it should be noted that in respect of bullets g) and h), the grid connection would be determined by the Network Operator at a later date and may be subject to a separate design and consent process.

6.26 Key considerations are set out in the OWESG as follows:

- **Siting and Design of Wind Farms** - THC are looking for sensitively sited and designed development that safeguards important high-quality landscapes. Developers are expected to explain the detailed design of site access and other infrastructure and illustrate the evolution of the wind farm design (as set out in the Design Access Statement). Reference should be made to SNH's guidance *Siting and Design Windfarms in the Landscape*, Version 3a, (Aug 2017);
- **Landscape and Visual Effects** - THC advise that development should seek to limit significant adverse effects, although it should be noted that no wind farm development can reasonably avoid significant landscape and visual effects. Key aspects that may be relevant to the assessment include the Glen Strathfarrar NSA, Special Landscape Areas (SLA), the capacity of the local landscape character (as defined by Landscape Character Assessment) and important public views from viewpoints, roads/ core paths / tourist routes and related attractions. The Central Highlands Wild Land Area (WLA) has been included as part of the Wild Land Assessment in Technical Appendix 6.4, however all remaining WLAs have been excluded from the LVIA with the agreement of NS;
- **Residential Amenity** - There are no residential properties within 2km of the proposed development. Therefore, in accordance with the Landscape Institute guidance⁵ and as agreed with THC through consultation, a Residential Visual Amenity Assessment (RVAA) has therefore been scoped out;
- **Mitigation** - Where feasible, appropriate mitigation should be demonstrated in response to significant adverse effects. This may involve further design evolution, altering the height, number, layout or colour of the proposed turbines and amendments to the associated infrastructure, for example; and
- **Visualisations** - THC expects developers to follow its guidance⁶ on the production of visualisations supporting their application.

6.27 Finally, THC have set out ten Criteria within their OWESG to be used as a "framework and focus for assessing proposals." The criteria do not set absolute requirements but seek to ensure that developers are aware of key constraints to development. An assessment of the proposed development against the ten Criteria is set out within the Planning Statement.

⁵ Residential Visual Amenity Assessment, Landscape Institute Technical Guidance Note 02/19,

⁶ Visualisation Standards for Wind Energy Developments, Highland Council, July 2016.

Inner Moray Firth Local Development Plan 2

6.28 The Inner Moray Firth Local Development Plan 2 (IMFLDP2) was adopted on 27 June 2024. Relevant policies in relation to the LVIA include:

- Policy 2: Nature Protection, Restoration and Enhancement (National, Major and EIA Developments); and
- Policy 8: Placemaking.

Consultation

6.29 As part of the scoping exercise, a consultation exercise was undertaken to inform the scope of any design and assessment work required as part of this EIA. Consultation relevant to the LVIA assessment was undertaken with THC and NS who commented on aspects of methodology, sources of information, viewpoint selection, scope of assessment and cumulative development.

6.30 Post-scoping consultation was undertaken with THC on viewpoint selection and exclusion of RVAA in August and September 2024 and April 2025. Further consultation was also undertaken with NS on the scope of the NSA Assessment, Wild Land Assessment and viewpoint locations which was confirmed through subsequent email correspondence in January 2025. A pre-application meeting was also held with THC, NS and other consultees on 23 January 2025. A summary of these consultation responses is provided in Table 6.1.

Table 6.1: Summary of Landscape Related Consultation

Date Received	Consultation Response(s)	How and where is this addressed?
NatureScot (NS)		
Scoping Opinion – 22 nd November 2024	Advise that an Assessment of Effects on the Special Landscape Qualities (AESLQ) of the NSA will be required. Content with the scope of the assessment, assessment locations, and SLQs to be scoped in / out. Noted forthcoming Guidance on Assessment of Effects on Special Landscape Qualities.	The assessment of the proposed development on the SLQs of the Glen Strathfarrar NSA has been included in the LVIA and accords with NatureScot's most recent guidance on ' <i>Special Landscape Qualities - Guidance on assessing effects</i> ' (January 2025).
	WLA24: Central Highlands A Wild Land Assessment will be required.	A Wild Land Assessment on WLA24 is reported in Technical Appendix 6.4.
	Aviation Lighting – Should include consideration of effects on SLQs and use the new Aviation Lighting Guidance (2024).	A Night-time Assessment is reported in Technical Appendix 6.3 and accords with NatureScot's November 2024 guidance – <i>Guidance on Aviation Lighting Impact Assessment</i> .
	Cumulative Effects - Consideration should be given to the density and layout of the turbines across the topography, and to the visual integration of these with the existing Fairburn wind farm. Cumulative day time and night-time interactions between these developments will be a key consideration of the Cumulative Impact Assessment.	Noted. A detailed Cumulative LVIA has been included in the assessment.
Post- Scoping Consultation - 27th January 2025	National Scenic Areas: Agree that two of the give SLQs to be included in the assessment - 'An archetypal Highland Glen' and 'A sense of peace and tranquillity.'	Noted and Included.
	Viewpoints: Agree with proposed viewpoints for LVIA and within NSA.	Noted
	Aviation Lighting – Should include consideration of effects on SLQs and use the new Aviation Lighting Guidance (2024).	A Night-time Assessment is reported in Technical Appendix 6.3 and accords with NatureScot's November 2024 guidance – <i>Guidance on Aviation Lighting Impact Assessment</i> .

Date Received	Consultation Response(s)	How and where is this addressed?
Highland Council (THC)		
Scoping Opinion – 12 th November 2024	The LVIA should conform with the overall methodology set out in GLVIA 3.	The LVIA has been undertaken in accordance with best practice guidance including GLVIA 3.
	Photomontages should follow the Council's Visualisations Standards.	Volume 5 includes photomontages in accordance with the Council's Visualisation Standards.
	Cumulative Study Area should extend up to 45km.	Noted and included in assessment up to 45km.
	Assessment to include impact of on-site BESS, borrow pits, compounds including substations and access roads. All elements of the proposal are to be rendered into photomontages.	Included in the assessment and photomontages within 10km.
	Final list of viewpoints should be agreed with the Council.	Agreed with THC through subsequent email correspondence in January and April 2025.
	Request further information so that impacts on the following receptors can be given further consideration: - A9(T) between Kildory and Tore; - The interior of the Black Isle including, but not limited to, along the B9163 - Unclassified road near Balmungie for example; - Sea Lock House at Clachnaharry; - A862 between Clachnaharry and the junction with the A833 southwest of Kirkhill; - A96(T) and B9006 between Nairn and Smithton.	Through subsequent detailed consultation with the Council's Landscape Officer, a revised list of 27 viewpoints have been included in the assessment which includes views from the A9, Black Isle, Clachnaharry (A82) and the A96.
	Content with a 45km Study Area. Given the size of the turbines and the landscape sensitivities of this site and the surrounding area, we would expect a detailed assessment of effects should be undertaken for the whole Study Area, including for Cumulative Impact Assessment, which should also include an assessment of sequential effects as the receptor moves through the landscape.	Noted.
	Impacts on the national cycle network, long distance trails, core paths and rights of way to be assessed.	Noted and included.

Date Received	Consultation Response(s)	How and where is this addressed?
	Given the potential cumulative impact of renewable energy in this area it is expected that the applicant should present images for presentation within the Panoramic Digital Viewer deployed by the Council – see visualisation standards document. If the applicant wished to utilise this tool there may be an associated cost per image to be inserted which should be discussed with the Council prior to submission.	THC did not provide details on which viewpoints they would want to see within the Panoramic Digital Viewer.
	Assessment of the proposed development against the Council's OWESG to be included.	Included in the Planning Statement.
	The Landscape Impact Assessment's analysis should not only focus on potential impacts on individual Landscape Character Types and individual Units, but also on the local landscape character composition within which these elements come together to define a particular sense of place.	Included.
	Effects on the special landscape qualities of the Strathconon, Monar and Mullardoch SLA and Ben Wyvis SLA should be assessed in the LVIA. Given the presence of intervening wind farms and distances, The Council agrees that impacts on other SLAs can be scoped out. The Council considers that special qualities that relate to a sense of wildness, remoteness, and isolation etc., would be impacted by aviation lighting in the hours of darkness and should be included in any such assessment of hours of darkness 'effects.	Effects on both SLAs are included in the assessment.
	Impacts on aviation lighting should be included as part of the LVIA. Hours of Darkness VPS should be representative of commutes and communities, as well as Wild Land.	Included. A night-time assessment has been included in Technical Appendix 6.3. Night-time viewpoints have been agreed through subsequent email correspondence.
	Suggest an RVAA is included in the EIAR and sensitive properties including the hotel are assessed up to 4km.	Following detailed discussions with THC in January and April 2025 including presenting an initial assessment of a RVAA, it has been agreed that the RVAA can be scoped out.
Post- Scoping Consultation – 4 th September 2024	Council's Landscape Officer requested an additional nine viewpoints to be included in the LVIA.	Following subsequent discussions and correspondence with the Council's Landscape Officer, it was agreed that a further five viewpoints would be included – views from western edge of Alness, A96, Chanonry Point, Knockbain and Clachnaharry, taking it to a total of 27 viewpoints.

Assessment Methodology and Significance

- 6.31 The assessment methodology is set out in Technical Appendix 6.1 in Volume 4 which includes a glossary of terms and abbreviations used in this Chapter.

Evaluation of Significance

- 6.32 In accordance with the relevant EIA Regulations, it is important to determine whether the effects, assessed as a result of the proposed development, are likely to be significant. Significant landscape and visual effects will be highlighted in bold in the text and in most cases, relate to effects that result in a '**Substantial**', '**Major**' or a '**Major to Moderate**' effect as indicated in Table 6.2 (and shaded dark grey). 'Moderate' levels of effect (shaded grey) can also be assessed as significant, subject to the assessor's professional opinion, which should be clearly explained as part of the assessment. White or un-shaded boxes in Table 6.2 indicate a non-significant effect.
- 6.33 In those instances where there would be no effect, the magnitude has been recorded as 'Zero' and the level of effect as 'None' or 'No View'. Intermediate levels of magnitude and levels of effect are also used in the LVIA and are shown in Table 6.2 in italics, for example High – Medium magnitude or Substantial to Major level of effect.

Table 6.2 Evaluation of Landscape and Visual Effects

Magnitude of Change	Landscape and Visual Sensitivity			
	High	Medium	Low	Very Low
High	Substantial	Major	Moderate	Not used
<i>High - Medium</i>	<i>Substantial to Major</i>	<i>Major to Moderate</i>	<i>Moderate to Minor</i>	
Medium	Major	Moderate	Minor	
<i>Medium - Low</i>	<i>Major to Moderate</i>	<i>Moderate to Minor</i>	<i>Minor</i>	
Low	Moderate	Minor	Negligible	
<i>Low – Very Low</i>	<i>Moderate to Minor</i>	<i>Negligible</i>	<i>Negligible</i>	
Very Low	Minor	Negligible	Negligible	
Zero	None / No View/ No View			

- 6.34 In accordance with the EIA Regulations the type or nature of effect is also described in terms of whether it is direct or indirect; its duration (temporary / permanent or reversible) cumulative; and whether the effect is positive, neutral or negative.

Viewpoint Selection

- 6.35 The viewpoints selected for the assessment have been agreed with NS and THC through scoping and further consultation as noted in Table 6.1.
- 6.36 A total of 27 viewpoints listed in Table 6.3 have been taken forward to the assessment stage. These viewpoints are assessed and reported in Technical Appendix 6.2. A summary of the viewpoint analysis is set out in Table 6.5.

- 6.37 All of the viewpoint locations are illustrated on Figures 6.2 – 6.6, and the visualisations are illustrated as photographs, wirelines and photomontages as agreed through consultation. The figures accord with NS guidance *Visual Representation of Wind Farms: Good Practice Guidance* (2017) and Highland Council guidance *Visualisation Standards of Wind Energy Developments* (2016). The viewpoint locations were photographed between September 2024 to June 2025. The visualisations illustrate the proposed turbines and where visible the proposed access tracks and associated infrastructure within 10km. Viewpoints 1-20 are illustrated as photomontages whilst viewpoints 21-27 are illustrated with baseline photographs and wirelines given their distance of over 20km. NS advises that beyond 20km the visibility of turbines in the printed photomontages is difficult to see or reproduce realistically.
- 6.38 Viewpoint analysis has also been used for the night-time assessment which included three of the day-time viewpoint locations. The Night-time Assessment is reported in Technical Appendix 6.3.

Table 6.3 Viewpoint Selection

VP No.	Viewpoint Name	Distance to nearest turbine (m)	View Direction	Visual Receptor
1	Core Path RC30.01 to Orrin Dam	3,624	South / Southwest	Specific - walkers
2	Torgormack - Drumindorsair	3,729	Northwest	Specific – residents
3	Fairburn Estate	5,233	Southwest	Specific – GDL
4	Beinn a' Bha'ach Àrd	5,967	Northeast	Specific – walkers, WLA, SLA
5	A831, Struy	7,027	North / north-west	Illustrative – road users, nearby residents
6	Beaully	7,411	West	Specific - residents
7	A832, Muir of Ord	8,307	Southwest	Specific – residents
8*	Kiltarlity	8,325	Northwest	Specific - residents
9*	A835, Contin	8,439	Southwest	Specific – road users, residents, NC500
10	Jamestown	9,352	Southwest	Specific – residents
11	Balvaird - Newmore	10,409	Southwest	Specific – residents
12	A835 - B9169 Junction	12,773	Southwest	Specific – road users, cyclists on Sustrans CR1
13	Great Glen Way near Ladycairn	13,633	Northwest	Specific – walkers

VP No.	Viewpoint Name	Distance to nearest turbine (m)	View Direction	Visual Receptor
14	A832 West of Tore	13,710	Southwest	Specific – road users
15*	Meall a 'Mhadaibh	14,529	Northeast	Specific – walkers, NSA, SLA, WLA
16	Sgùrr a' Choire Ghlais	15,200	Northeast	Specific – walkers, SLA, WLA
17	Heights of Brae	15,204	Southwest	Specific – residents / visitors to promoted viewpoint
18	Knockbain - Torgorm	18,769	West	Specific – visitors
19	A862, Clachnaharry	19,089	West	Illustrative – road users, NC500
20	A9, Cromarty Firth	19,390	Southwest	Specific – road users
21	Ben Wyvis	20,607	South	Specific – walkers, SLA, WLA
22	A9, Kessock Bridge	21,612	West	Specific – road users, walkers / cyclists on bridge
23	A96, Alturlie Junction	26,546	West	Specific – road users
24	Cnoc Fyrish	27,281	Southwest	Specific – walkers / tourists
25	B817, Alness	29,147	Southwest	Specific – road users, nearby residents
26	Chanonry Point	31,015	Southwest	Specific - visitors
27	Invergordon	32,858	Southwest	Specific - residents

*Illustrated night-time viewpoint

Cumulative Wind Energy Development

6.39 Drawing from NS guidance⁷, the baseline of all other cumulative wind energy development, above 50m to blade tip height, within the 45km Study Area has been collated. This includes all existing and consented wind energy development, and planning applications. Single turbines below 50m to blade tip height have been excluded. In accordance with the same NS guidance, projects at scoping or pre-planning stage have been excluded. At the time of writing, there are two scoping stage wind farms within 10km, Fairburn Extension, less than 1km from the proposed development, and Tarvie at approximately 10km from the proposed development. Both have been included in the viewpoint wirelines only but only Fairburn Extension has been included within the cumulative assessment in line with the same NS guidance as follows:

⁷ Guidance: Assessing the Cumulative Landscape and Visual Impacts of Onshore Wind Energy Developments, NatureScot (March 2021).

"...it may be appropriate to include proposals in an assessment which are at earlier stages of development (including at scoping), particularly where clusters of development or "hotspots" emerge, or where proposals are adjacent to one another."

- 6.40 It is, however, to be noted that Fairburn Extension has been in scoping for over three years.
- 6.41 The baseline of other wind energy development within the LVIA Study Area has also taken into account THC's wind farm database, Scottish Government Energy Consents Unit (ECU) and other wind energy developer sources, up until a working 'cut off' date of 15 May 2025.
- 6.42 In total, 46 other wind energy developments are included in the assessment as listed in Table 6.4 and illustrated in Figure 6.12. As of 15 May 2025, this includes 23 existing wind farms, 13 consented developments and eight applications (plus two at scoping) in the Study Area. The most relevant wind energy developments to the CLVIA include those sites within 10km and in particular the existing Auchmore and Fairburn, and scoping Fairburn Extension wind farms.
- 6.43 The cumulative assessment has considered the cumulative landscape and visual effects of the proposed development in addition to, and in combination with, the other wind energy development included in Table 6.4 in accordance with the methodology set out in Technical Appendix 6.1.
- 6.44 At the request of THC, the application Fanellan substation (25/00826/FUL) located to the northwest of Kiltarlity, is also included as part of the cumulative assessment where visible in combination with the proposed development.

Table 6.4 Wind Energy Development Included in the CLVIA

Reference ⁸	Name	Distance (m) ⁹	Number of turbines	Blade tip Height (m)
EXISTING WIND ENERGY DEVELOPMENTS WITHIN 45KM				
E01	Auchmore	2,973	2	80
E02	Fairburn	3,729	20	100
E03	Corriemoillie	19,273	17	125
E04	Lochluichart	19,617	17	125
E05	Lochluichart Extension	21,321	6	125
E06	Corrimony	22,434	5	100
E07	Bhlaraidh	24,269	32	125 / 135

⁸ The reference number in the table relates to that used in the figures.

⁹ Measured from the nearest turbine of each wind energy development.

Reference ⁸	Name	Distance (m) ⁹	Number of turbines	Blade tip Height (m)
E08	Novar Extension	25,158	16	100.5
E09	Novar	25,419	34	61
E10	Dunmaglass	31,653	33	120
E11	Farr	31,724	40	100
E12	Glen Kyllachy	31,989	20	110
E13	Aberarder	32,113	12	130
E14	Moy	34,420	20	124.9
E15	Corriegarth	34,560	23	121
E16	Coire na Cloiche	35,043	13	99.5
E17	Beinn Tharsuinn	37,103	17	80
E18	Beinn nan Oighrean	37,989	2	99.5
E19	Millennium	39,979	26	115 / 125
E20	Stronelairg	40,715	66	125 / 135
E21	Tom nan Clach	42,058	13	125
E22	Beinneun	43,185	25	133.5
E23	Beinneun Extension	43,629	7	136
CONSENTED WIND ENERGY DEVELOPMENT WITHIN 45KM				
C01	Kirkan	19,417	17	175
C02	Lochluichart Extension II	22,100	5	149.9
C03	Chrathaich	23,506	13	149.9
C04	Bhlaraidh Extension	23,996	15	180

Reference ⁸	Name	Distance (m) ⁹	Number of turbines	Blade tip Height (m)
C05	Corriegarth 2	34,221	14	149.9
C06	Strathrory	35,376	7	180 / 160 / 149.9
C07	Tomchrasky	36,240	14	185
C08	Dell	39,222	14	130.5
C09	Millennium South	40,368	10	105.5
C10	Cloiche	41,009	29	149.9
C11	Tom na Clach Extension	43,384	7	149.9
C12	Bunloinn	46,116	10	200
C13	Meall Buidhe	46,621	8	149.9 / 144.5
APPLICATION WIND ENERGY DEVELOPMENT WITHIN 45KM				
A01	Carn Coire na Muic	7,758	2	11.1
A02	Abhainn Dubh	19,875	9	149.9
A03	Loch Liath	21,281	13	180 / 200
A04	Lynemore	30,914	14	200
A05	Clune	40,657	26	200
A06	Highland	42,924	19	200/230
A07	Balnespick	44,264	9	200
A08	Culachy	44,568	8	200
SCOPING WIND ENERGY DEVELOPMENT WITHIN 10KM				
S01	Fairburn Extension (included in cumulative assessment)	918	14	200

Reference ⁸	Name	Distance (m) ⁹	Number of turbines	Blade tip Height (m)
S02	Tarvie	9,815	5	200

Zone of Theoretical Visibility and Viewpoint Analysis

- 6.45 As a prelude to the main assessment, the Zone of Theoretical Visibility (ZTV) and viewpoint analysis is used to further define the scope of the assessment process. In particular, a significance threshold indicating the distance from the proposed development, where significant effects may be likely, has been identified. This has been used to focus the baseline information and detailed reporting of the assessment in this chapter.

ZTV and Cumulative ZTV Analysis

- 6.46 The Zone of Theoretical Visibility (ZTV) analysis is used to assist the design and further define the scope of the assessment process. The ZTVs have been calculated using ReSoft © WindFarm computer software to produce an area of potential visibility of any part of the proposed turbines, calculated to turbine blade-tip and hub-height, or selected infrastructure. The ZTV does not however take account of built development and vegetation, which can significantly reduce the area and extent of actual visibility in the field and as such provides the limits of the visual assessment Study Area. As a result, there may be roads, tracks and footpaths in the wider setting which, although shown as falling within the ZTV, have restricted viewing opportunities since they are heavily screened or filtered by banks, walls and vegetation. The ZTVs therefore provide a starting point in the assessment process and accordingly tend to over-estimate the potential visibility of the proposed turbines.
- 6.47 A number of ZTV maps have been provided as follows:
- Figure 6.2: illustrates the ZTV calculated to blade tip at 1:360,000 scale across the 45km Study Area and provides an overview of the theoretical extent of visibility with viewpoint locations;
 - Figure 6.3: illustrates the ZTV calculated to hub height at 1:360,000 scale across the 45km Study Area and provides an overview of the theoretical extent of visibility with viewpoint locations;
 - Figure 6.4: illustrates the central section of the blade tip ZTV, shown in more detail at 1:120,000 scale, showing the area within 15km of the proposed development with viewpoint locations;
 - Figure 6.5: (A0 fold-out) illustrates the ZTV calculated to blade tip at 1:115,000 scale across the 45km Study Area and includes viewpoint locations; and
 - Figure 6.6: (A0 fold-out) illustrates the central 20km area of the ZTV calculated to blade tip at 1:50,000 scale across the Study Area and includes viewpoint locations.
- 6.48 Further cumulative ZTV maps are also illustrated in Figures 6.13-17, indicating the extent of theoretical cumulative visibility in relation to the proposed development, and other relevant existing and consented wind farms, and wind farm applications. The cumulative

developments have been grouped according to their planning status or geographical location. All of the cumulative ZTVs assume bare ground and are calculated to blade tip height, indicating the maximum theoretical visibility of other wind farms within the ZTV footprint of the proposed development. The cumulative ZTVs do not therefore illustrate the complete ZTV for other cumulative wind energy development, which is likely to be visible from other locations where the proposed development is not visible.

ZTV Analysis: proposed development

- 6.49 The ZTV pattern for the proposed development reflects the underlying landform within the 45km Study Area and the percentages of theoretical visibility cover are summarised as follows:
- Total ZTV (to blade tip) coverage accounts for 24.15% of the Study Area; and
 - Total ZTV (to hub height) coverage accounts for 20.89% of the Study Area.
- 6.50 ZTV coverage generally reflects the underlying topography in the Study Area. The proposed turbines would be located on open moorland surrounded by low-lying hills between Strathconon and Glen Orrin to the north and Glen Strathfarrar and Strathglass to the south. To the west, the topography rises steadily to form rocky plateaus scattered with dispersed Munros and occasionally bisected by straths and glens. This rising landform screens most of the potential views beyond the eastern plateau edge resulting in views from scattered summits to the west. This is reflected in the ZTV coverage which is sparse to the west, southwest and northwest beyond 10km. In the wider Study Area to the southeast, east and northeast, the topography descends towards farmed strath, forested slopes, river plains and the Cromarty and Beaulie Firths before rising again to moorland plateau (in the southeast) and rounded mountain massif (in the northeast) and ZTV coverage is increased in these areas. ZTV coverage is very limited within The Great Glen and Loch Ness area to the southeast due to the steep slopes along the western shores.
- 6.51 ZTV coverage within 10km of the proposed development is indicated on much of the elevated moorland surrounding the Site, becoming patchy to the west, north and south. Theoretical visibility falls away at Strathconon, Glen Orrin, and Strathglass but continues again on the facing valley sides. To the west, theoretical visibility is contained by the rising topography and limited to the elevated summit of Beinn a' Bhathaich Ard (Corbett) and the south-facing slopes north of Glen Orrin.
- 6.52 Beyond 10km, the main areas of theoretical visibility occur across the falling landform to the west, the flat open expanses of the Beaulie and Cromarty Firths, and the facing slopes to the west of the Black Isle. Patchy ZTV coverage is also indicated to the north and northeast on the hills and rising landform to the north of Strathconon culminating at Ben Wyvis. To the south and southeast, patchy ZTV coverage is indicated on the moorland plateau between Strathglass and The Great Glen. ZTV coverage is very limited to the west, southwest and northwest where isolated summits would experience theoretical visibility.
- 6.53 ZTV coverage becomes sparser beyond 20km and is most evident to the north and south of the Black Isle, the facing slopes north of Cromarty Firth, and the rising landform to the south of Moray Firth between the settlements of Inverness and Nairn. Some distant and

patchy theoretical visibility is indicated along the facing slopes of the Monadhliath Mountains to the southeast and elevated summits to the northwest.

Viewpoint and Cumulative Viewpoint Analysis

- 6.54 The viewpoint analysis has been conducted from 27 viewpoint locations as illustrated in Figures 6.2-6.6. Each of these viewpoints are illustrated as baseline photographs and visualisations (wirelines and / or photomontages) in Figures 6.18-6.44. The figures accord with Scottish Natural Heritage, *Visual Representation of Wind Farms: Good Practice Guidance*, Version 2.2, February 2017 and the Highland Council, *Visualisation Standards for Wind Energy Developments*, July 2016.
- 6.55 The outer distance from the proposed development, within which significant effects may be likely has been identified by the viewpoint analysis of the proposed development. Further, cumulative viewpoint analysis has identified a likely threshold for significant cumulative visual effects that would result from the proposed development, in addition to, or in combination with other existing and consented wind energy developments and applications.
- 6.56 Cumulative wind farm development included within the 45km Study Area that would be theoretically visible from each viewpoint has been illustrated in the wirelines.

Potential for day-time significant effects: proposed development

- 6.57 The viewpoint analysis indicates that significant visual effects are likely to affect limited locations within approximately 15km distance from the proposed development (subject to a clear view of the proposed turbines, landform and vegetation screening), as indicated by Viewpoints 1, 3, 4, 5, 8, 11, 12, 13, 15 and 17. Significant visual effects would be limited to views from the southwest, southeast, east and northeast of the proposed development.
- 6.58 The greatest magnitude of change is visible at Viewpoint 4 (High-Medium magnitude) (all other viewpoints are assessed as Medium magnitude or less). There is no High magnitude of change assessed at any viewpoint which is as a result of the surrounding low hills around the Site of the proposed development.
- 6.59 The effects on all ten viewpoints (and an additional viewpoint 10) would also be cumulative and further cumulative analysis is provided below.
- 6.60 There would be no significant visual effects from the remaining 17 viewpoints as a result of the proposed development.

Potential for day-time significant cumulative effects

- 6.61 The proposed development would contribute to a significant, cumulative visual effect at 11 of the assessment viewpoints (Viewpoints 1, 3, 4, 5, 8, 10, 11, 12, 13, 15 and 17), six of which (Viewpoints 1, 4, 10, 11, 12 and 17) are also significantly affected by the existing Fairburn Wind Farm and / or the scoping Fairburn Extension Wind Farm. In addition, there would be a significant cumulative effect at Viewpoint 8 due to the application Fanellan

substation. There would be no significant cumulative visual effects as a result of the proposed development from the remaining viewpoints.

- 6.62 Three viewpoints (16, 21 and 24) are significantly affected as a result of other wind farms and not the proposed development.
- 6.63 Importantly these levels of effect are indicative of a visual effect on a particular viewpoint location, and they should not be assumed to translate into visual effects on the overall visual experience, as each of the viewpoints have been specifically located where the sensitivity of the receptor and / or the views of the proposed development would be greatest. In this sense they are not always typical or representative.
- 6.64 As a precaution, the visual assessment in this chapter has considered all of those receptors within 15km of the proposed development and national level receptors within 45km.

Interpretation of Viewpoint Analysis Summary Tables

- 6.65 The information set out in Table 6.5 provides a summary of the viewpoint analysis of the effects of the proposed development on an independent or 'standalone' basis. This part of the assessment helps to define the contribution the proposed development would make to any subsequent cumulative assessments ('in addition to' or 'in combination with' other wind farms). It is also relevant to the latter half of the operational period for the proposed development, when the consented periods of operation for other wind farms would expire and they would be decommissioned, assuming no extensions to the operating periods or re-powering schemes are granted.
- 6.66 The information set out in Table 6.5 provides a summary of the cumulative viewpoint analysis and sets out the effects of proposed development 'in addition' to and 'in combination' with other existing, consented and application wind energy developments in accordance with the methodology in Technical Appendix 6.1 as follows:
- 6.67 The summary tables list the names of the viewpoints and include the following information:
- Proposed development: Assessed on an individual basis (the LVIA)
 This part of the assessment takes account of other existing forms of wind farm development that may be present in the landscape, whilst recognising that their influence on landscape character is likely to be time limited. It does not consider the additional or combined cumulative effects and only reports on the effect of the proposed development alone.
 - Scenario 1: Existing + Consented + the proposed development
 The additional and combined cumulative effects of the baseline, including the existing and consented wind energy developments with the proposed development are reported.
 - Scenario 2: Existing + Consented + Applications + the proposed development
 The additional and combined cumulative effects of the baseline, including existing and consented wind energy developments and applications (and one at scoping) with the proposed development are reported.

6.68 Further information on Table 6.5 is provided in Technical Appendix 6.2.

Table 6.5 Summary of Viewpoint Analysis

No	Viewpoint Name Title	FoV* (Field of view)	Distance to nearest turbine (m)	Viewpoint Analysis: proposed development (20 turbines up to 200 / 230m to blade tip)			Cumulative Viewpoint Analysis: proposed development (PD**) and other wind farms					
				Sensitivity	Magnitude	Level of Effect:	Magnitude (Existing and Consented)	Additional Level of Effect (PD)	Scenario 1: Combined Level of Effect	Magnitude (Applications)	Additional Level of Effect (PD)	Scenario 2: Combined Level of Effect
1	Core Path RC30.01 to Orrin Dam	59°	3,624	High	Medium	Major	Medium	Major	Major (Fairburn, PD)	High	Major	Substantial (Fairburn Ext, Fairburn, PD)
2	Torgormack - Drumindorsair	23°	3,729	High	Low reducing to Very Low	Moderate reducing to Minor	Very Low	Moderate reducing to Minor	Moderate (PD) reducing to Minor	Very Low	Moderate reducing to Minor	Moderate (PD) reducing to Minor
3	Fairburn Estate	12°	5,233	High	Low	Moderate	Low-Very Low	Moderate	Moderate (PD)	Zero	No cumulative effect	
4	Beinn a'Bhathaich Ard (Corbett)	28°	5,967	High	High-Medium	Substantial to Major	Low-Very Low	Substantial to Major	Substantial to Major (PD)	Medium	Substantial to Major	Substantial to Major (Fairburn Ext, PD)
5	A831, Struy	13°	7,027	High / Medium	Medium	Major / Moderate	Very Low	Major / Moderate	Major / Moderate (PD)	Zero	No cumulative effect	
6	Beauly	9°	7,411	High	Very Low to Zero	Negligible to No View	Very Low to Zero	Negligible to No View	Negligible to No View	Very Low to Zero	Negligible to No View	Negligible to No View
7	A832, Muir of Ord	<1°	8,307	High	Very Low to Zero	Negligible to No View	Very Low	Negligible to No View	Negligible	Very Low	Negligible to No View	Negligible
8	Kiltarlity	17°	8,325	High	Medium	Major	Very Low	Major	Major (PD)	Medium	Major	Major (PD, Fanellan substation)
9	A835, Contin	11°	8,439	High / Medium	Low-Very Low	Moderate to Minor / Minor	Low -Very Low	Moderate to Minor / Minor	Moderate to Minor / Minor	Low-Very Low	Moderate to Minor / Minor	Moderate to Minor / Minor

No.	Viewpoint Name Title	FoV* (Field of view)	Distance to nearest turbine (m)	Viewpoint Analysis: proposed development (20 turbines up to 200 / 230m to blade tip)			Cumulative Viewpoint Analysis: proposed development (PD**) and other wind farms					
				Sensitivity	Magnitude	Level of Effect:	Magnitude (Existing and Consented)	Additional Level of Effect (PD)	Scenario 1: Combined Level of Effect	Magnitude (Applications)	Additional Level of Effect (PD)	Scenario 2: Combined Level of Effect
10	Jamestown	24°	9,352	High	Low	Moderate	Low - Very Low	Moderate	Moderate	Medium-Low	Moderate	Major to Moderate (Fairburn Ext, PD)
11	Barlvaird - Newmore	13°	10,409	High	Medium-Low	Major to Moderate	Low	Major to Moderate	Major to Moderate (PD)	Medium - Low	Major to Moderate	Major to Moderate (Fairburn Ext, PD)
12	A835 / B9169	12°	12,773	Medium	Medium	Moderate	Low-Very Low	Moderate	Moderate (PD)	Medium	Moderate	Moderate (Fairburn Ext, PD)
13	Great Glen Way near Ladycairn	10°	13,633	High	Medium	Major	Low-Very Low	Major	Major (PD)	Low	Major	Major (PD)
14	A832 West of Tore	9°	13,710	Medium	Medium-Low	Moderate to Minor	Low-Very Low	Moderate to Minor	Moderate to Minor	Low	Moderate to Minor	Moderate to Minor
15	Meall a 'Mhadaibh	8°	14,529	High	Low	Moderate	Low-Very Low	Moderate	Moderate (PD)	Low	Moderate	Moderate (PD)
16	Sgùrr a' Choire Ghlais	7°	15,200	High	Low-Very Low	Moderate to Minor	Low	Moderate to Minor	Moderate to Minor	Medium-Low	Minor	Major to Moderate (Fairburn Ext)
17	Heights of Brae	15°	15,204	High	Low	Moderate	Low-Very Low	Moderate	Moderate (PD)	Low	Moderate	Moderate (Fairburn Ext, PD)
18	Knockbain - Torgorm	7°	18,769	High	Low	Moderate	Very Low	Moderate	Moderate	Low-Very Low	Moderate	Moderate
19	A862, Clachnaharry	7°	19,089	High / Medium	Low	Moderate / Minor	Very Low	Moderate / Minor	Moderate / Minor	Low-Very Low	Moderate / Minor	Moderate / Minor

No	Viewpoint Name Title	FoV* (Field of view)	Distance to nearest turbine (m)	Viewpoint Analysis: proposed development (20 turbines up to 200 / 230m to blade tip)			Cumulative Viewpoint Analysis: proposed development (PD**) and other wind farms					
				Sensitivity	Magnitude	Level of Effect:	Magnitude (Existing and Consented)	Additional Level of Effect (PD)	<u>Scenario 1:</u> Combined Level of Effect	Magnitude (Applications)	Additional Level of Effect (PD)	<u>Scenario 2:</u> Combined Level of Effect
20	A9, Cromarty Firth	10°	19,390	High / Medium	Low	Moderate / Minor	Low	Moderate / Minor	Moderate / Minor	Low-Very Low	Moderate / Minor	Moderate / Minor
21	Ben Wyvis	13°	20,607	High	Low-Very Low	Moderate to Minor	High-Medium	Moderate to Minor	Substantial to Major (Lochluichart, Corriemollie, Lochluichart Ext, Kirkan, Novar, Ext)	Low-Very Low	Moderate to Minor	Substantial to Major (Lochluichart, Corriemollie, Lochluichart Ext, Kirkan, Novar, Ext)
22	A9, Kessock Bridge	6°	21,612	High / Medium	Low-Very Low	Moderate to Minor / Minor	Very Low	Moderate to Minor / Minor	Moderate to Minor / Minor	Very Low	Moderate to Minor / Minor	Moderate to Minor / Minor
23	A96, Alturlie Junction	5°	26,546	Medium	Very Low	Minor	Very Low	Minor	Minor	Very Low	Minor	Minor
24	Cnoc Fyrish	9°	27,281	High	Very Low	Minor	Medium	Minor	Major (Strathrory)	Medium	Minor	Major (Strathrory, Abainn Dubh)
25	B817, Alness	8°	29,147	High / Medium	Very Low	Minor / Negligible	Very Low	Minor / Negligible	Minor / Negligible	Very Low	Minor / Negligible	Minor / Negligible
26	Chanonry Point	4°	31,015	High	Very Low	Minor to Negligible	Very Low	Minor to Negligible	Minor to Negligible	Very Low	Minor to Negligible	Minor to Negligible
27	Invergordon	6°	32,858	High	Very Low	Negligible	Very Low	Negligible	Negligible	Low	Negligible	Moderate (Abhainn Dubh)

Note: Significant effects resulting from the proposed development are indicated in bold text and shaded dark grey.

* Field of View

** Proposed Development

Baseline of Landscape Receptors

- 6.69 Information on the existing landscape resource or baseline conditions included in this assessment has been collected from local development plans, OS maps, and relevant literature, as well as information gathered from field surveys. This baseline information is set out as an inventory of the existing landscape resource and focuses on those landscape receptors with most potential to be significantly affected.
- 6.70 The baseline inventory includes the following landscape receptors:
- Landscape Character and Elements; and
 - Landscape Planning Designations and WLAs.
- 6.71 The viewpoint analysis indicates that significant visual effects are likely to affect limited locations within approximately 15km distance from the proposed development (subject to a clear view of the proposed turbines, landform and vegetation screening), as indicated by Viewpoints 1, 3, 4, 5, 8, 11, 12, 13, 15 and 17. Significant visual effects would be limited to views from the southwest, southeast, east and northeast. Taking a precautionary approach, the assessment has focused on those local landscape receptors within 15km of the proposed development and nationally important landscape planning designations within the wider LVIA Study Area. Receptors that would not be significantly affected have been excluded from the assessment with appropriate reasoning provided as part of the baseline analysis.
- 6.72 Site survey and viewpoint analysis also indicates that landscape effects likely to result from other activities and infrastructure associated with the proposed development during its construction and decommissioning would be largely limited to the host *Rugged Massif - Inverness* LCT and the adjacent *Farmed Strath - Inverness* LCT.

Baseline Landscape Character

- 6.73 Landscape across Scotland is classified into different types of landscape character (LCTs) by NS in their Landscape Assessment (2019)¹⁰. The assessment divides the landscape into broad LCTs, which are illustrated within the Study Area in Figures 6.7 and 6.8.
- 6.74 Primarily, nine LCTs within 15km are overlapped by the blade tip ZTV for the proposed development as follows, and are included in the assessment:
- 220 – Rugged Massif - Inverness LCT ('host' LCT);
 - 222 – Rocky Moorland Plateau – Inverness LCT;
 - 226 – Wooden Glen – Inverness LCT;
 - 227 – Farmed Strath - Inverness LCT;
 - 229 – Enclosed Farmland LCT;
 - 331 - Rounded Rocky Hills – Ross & Cromarty LCT;
 - 328 – Rugged Mountain Massif – Ross & Cromarty LCT;

¹⁰ NatureScot National Landscape Character Assessment (2019).

- 341 – Forest Edge Farming LCT; and
- 345 – Farmed and Forested Slopes - Ross & Cromarty LCT.

- 6.75 The host landscape character of the *Rugged Massif - Inverness* LCT would be directly affected by the proposed development (and a small part of the *Farmed Strath - Inverness* LCT due to the proposed Site entrance and access track). Moving away from the Site, other areas of landscape character could be indirectly affected by views of the proposed development (notably the turbines) and through effects on their key perceptual characteristics and qualities such as 'wildness' or 'naturalness'.
- 6.76 Other LCTs within 15km, particularly those to the north and northeast overlapped by the blade tip ZTV (335, 343, 346, 347 and 348) are already influenced by the existing Fairburn and Auchmore wind farms located closer to these LCTs and the addition of the proposed development is unlikely to result in significant landscape effects.
- 6.77 There are LCTs within three nationally designated NSAs and seven WLAs in the Study Area that are overlapped by the blade tip ZTV. However, effects on the Glen Affric NSA, Wester Ross NSA, and all WLAs except for the Central Highlands WLA have been excluded from the assessment as agreed with NS, and therefore the LCTs within these areas are also excluded on this basis. Effects on the relevant LCTs within the Glen Strathfarrar NSA and Central Highlands WLA are included above.

Baseline Pattern of Wind Farm Development

- 6.78 Wind farm development is now a landscape characteristic of many areas of Scotland including the Highlands. Wind farms are referenced in SNH's most recent 2019 Landscape Character Assessment and are noted as a feature of the host LCT. They are also referenced in the OWESG.
- 6.79 There are currently approximately seven clusters of wind farm development (and one lone wind farm) within the Study Area (Figure 6.12) and the baseline pattern of wind farm development is a pattern that has emerged in recent decades and may continue to evolve. Much of the existing and consented wind farms are largely located within 'uplands' whilst avoiding the high mountains and low-lying straths and coast. The main clusters of development are described as follows:
- Auchmore and Fairburn form a loose cluster within the Rounded Rocky Hills LCT in Ross and Cromarty to the north and northeast of the proposed development, also avoiding the straths, coastline and the higher mountains;
 - Bhlaraidh, Corrimony, Chrathaich and Bhlaraidh Extension form a close cluster, set within the Rocky Moorland Plateau – Inverness LCT to the south of the Study Area, whilst avoiding the straths, the higher mountains and WLAs. The application Loch Liath Wind Farm, if consented, would also supplement this cluster;
 - Corriemoillie, Lochluichart and Kirkan: This cluster of wind farm development is located in central Ross and occupies the *Rounded Hills and Moorland Slopes* and *Rounded Mountain Massif* LCTs between the A835 and the A832, avoiding the higher mountains and wild land to the west. The consented Kirkan and Lochluichart Extension II wind farms would also supplement this cluster;

- Beinn Tharsuinn, Coire na Cloiche, Novar and Strathrory: This cluster in Easter Ross is set back from the straths and firths of Cromarty and Dornoch, whilst also avoiding the higher mountains and WLAs. Novar is set apart (approximately 7km) but forms part of this group when viewed from more distant locations or from the coastal firths. The under construction Strathrory Wind Farm would also supplement this cluster;
- Farr and Glen Kyllachy wind farms form a close cluster, set within the Rolling Uplands - Inverness LCT. This cluster along with the existing Aberarder, Dunmaglass, Corriegarth, Stronelaig extend to the southeast of the Study Area along the broad 'ridge' or spine of the Monadhliath mountain range, all within the Rolling Uplands - Inverness LCT. The consented Corriegarth 2, Dell and Cloiche wind farms would also supplement this cluster;
- Moy and Tom na Clach and its consented Extension form a loose cluster to the east of the A9, also set within the 'uplands' in the Rolling Uplands - Inverness LCT and Open Rolling Upland LCT;
- Millennium, Beinneun and their Extension along with the consented Tomchrasky and Bunloinn wind farms are located to the southwest of the study, set within the uplands in the Rugged Massif LCT; and
- Meall Buidhe: This lone wind farm to the north occupies the intermediate upland, whilst avoiding the straths, the higher mountains and WLAs.

6.80 The proposed development would most closely associate with the Fairburn and Auchmore cluster and is comparable to other inland clusters in that it is set back from the straths and avoids the higher mountains. In common with some of the other existing and consented wind farm development, it is located within the *Rugged Massif* LCT.

Baseline Planning Designations

- 6.81 Landscape planning designations and WLAs within the 45km Study Area are illustrated in Figure 6.9a. They include eight local, five national level landscape planning designations and seven WLAs.
- 6.82 The proposed development is not located within any landscape designations or WLAs, the Site and surrounding landscape being undesignated. Therefore, there can be **no** physical or direct impacts on landscape designations or WLAs within the Study Area.
- 6.83 Landscape designations and WLAs may however be indirectly affected by development beyond their boundaries that may otherwise affect the designation's Special Landscape Qualities (SLQs), including views and perceptual qualities, for which they are valued and designated.
- 6.84 The following landscape designations are included in the assessment as agreed through consultation:
- Glen Strathfarrar NSA (NSA 3);
 - Strathconon, Monar and Mullardoch SLA (SLA 16); and
 - Ben Wyvis SLA (SLA 17).

- 6.85 The other designated landscapes (NSAs and SLAs illustrated in Figure 6.9a) are excluded from the assessment as agreed through consultation. This is because of the limited ZTV coverage within these areas, influence of other existing and consented wind farms located closer to these landscapes and the likelihood that the integrity and SLQs would not be significantly affected by views of the proposed development.

Wild Land Areas

- 6.86 The Central Highlands WLA is located approximately 171m west of the nearest turbine of the proposed development. The assessment includes the Central Highlands WLA which is reported in Technical Appendix 6.4. NS agreed to scope out the assessment on all other WLAs within the Study Area, as reported in Table 6.1.

Gardens and Designed Landscapes

- 6.87 Gardens and Designed Landscapes (GDLs) are considered under visual receptors as a visitor or tourist attraction and the effects on their setting is assessed separately in Chapter 7: Cultural Heritage.

Baseline of Visual Receptors

- 6.88 The visual assessment draws upon the ZTV, site visits and viewpoint analysis and assesses the potential visual effects on views and visual amenity likely to be experienced by receptors (people) within the landscape as follows:
- Views from residential properties and settlements;
 - Views experienced whilst travelling through the landscape (road / rail users, walkers, horse riders and cyclists for example); and
 - Views from tourist and recreational destinations.
- 6.89 The viewpoint analysis indicates that significant visual effects are likely to affect limited locations within approximately 15km distance from the proposed development (subject to a clear view of the proposed turbines, landform and vegetation screening), as indicated by Viewpoints 1, 3, 4, 5, 8, 11, 12, 13, 15 and 17. Significant visual effects would be limited to views from the southwest, southeast, east and northeast. Taking a precautionary approach, the assessment has focused on those visual receptors, overlapped by the blade tip ZTV within 15km of the proposed development. Within the wider Study Area, the assessment has considered receptors of national importance such as Scotland's Great Trails, Sustrans Cycle Routes and popular hill walking summits (Munros and Corbetts), also overlapped by the blade tip ZTV. Receptors that would not be significantly affected have been excluded from the assessment with appropriate reasoning provided as part of the baseline analysis.

Visual Receptors: Settlements and Residential Properties

- 6.90 The assessment of visual effects likely to be experienced from settlements includes consideration of residential areas, the public realm, and public open spaces within the settlement boundaries that would be frequented by people. Settlements and 'Growing Settlements' included in the assessment are those defined in the HwLDP and IMFLDP2.

6.91 The following settlements within 15km are overlapped by the blade tip ZTV and have been included in the assessment:

- Settlements within 5km: None
- Settlements between 5-10km:
 - Muir of Ord;
 - Beauly;
 - Kiltarlity;
 - Contin (Growing Settlement).
 - *Jamestown is not a settlement defined HwLDP or IMFLDP2 and is therefore excluded from the settlement assessment, however, views from this location are assessed and illustrated by Viewpoint 10.*
- Settlements between 10-15km:
 - Kirkhill;
 - Strathpeffer;
 - Conon Bridge.
- Dispersed communities between 2-4km southeast from the proposed development – as requested by THC. They include Farley, Cruinassie, Leanassie, Torgormack, and Druindorsair.

6.92 Other settlements beyond 15km, including Inverness, Alness (Viewpoint 25), Invergordon (Viewpoint 27), Fortrose and Rosemarkie, Maryburgh, Avoch, Munlochy, Culbokie, Evanton, Highland Deephaven, Whiteness, Marybank, Ardersier, Castle Stuart, Croy Cromarty, Dingwall, Dores, Drumnadrochit, Tomatin, Tore, North Kessock, Tornagrain, Fort Augustus and Nairn, are either outwith the ZTV or have very limited (Negligible) visibility of the proposed development and are therefore excluded from the assessment on the basis that effects would be Not Significant.

6.93 There are no residential properties within 2km of the proposed turbines and as agreed with THC through consultation and in line with the Landscape Institute *Residential Visual Amenity Assessment (RVAA) Technical Guidance Note 2/19*, a RVAA has been excluded.

Visual Receptors: Transport Routes

6.94 Transport routes (A and B roads and railway routes) within 15km of the proposed development that are overlapped by the blade tip ZTV are listed as follows and included in the assessment:

- A831
- A832 (partially overlapped with North Coast 500);
- A833;
- A834;
- A835 (partially overlapped with Sustrans Cycle Route 1 and North Coast 500);
- A862 (overlapped with North Coast 500, Moray Firth Tourist Route, John o'Groats Trail and Sustrans Cycle Route 1);

- B9163;
- B9164;
- B9169;
- The Far North (Inverness to Wick) Railway Line; and
- Inverness to Kyle of Lochalsh Railway Line.

6.95 In addition, 'A' class roads beyond 15km distance from the proposed development that are overlapped by the ZTV have been included in the assessment as a precaution. These include sections of the routes above, as well as the following:

- A9 – between Moy and Tain via Inverness (overlapped with North Coast 500 and Moray Firth Tourist Route); and
- A96 – between Inverness and Nairn.

6.96 As noted above, parts of the A9, A832, A835 and A862 overlaps with the North Coast 500 Tourist Route within the wider Study Area. The Moray Firth Tourist Route overlaps with the A862 and A9. Additionally, the Sustrans National Cycle Route 1 overlaps with sections of the A862 and A835, and the John o'Groats Trail overlaps with the A9.

Visual Receptors: Recreational Routes

6.97 The visual assessment has considered the potential visual effects likely to be experienced by people (walkers, cyclists, and others) on recreational routes within the Study Area. The recreational routes include Core Paths, Heritage Paths and Scottish Hill Tracks which have been assessed within 15km of the proposed development and Sustrans Cycle routes. National level long distance routes such as Scotland's Great Trails are assessed within the wider 45km Study Area.

Local Recreational Routes within 15km

6.98 Core Path Plans were created in response to a requirement of the Land Reform (Scotland) Act 2003 to provide a statutory right of non-motorised access to most land and inland water. They aim to establish and designate a reasonable network of paths and waterways, with individual paths chosen because they meet at least one objective from a range of purposes, including linking communities, providing access to places of interest, and for recreation.

6.99 Local Recreational Routes within 15km (as illustrated in Figure 6.11) that are overlapped by the blade tip ZTV are included in the assessment as follows:

- Core Path RC30.01 Orrin Dam track (overlapped with Scottish Hill Track 283);
- Core Paths within and around Muir of Ord (RC32.04-05, 08-09);
- Core Paths within Beaully (IN03.01);
- Core Paths south of Balblair (IN03.04, IN20.05);
- Core Paths around Kiltarlity (IN20.02, IN20.06, IN20.09);
- Core Paths around Kirkhill (IN21.01-08);
- Core Paths around Canon Bridge and Maryburgh (RC09.01-05, RC31.01-05, RC13.08);

- Core Paths around Contin (RC10.01, RC10.03, RC10.05);
- Core Paths around Strathpeffer (RC45.01-10);
- Scottish Hill Track 279: Muir of Ord to Struy (Strathglass); and
- Heritage Path A: Old Road to Milton of Redcastle.

- 6.100 The remaining Core Paths and other local recreational routes that are overlapped by the ZTV are largely either obstructed by intervening mature woodland / vegetation or built form, routed through forestry or woodland, or have limited visibility of a few blade tips such that effects would be not significant and are therefore excluded from the assessment.
- 6.101 Within 15km, there are several areas of woodland that are used for walking, horse riding and cycling, including Clash Wood, Blackmuir Wood, Contin, Loch Achilty, Glen Orrin and Rogie Falls. Wirelines and site visits confirm that visibility from the forest trails in this area would be largely limited to blade tips and / or no visibility as well as being subject to further forestry screening. Significant visual effects are therefore unlikely, and these receptors have therefore been excluded from the assessment.
- 6.102 Routes within 15km that are outwith the ZTV would have No View of the proposed development and therefore excluded from the assessment.
- 6.103 Overlapping road, walking and cycling routes have not been 'double counted' and are assessed as one receptor where they occur with the national level receptor taking precedence in the assessment.

National Recreational Routes (Scotland's Great Trails and National Cycle and Tourist Routes) within 45km

- 6.104 National and other long-distance recreational routes within 45km of the proposed development (as illustrated in Figure 6.10) that are overlapped by the blade tip ZTV are included in the assessment and listed as follows:
- Moray Firth Tourist Route (overlapped with North Coast 500, A862 and A9);
 - Sustrans National Cycle Route 1 – Inverness to Tain (some sections overlapped with the A862 and A835, and John o'Groats Trail);
 - North Coast 500 Tourist Route (overlapped with A9, A832, and A862, and Moray Firth Tourist Route);
 - John o'Groats Trail (some sections overlapped with the A9 and Sustrans Cycle Route 1);
 - Great Glen Way (overlapped with Loch Ness 360); and
 - Highland Tourist Route.
- 6.105 Sustrans National Cycle Route 78 is outwith the ZTV and would have No View of the proposed development. Sustrans National Cycle Route 7 is almost over 30km distance and the route is frequently bound by woodland. It is excluded from this assessment on this basis.

Visual Receptors: Recreational and Tourist Destinations

- 6.106 Recreational and tourist / visitor attractions relevant to the LVIA include those features that appear as prominent landmarks or landscape features, and locations associated with passive recreation such as walking, where there is a clear relationship between the feature / destination and an appreciation of the landscape. Gardens and Designed Landscapes (GDL) are included where these are open to the public, as well as National Trust gardens / land and Historic Environment Scotland visitor sites which are overlapped by the blade tip ZTV. Some of these locations are also referred to in the Chapter 7: Cultural Heritage and the Chapter 13: Socio-economics. The assessment excludes locations for team sports and other recreational / tourist destinations where the focus of activity is not on the landscape or is indoors – for example museums, libraries, and gift shops.
- 6.107 Recreational and tourist / visitor attractions that are overlapped by the blade tip ZTV (Figure 6.11) within 15km of the proposed development and included in the assessment are listed as follows:
- Ord Hill (Cnoc Croit na Maoile); and
 - Heights of Brae (Viewpoint 17).
- 6.108 Beaufort Castle and Fairburn Estate are overlapped by the ZTV, however they assessed alongside the associated Gardens and Designed Landscapes.
- 6.109 Other attractions such as Riverside Chalets and Caravan Park (Contin) and Beaully (Lovat Bridge) Holiday Park are overlapped by the blade tip ZTV however intervening mature vegetation largely limits actual visibility, particularly during the months of operation (April to October). Similarly, views from Muir of Ord Golf Course and Blackmuir Touchstown Maze are also restricted by surrounding intervening mature vegetation and landform such that visibility is limited to blade tips resulting in non-significant effects. They are therefore excluded from the assessment.
- 6.110 Moy Rock is a hiking area within mature and young coniferous forestry / woodland. Views of the proposed development from the trails within the woodland are largely enclosed and limited. Similarly, the promoted viewpoint at View Rock is also overgrown with surrounding woodland limiting outward views more towards the west, away from the proposed development to the south. Both receptors are therefore excluded from the assessment.
- 6.111 The Falls of Orrin, Rogie Falls, Strathpeffer Spa Golf Course and Aigas Golf Course and Holiday Cottages are outwith the ZTV and would have No View of the proposed development.

Gardens and Designed Landscapes

- 6.112 There are five Gardens and Designed Landscapes (GDL) from the Historic Environment Scotland inventory. Castle Leod is outwith the ZTV. There would be no visibility from The Spa Gardens, Strathpeffer due to the surrounding mature woodland and settlement. It has therefore been excluded from further assessment. The setting of GDLs is assessed separately under Cultural Heritage in Chapter 7 of this EIA Report.

6.113 The following GDLs within 15km are included in this assessment:

- Fairburn;
- Beaufort Castle;
- Belladrum Estate;
- Reeling (Easter Moniac) – proposed GDL; and
- Brahan.

Hills and Mountains

6.114 The assessment recognises that a range of recreational / tourist activities may be undertaken within the hills and moorlands including but not limited to, stalking / hunting / fishing, climbing / mountaineering, paragliding, horse riding, and mountain biking. The assessment has focused on the walker as the main receptor activity whose attention is likely to be most focused on the landscape and an appreciation of their surroundings.

6.115 There are two Munros and one Corbett within 15km southwest of the proposed development with a further two Munros located just beyond 15km to the southwest which are included in the assessment as follows:

- Munros:
 - Strathfarrar Munros (Sgùrr na Ruaidhe, Carn nan Gobhar, Sgùrr a'Choire Ghlais (Viewpoint 16) and Creag Ghorm a'Bhealaich).
- Corbetts:
 - Beinn a'Bhathaich Ard (Viewpoint 4).

6.116 Local hills in the area, including Ord Hill, are assessed under recreational and tourist / visitor attractions.

6.117 In the wider 45km Study Area, there are numerous Munros and Corbett summits that are overlapped by the blade tip ZTV, however, the viewpoint analysis concludes that there would be no significant effects beyond 15km. Therefore, these receptors are excluded from the assessment.

Predicted Future Baseline

6.118 The proposed development would cover a period of approximately 37 years (including construction, operation and decommissioning). The approximate time periods associated with the proposed development, and whether they are predominantly long-term or short-term are listed as follows:

- Construction: up to 18 months (short-term);
- Operation: up to 35 years (long-term and reversible); and
- Decommissioning: up to 6 months (short-term).

6.119 The LVIA also recognises that some elements of the proposed development such as borrow pits and access tracks will be permanent and remain beyond the construction and decommissioning period, although subject to mitigation in respect of the borrow pits, whilst

access tracks may re-vegetate over time if left un-used. Although 'long-term', the operation period of up to 35 years is assessed as though it were permanent, whilst noting that the effects of the proposed turbines would be reversible once decommissioned.

6.120 The LVIA considers that during this period of 37 years, the predicted future baseline and evolution of landscape and visual receptors is unlikely to change significantly under the current regime of landscape and forestry management and maintenance. However, land management, and consequently landscape character, is dependent on a number of economic and environmental factors including the future effects of climate change and human adaptation which are difficult to predict at a local level and not a matter for this assessment. It is however likely that mitigation and adaptation in response to changing climate and biodiversity pressures will continue to have an influence on this area in the form of increased renewable energy and other environmental changes which are likely to alter the landscape baseline as follows:

- Change resulting from an increased reliance on renewable energy, including wind farm development; and
- Change to current levels of forestry and woodland, which may increase.

6.121 Change to the future baseline of other large scale wind energy development closest to the proposed development, which can be reasonably predicted, is set out in Table 6.6. Fairburn and Auchmore wind farms would be decommissioned approximately 30-32 years prior to the end of the proposed development. This information has been noted in addition to the baseline cumulative assessment where relevant.

Table 6.6 Future Baseline of other Wind Energy Development within 10km

Name and reference	Year of Commissioning / construction completed	Operational period for the proposed development						
		0-5 Yrs	6-10 Yrs	11-15 Yrs	16-20 Yrs	21-25 Yrs	26-30 Yrs	30-35 Yrs
Ballach Wind Farm		Proposed operational period of 35 years						
E01. Auchmore	2012	Operational 2012 to 2037						
E02. Fairburn	2010	Operational 2010 to 2035						

Mitigation Inherent in the proposed development

6.122 There are two clear factors to be considered in the design of wind farms. The first of these is the landscape that will receive the wind farm development, and the second is the design of the wind farm, made up of a series of wind turbines which are inherently tall, modern, and striking features.

6.123 The design of the proposed development is explained in Chapter 4 with a project description including the associated infrastructure detailed in Chapter 3. Landscape related aspects of the design and mitigation are described in more detail in this section.

The layout of the proposed development and its various infrastructure components are shown in Figure 3.1.

Design Statement

- 6.124 The inherent nature of wind turbines as tall, modern structures means that the form of the wind farm as a whole is important. The appearance of the wind farm as an object or composition in the landscape has been a key factor in generating the layout. In this respect the design evolution has taken account of the following guidance:
- *SNH Guidance on Siting and Designing Windfarms, Version 3a, 2017*, which aims to achieve a simple, rational and cohesive design that, to a reasonable degree, avoids overlapping turbines and gaps within the visual composition; and
 - Landscape constraints, opportunities and guidance for wind farm development within the *Rugged Massif - Inverness LCT*, described by the *NS Landscape Character Assessment, 2019*, the relevant policies of the *HwLDP* and *THC's OWESG*.
- 6.125 As set out in Chapter 4, *"The overall design layout principle of the proposed development has been to achieve a coherent and compact design, which minimises direct and indirect adverse effects on the local and wider landscape, while balancing commercial considerations and maximising energy production."* The design evolution has aimed to reduce landscape, visual and cumulative effects and to respect the landscape characteristics identified in the *NS Landscape Character Assessment, 2019*, including consideration of the appropriate scale, form, pattern and construction materials, as well as the potential cumulative effect of other wind farm developments (including height and rotation relative to other existing wind farms).
- 6.126 A key consideration for the proposed development was the landscape character and expansive scale and simplicity of the host *Rugged Massif - Inverness LCT* which has a reduced susceptibility to large turbines in comparison to other smaller scale and complex landscape character types. The visual composition and layout design was guided by the following general design principles:
- The avoidance of overlapping or 'stacked' turbines through careful placement, where possible in order to form a well-spaced group or array when viewed from the receiving landscape including key design viewpoints;
 - The avoidance of outlying turbines which appear separate or stand apart within the landscape in order to reduce the lateral spread of the proposed development;
 - The selection of an appropriate turbine height which respect the scale of the receiving landscape and achieves a balanced composition when viewed from the surrounding landscape whilst recognising that current wind turbine technology has progressed with larger turbines required for greater energy efficiency; and
 - The development of a layout which relates well to other existing and proposed wind farms within the local area, as well as being coherent in isolation.
- 6.127 Whilst it may not be possible for the general design principles to be fully achieved (for example it is not possible to avoid all turbine overlap), the establishment of these general principles as part of the design process is important in order to demonstrate appropriate

mitigation. Notably, the design process evolved through a number of stages or interim layouts and collectively the following landscape mitigation was achieved:

- The initial 36 turbine layout was established by taking account of the maximum developable area within the Site boundary;
- 12 turbines were removed from the original layout where they would be more visible from dispersed settlement to the southeast and east, those closest to the boundary of the Central Highlands WLA and greater visibility from Glen Strathfarrar NSA;
- The turbine height was selected in response to the landscape scale and character, with the turbine height of 11 turbines set at 230m and the remaining nine turbines at 200m to blade tip;
- Special attention was paid to the visual composition of the turbines and the cumulative appearance of the proposed development with the existing Fairburn and Auchmore wind farms, as far as practicable. However, all three wind farms are rarely visible in the same view. This has ensured the turbine composition would appear as a simple, cohesive, and ordered layout when viewed from the surrounding area; and
- Four further turbines were removed to minimise visibility from nearby settlements including Beaulay, Muir of Ord and Contin and other dispersed communities to the southeast. This, along with the surrounding low hills around the Site, has resulted in the limited extent of visibility of the proposed development in shorter range views.

6.128 The design process also took account of consultation advice and feedback from two public exhibitions. Computer modelling was used as a tool to aid the design process and a 3D model / wireframes were generated for views from key locations around the Site at each stage.

Landscape Specific Mitigation

6.129 Specific landscape mitigation which has been embedded into the design of the proposed development and detailed in Chapter 4 is summarised here.

Construction Mitigation

6.130 The Schedule of Mitigation (Chapter 15) includes measures to mitigate adverse landscape and visual effects during construction such as the restriction of construction traffic to designated routes, to avoid damage to the road corridor such as the creation of wheel ruts and ensure these are cleared-up and reinstated. Peat and topsoil will be handled in accordance with a Peat Management Plan (PMP) as contained in Outline form within Technical Appendix 10.2 of this EIA Report.

6.131 There would be regular environmental monitoring and reporting to ensure the removal, reinstatement, and clear up of the temporary construction compound / laydown areas and any related construction arisings / redundant material.

6.132 A Site Restoration Plan will be submitted for approval by THC before construction begins. The key elements will include the reinstatement of the construction compound, laydown areas and cable trenches. Site tracks would be 'softened' with shoulders graded with excavated subsoil or peat and completed with the original topsoil or turfs where available.

- 6.133 The temporary construction compound and laydown areas will be fully re-instated with stored turfs or excavated soil and / or re-planted to accord with the Site Restoration Plan.
- 6.134 A detailed Construction Method Statement (CMS) would be produced by the construction contractors and agreed with THC prior to the commencement of works. This will include a description of construction methods and mitigation measures.

New Site Access and Internal Access Tracks

- 6.135 A total of approximately 17km of new or upgraded wind farm access tracks would be constructed which includes 12km of new cut track, 5km upgrade of existing track and 1km of new floating track. Temporary passing places would also be provided every 500m (as required). The tracks would feature local widening on corners and would be surfaced with coarse aggregate (see Figure 3.4 for typical track cross sections). New sections of track across areas of peat deeper than 1m would be floated, comprising a total of approximately 1km.
- 6.136 Limited sections of the wind farm access tracks would be visible from Viewpoints 4, 5 and 8 within 10km and are illustrated in Figure 6.21, 6.22 and 6.25. These are the only viewpoints within 10km where, apart from the turbines, any other associated infrastructure would be visible. These low levels of visibility of the Site infrastructure confirm minimal landscape and visual effects on the surrounding receptors.
- 6.137 On completion of Site construction, the Site entrance and access tracks would be cleared of any construction signage and left in a tidy and co-ordinated condition with verges restored and field boundary fencing neatly tied into new gates / access details.

Site Access Landscape Plan

- 6.138 The post-consent detailed design of the Site entrance would be combined with a Landscape Plan setting out tree retention and vegetation management which may require the establishment of new roadside vegetation to maintain the 'treeline' and rural amenity along the A831.

Wind Turbines

- 6.139 A total of 20 wind turbines are proposed with nine turbines at a blade tip height of up to 200m and the remaining 11 at a blade tip height of up to 230m, each with an associated crane pad. The turbines would be a uniform, semi-matte grey colour (no company logos or advertising) to reduce their contrast with the background sky and minimise their reflectivity.
- 6.140 The proposed turbines would all rotate in the same direction and at a slow and predictable speed of approximately 5 revolutions per minute (rpm) up to a maximum of approximately 17.5rpm. The transformer required for each turbine will be located within the turbine tower.
- 6.141 Aviation warning lights would be required and a lighting strategy to provide mitigation of the potential landscape and visual effects at night is proposed and approved by the CAA. An assessment of the night-time effects is reported in Technical Appendices 6.3 and 6.4.

Temporary Construction Compound

- 6.142 During the construction period, a temporary construction compound (40m x 45m) including laydown area (100m x 50m) would be required as shown on Figure 3.1. The location has been selected partly because it has low landscape sensitivity and would not be visible from surrounding receptors, primarily due to intervening landform.
- 6.143 The areas would be prepared by stripping soil, laying down a geotextile material and then a working surface of stone. The stripped soil would be stored adjacent to the compound for subsequent use in reinstatement works at the end of the construction period. The site compound and laydown area would be fully re-instated with stored turfs or excavated soil and / or re-seeded to match the local contours and the existing vegetation.

Borrow Pits

- 6.144 Up to three borrow pit search areas have been identified, as described in Chapter 3 and shown as borrow pit search areas in Figure 3.1. It is anticipated that further detail regarding the location and specifications of any on-site borrow pits will be provided post-consent, following completion of detailed ground investigation and technical studies. The borrow pit search area locations have a low landscape sensitivity and very limited visibility from the surrounding area.
- 6.145 Upon completion, the borrow pit would be restored and a detailed reinstatement programme developed, drawing upon the advice of a landscape architect and implemented in agreement with THC, SEPA and NS. This will ensure that proposed reinstatement materials and techniques are suitable and may identify appropriate environmental enhancement opportunities. It is anticipated that steep faces would be backfilled and/ or re-profiled to match the surrounding topography, and disturbed surfaces would be covered with soil and re-seeded / re-turfed or left as exposed rock outcrops.

Substation

- 6.146 The main substation building, and compound (90m by 90m, 132kV substation compound) would have very low visibility from the surrounding areas, primarily due to the surrounding landform. The Substation compound is illustrated indicatively in Figure 3.10 and would typically include two single-storey, pitched roofed buildings comprising the network operator building and the wind farm control building, with switchgear infrastructure and car parking. The Substation compound would also be enclosed by a 2.7m high security fence. The colour of the building would be selected to have a low contrast with the surrounding uplands.

Energy Storage Compound

- 6.147 An Energy Storage Compound would be constructed adjacent to the construction compound. The Energy Storage Compound would contain up to 5 ISO shipping containers (12.2m x 2.4) housing batteries as illustrated in Figure 3.1. A Power Conversion System (PCS) container, similar to the dimensions of the battery containers would be located adjacent to each battery storage container. To maintain the amenity and simplicity of the

moorland, the colour of the associated battery containers and PCS would be co-ordinated with that of the substation to have a low contrast with the surrounding landscape. These would also be enclosed by a 2.4m high perimeter fence with a low visibility style and colour. It would have very low visibility from the surrounding areas due to the screening effects of the surrounding landform.

Electrical Cables and Grid Connection

- 6.148 All on-site electrical cables linking the turbines, substation, energy compound and route to grid connection would be underground and buried within a trench alongside the internal access tracks. The grid connection point would be determined by the local Distribution Network Operator (Scottish and Southern Energy (SSE)) and would be subject to a separate application.

Forestry

- 6.149 Technical Appendix 14.2 provides detail of the forestry assessment within the southern part of the Site of the proposed development. The mixed conifer and mixed broadleaved forest have a range of planting year from 1957 through to 2016 with ground recently felled and replanted or awaiting replanting. The Scottish Forestry Map Viewer evidence no current approved Forest Plan.
- 6.150 The access for the proposed development requires the upgrading of the existing forest track including the Access Junction. The Site entrance also requires an Abnormal Load Overrun. Felling to allow the access track upgrading would result in a woodland loss of 4.79ha of conifer woodland and 0.33ha of broadleaved woodland. Felling the edges of mature compartments would open the remainder of the tree crop to windblow therefore felling to windfirm boundaries would require a further 11.60ha of management or temporary felling of productive conifer, which would be replanted in situ. Of this area, 8.53ha is recorded as native pinewood within the Native Woodland Survey of Scotland. The current species within this native pinewood area includes Sitka spruce and lodgepole pine planted in 1973, an area of Scots pine planted in 1973 with mixed conifer replanted in 2016. Smaller areas of Sitka spruce were replanted in 2013. The area of permanent woodland loss within the Ancient Woodland Inventory antiquity 2b is 0.14ha broadleaved and 0.08ha conifer.
- 6.151 Forestry felling, required for the access of the proposed development would be most visible from the A831 as it passes the Site entrance and limited visibility from Viewpoint 5 along the A831.
- 6.152 As part of the proposed development, the area of woodland lost would be replanted off-site in accordance with the relevant guidance. The new woodland would be to at least the area of woodland lost resultant from the proposed development. The Applicant is committed to providing suitable compensatory planting at a location yet to be determined. The compensatory planting arrangements would be agreed with Scottish Forestry and THC prior to commencement of the construction stage.

Operational Mitigation

- 6.153 The operation of the proposed development would cover a period of 35 years and include site management to ensure the adequate maintenance of site facilities and landscape features, such as access tracks, field boundaries, gates, and signage.

Decommissioning

- 6.154 The proposed development would be decommissioned at the end of its operational period which is expected to take up to approximately six months. In accordance with Chapter 3, all visible, above ground structures (turbines, ESC and substation) would be removed upon decommissioning, thereby rendering the vast majority of the landscape and visual effects as reversible. This would involve retention of existing access tracks for estate operations. Reinstatement of the Site would be carried out in accordance with an approved method statement. A Site Decommissioning Plan will set out environmental protection measures and restoration principles which will be implemented. This Plan will be agreed with THC.

Residual Landscape Effects

- 6.155 Landscape Effects are defined by the Landscape Institute in GLVIA 3, paragraphs 5.1 and 5.2 as follows.

"An assessment of landscape effects deals with the effects of change and development on landscape as a resource. The concern ... is with how the proposal will affect the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape and its distinctive character. ... The area of landscape that should be covered in assessing landscape effects should include the site itself and the full extent of the wider landscape around it which the proposed development may influence in a significant manner."

- 6.156 These effects are assessed by considering the landscape sensitivity (value and susceptibility) against the magnitude of change. The type of effect can also be described as temporary or permanent, direct or indirect, cumulative and positive, neutral, or negative.
- 6.157 The residual landscape effects, assessed here, are those effects remaining after all of the proposed design mitigation has been taken into account. An assessment of the cumulative landscape effects, taking account of other existing and consented wind farm development and any current wind farm applications, as set out in Table 6.4 has been undertaken according to the methodology detailed in Technical Appendix 6.1.
- 6.158 The effects of the proposed aviation warning lights of the proposed development on the LCTs are reported separately in Technical Appendix 6.3 and not repeated here.

Landscape Effects on Rugged Massif - Inverness LCT

- 6.159 The 'host' landscape for the proposed development is the *Rugged Massif - Inverness* LCT (number 220 on Figures 6.7-8 and in the NS 2019 Landscape Character Assessment) - an

upland area of parallel ranges of rugged, exposed mountains divided by deep glaciated valleys.

6.160 There are several units of the *Rugged Massif - Inverness* LCT covering a relatively large area to the centre, south, and southwest of the 45km Study Area and making it a relatively common LCT regionally. Within 15km, there are two units of the LCT covering the area to the centre and west (the 'host unit'), and to the southwest as illustrated in Figure 6.8. As a result, the LCT has been sub-divided into two smaller landscape character areas (LCAs) to enable more detailed assessment of the effects of the proposed development. These are defined in the baseline as:

- North Rugged Massif LCA (the host landscape); and
- South Rugged Massif LCA.

6.161 Other LCAs of the *Rugged Massif - Inverness* LCT to the southwest are excluded from the assessment due to intervening distance, and limited visibility within these LCAs. As a result, the key characteristics and overall landscape character of these LCAs would not be significantly affected by the proposed development.

6.162 The landscape character of the *Rugged Massif - Inverness* LCT is described within the NS 2019 Landscape Character Assessment as follows:

"...rugged, exposed mountains which cover much of the north-western part of Inverness district, on the north side of the Great Glen, and extending beyond the district boundary northwards into Rossshire. This type tends to be divided into distinct hill ranges by the long east-west glens of the Wooded Glen Landscape Character Type."

6.163 The key characteristics of the *Rugged Massif - Inverness* LCT are described by NS as follows:

- *"Parallel ranges of massive mountains of irregular landform divided by deep glaciated valleys.*
- *Mainly broad, sometimes rounded rugged summits connected by long ridges and relatively few individual mountain peaks, particularly in the east.*
- *Steep terrain with many mountain-side burns and occasional lochans in corries and depressions.*
- *Landcover of rock outcrops, glacial debris, deer-grazed heather and rough grassland create a smooth surface with mottled texture, with alpine habitats on high land to the west.*
- *Almost uniform texture and cover from lower to upper levels in the east makes the size of the hills difficult to perceive.*
- *Tracts of Caledonian pinewoods and occasional small patches of open birch woodland add colour, texture and seasonal diversity.*
- *Largely uninhabited, few signs of human activity or human artefacts in the interior, and sparse archaeological evidence.*
- *Hill ranges combine to create a fairly even undulating skyline and a sense of enclosure when viewed from straths.*

- Views from the hill tops at the edges of the massif offer expansive views of the adjacent straths and surrounding landscape character types.
- A sense of remoteness and wildness which is particularly strong within the interior."

6.164 Within 15km, landscape character is influenced by the existing Fairburn Wind Farm, approximately 4km north of the LCT, and two turbines at Auchmore adjacent to the northeast boundary of the LCT as illustrated in Figure 6.8. Further wind farm development is located within *Rugged Massif - Inverness* LCT units in the wider study area including the existing Millenium, Beinneun and Beinnuen Extension wind farms, and the consented Tomchrasky, Bunloinn, and Millennium South wind farms as illustrated in Figure 6.7. This is acknowledged in THC OWESG (2016) which states that the: "*Beinneun/Millennium Wind Farms cluster forms around the boundary between Rugged Massif and Rocky Moorland, mostly on south facing slopes with some west facing... Development occupies elevated sites above key routes through glens*".

6.165 Differences in perception across the *Rugged Massif* LCT are cited in the NS description as follows:

"The hill ranges are predominantly viewed from adjacent straths. From here, the broad summits and long ridges combine to create a fairly even undulating skyline and a sense of enclosure. Views from the hill tops at the edges of the massif, in turn, also tend to offer expansive views of the lochs, pinewoods, birch woods and settlements of adjacent straths and glens...It is difficult to perceive the size of the hills, as the moorland cover and rocks vary only subtly with elevation, and there is generally no obvious indication of either horizontal or vertical scale...A sense of remoteness and wildness pervades this landscape, which is particularly intense within the interior, where there are few signs of human activity, and the landscape is generally rugged and seemingly natural."

6.166 It is noted that, in this context, the proposed development is situated on low-lying hills to the north and east of the *North Rugged Massif* LCA where the landform is less dramatically craggy and is transitioning to the adjacent *Rounded Rocky Hills – Ross and Cromarty* LCT in the north. The landscape within the Site boundary is fairly typical of the *Rugged Massif* LCT and displays most of the key characteristics.

Rugged Massif - Inverness LCT (220): North Rugged Massif LCA

6.167 The *North Rugged Massif* LCA is a relatively linear expanse of rugged upland landscape that extends west to east between Loch Monar and Strath Beaully to the east. The LCA is contained to the south by Glen Strathfarrar and the River Beaully strath and to the north by Glen Orrin and Gleann Goibhre. The landform is particularly rugged to the west and centre of the LCA with several summits exceeding 900m AOD and two exceeding 1000m AOD. As the rugged landform continues east, the landform loses elevation, and the character, although still retaining some rugged elements, begins to transition to a less elevated upland with some forestry at its eastern and southeastern extents. This transition to a lower lying landscape is illustrated in Viewpoint 4, Figure 6.21 which views across the eastern areas of the LCA from an elevated summit located towards the centre of the LCA (Beinn a' Bha'ach Àrd (862m AOD)), and Viewpoint 1, Figure 6.18 which views west across the lower hills towards the distant rugged summits of the LCA.

- 6.168 The proposed turbines and associated infrastructure would be located in the lower lying hills to the east of the LCA. The turbines would be situated within an upland basin and partially along adjacent lower slopes to the south of Gleann Goibhre to the southeast of Glen Orrin. The upland basin containing the majority of the proposed turbines is surrounded by low hills to the south (Beinn a'Chlaonaidh (425m AOD)), west (Beinn nam Fiteach (494m AOD), and Mullach Beinnean a'Chomhnaird (456mAOD)), and east (Cnoc Eille Mor (403m AOD), and Buachaille Breige (385m AOD)). These surrounding hills provide a degree of containment within the lower eastern area of the LCA and help to screen the views from the wider areas of the LCA to the west and reduce visibility of the turbines to the southeast of the LCA as illustrated on the ZTV in Figure 6.4. To the north, the landform falls towards the lower levels of Gleann Goibhre at the boundary of the LCA and views are more open from the adjacent *Rounded Rocky Hills – Ross and Cromarty* LCT.
- 6.169 Site surveys have confirmed that although the landscape character changes slightly in the less elevated east of the LCA, this is reflected in the NS Key Characteristics above and the landscape character of the proposed development Site and surrounding area therefore reflects the characteristics of the *Rugged Massif* LCT. From some locations (e.g. Viewpoint 1), the key characteristic "*Hill ranges combine to create a fairly even undulating skyline and a sense of enclosure when viewed from straths*" is less apparent where the skyline of the lower hills seem distinct from the taller rocky summits of the central and western areas of the LCA.
- 6.170 In terms of other wind farm development, the Site is located approximately 3.5km distance from the Fairburn Wind Farm, and approximately 2.9km distance from the Auchmore turbines. Generally, existing and consented wind farm developments are present to the north, south, southeast and northeast of the wider 45km Study Area.

*Landscape Sensitivity of the Development Site and the Rugged Massif - Inverness:
North Rugged Massif LCA*

- 6.171 The landscape assessment has been undertaken in accordance with GLVIA 3 and the methodology and glossary set out in Technical Appendix 6.1.
- 6.172 There is currently no landscape sensitivity study covering this area of the proposed development, although some of the key characteristics of the *Rugged Massif – Inverness* LCT indicate a reduced sensitivity to wind farm development whilst some of its valued aspects such as the '*A sense of remoteness and wildness which is particularly strong within the interior*' indicate an increased sensitivity. The assessment conducted here is specific to this wind farm proposal and the proposed Site (*Rugged Massif - Inverness: North Rugged Massif LCA*) which encompasses an area in the lower lying east of the LCA to the south of Glen Orrin.

Landscape Susceptibility

- 6.173 Landscape susceptibility according to the GLVIA3, glossary means "*the ability of the landscape to accommodate the development without undue consequences for maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies*".

6.174 A range of landscape criteria or indicators of susceptibility to wind energy development have been considered, as set out in Table 6.7. An overall susceptibility of Medium is concluded for the Site area, due mainly to the large landscape scale, simple land cover, limited settlement, and the visual influence of other wind farm development.

Table 6.7: Rugged Massif - Inverness: North Rugged Massif LCA: Landscape Susceptibility

Landscape Attributes	Characteristics that are less susceptible to wind farms			Characteristics that are more susceptible to wind farms	
	Low	Medium – Low	Medium	High - Medium	High
Physical Characteristics:					
Scale	Larger scale landscapes and landform which may be more able to accommodate large scale wind turbines			Smaller scale well defined landforms which may become dominated or overwhelmed by wind turbines	
	✓				
Landform and Topography	Simple upland plateau, gently rolling or flat landscapes as the turbines may be less easily scaled against the landform			Complex landforms with well-defined changes in level including ridges, steep sloping hillsides and narrow valleys.	
				✓	
Land Cover	Large scale simple and homogenous land cover including moorland, grass lands, and large forestry plantations, where the simplicity of the land cover may complement turbines			Complex and diverse land cover including a diversity of arable fields, grassland, trees / hedges / woodland, open water of a small scale that turbines may dominate.	
	✓				
Pattern	Unenclosed land or rectilinear field patterns which may complement the modern aesthetic of turbines.			Irregular small-scale patchwork or medieval field patterns where turbines may overwhelm the scale and landscape pattern.	
	✓				
Settlement pattern	Sparse or no settlement with relatively few visual receptors and scale indicators.			Populated areas and lowlands with larger numbers of visual receptors and small-scale indicators.	
		✓			
Other Development	Large scale industrial, infrastructure and mineral extraction land uses detracting from the overall landscape sensitivity and value. Landscapes with vertical masts, pylons and turbines.			Rural / traditional forms of development including parks, gardens, and monuments enhancing the overall landscape sensitivity and value.	
			✓		
Change and Movement	Busy major roads and other areas of significant mechanised movement where the movement of turbine blades may be in character.			No roads or only quiet country lanes where turbine blade movement could be eye catching.	
			✓		
Perceptual Characteristics:					
Wildness and Naturalness	Area not valued for wildness as a key characteristic or special quality.			Area valued for wildness as a key characteristic or special quality.	
				✓	

Landscape Attributes	Characteristics that are less susceptible to wind farms			Characteristics that are more susceptible to wind farms	
	Low	Medium – Low	Medium	High - Medium	High
	Area that feels closer to people and human activities. Conversely, a remote Area not valued for wildness or tranquillity would have a lower number of visual receptors.			Area that feels remote from people and human activities. Conversely, landscapes that are settled / built up would have a higher number of visual receptors.	
			✓		
Rational / Windswept	Open and exposed landscapes where turbines, though more visible, may be logically located on windswept locations.			Enclosed or sheltered landform likely to be of a smaller scale and limited rational for turbine locations.	
		✓			
Visual Characteristics:					
Openness and Enclosure	Enclosed landscape with limited opportunities for long range views.			Open landscapes with opportunities for long range views.	
			✓		
Skyline	Broad simple skylines lacking in distinctive or 'landmark' topography.			Skylines which are an important and noticeable component in the landscape with 'landmark' topography.	
			✓		
Landmarks	Landscapes with no sensitive features where turbines might detract from settings			Landscapes with landmarks and features such as church spires and prominent listed buildings where turbines might compete as landscape foci and detract from settings	
		✓			
Surrounding Context	Self-contained landscape with limited relationship with adjacent areas.			Landscapes that are closely connected to the adjacent / surrounding areas in terms of similar character or visual backdrop.	
				✓	
Overall Susceptibility			Medium		

Landscape Value

- 6.175 The Site and the eastern area of the *Rugged Massif - Inverness: North Rugged Massif* LCA is not located within a designated landscape, although the Site is located adjacent to the Central Highlands WLA. The wider area of the LCA to the west and centre of the LCA is locally designated as *Strathconon, Monar and Mullardoch* SLA and a small area at the southern border to the central area of the LCA is overlapped by the nationally designated Glen Strathfarrar NSA. This indicates a Medium value at the Site location increasing to High-Medium and High where it overlaps with the NSA, WLA and SLA. The Site has limited public access and recreational use. Despite the lack of designation, the landscape surrounding the Site and to the east of the LCA is in good condition in terms of its representativeness, landscape interest, perceptual and scenic quality, and is considered to be of *High to Medium* value.

- 6.176 The landscape elements on the Site, mainly moorland vegetation and coniferous forestry further to the south are not sensitive in landscape terms (Low).

Overall Sensitivity

- 6.177 Considering the assessment of Medium susceptibility and the High-Medium value in respect of the undesignated Development Site and surrounding area, the overall sensitivity of the *Rugged Massif - Inverness: North Rugged Massif* LCA to the proposed development is assessed as *High-Medium*. This reflects the presence of surrounding sensitive landscapes.
- 6.178 The southern LCA of the *Rugged Massif - Inverness* LCT within approximately 15km is assessed separately in Table 6.8.

Landscape Effects during Construction

- 6.179 The 18-month construction phase would result in localised direct landscape effects on the Site and its component landscape elements of mainly moorland vegetation and small areas of coniferous forestry. During this period there would be dynamic and progressive change to the landscape involving new and upgraded access track creation, movement of people and construction vehicles, plant and machinery, localised establishment of compounds, deliveries and site storage, excavation of borrow pits and localised construction of turbine foundations.
- 6.180 Effects on landscape elements (Low sensitivity) would be limited. Although the construction works would affect localised areas, progressing from *Zero to High* magnitude of change, towards the completion of the proposed development, the likely landscape effects on the fabric and constituent elements of the landscape would range from **Negligible to Moderate** and would be Not Significant.
- 6.181 In terms of the likely effects on landscape character, the magnitude of change during the construction phase would range progressively from *Zero to High*, primarily as a result of the turbine construction and related infrastructure, including the creation of new and upgrading access tracks, an energy storage compound, a temporary construction compound, substation, and up to three borrow pits. Overall, the landscape effects on the *Rugged Massif - Inverness: North Rugged Massif* LCA would range from **None** (at the start of the construction phase) increasing to **Substantial to Major** and Significant upon completion, due in particular to the nature of construction activity (contrasting colours, movement of plant and people). The geographical extent of significant effects would be limited to areas within the Site itself extending out to approximately 0.5km north (the limits of this LCT in that direction) and up to approximately 2-2.5km east, west and southeast, and 3-4km south / southwest from the proposed turbines (beyond which the theoretical visibility becomes patchy due to the presence of straths and glens in combination with hill summits and areas of coniferous forestry). There would be no, or very limited effect on the central and western areas of this LCA due to the location of the turbines in a less elevated part of the LCA and screening from intervening landform. Visibility from these areas would be limited to isolated summits. Because of the localised nature of this effect and the intervening landform, the wider *Rugged Massif - Inverness: North Rugged Massif* LCA would not be significantly affected in overall terms.

Landscape Effects during Operation

- 6.182 During operation, the completed wind farm would gain a more 'settled' appearance when compared to the same area during the construction period. Although significant, the landscape effects would continue throughout the operational period mainly as a result of the proposed turbines and less as a result of the associated infrastructure.
- 6.183 Most of the key characteristics of the *Rugged Massif - Inverness: North Rugged Massif* LCA are physical in nature, and these would not be affected or altered by the proposed development during operation. It is worth noting that this LCT is partly indirectly influenced by the presence of the existing Fairburn Wind Farm (and Auchmore turbines) to the north and northeast of the LCA. The proposed development would however introduce a new visual focus, extending the influence of wind farm development to the eastern part of the LCA across an extensive area of low upland hills between the settled areas within the River Beaulyst strath to the southeast and east, and Strathconon to the north and northeast, away from the 'interior' areas associated with a 'sense of remoteness and wildness' as identified in the NS landscape character descriptions.
- 6.184 The proposed turbines would be located on low upland hills which are set back from Glen Orrin and contained by a series of low-lying summits when viewed from low-lying areas such as the valley floors. This containment also reduces the overall visibility from the *Glen Strathfarrar* NSA to the southwest where ZTV coverage is limited to the north facing slopes to the south of the NSA. The magnitude of change would be High (subject to localised screening from landform), and the geographical extent would extend approximately 0.5km north (the limits of this LCT in that direction) and up to approximately 2-2.5km east, west and southeast, and 3-4km south / southwest from the proposed turbines as indicated by the ZTV. There would be no, or very limited effect on the central and western areas of this LCA due to the location of the turbines in a less elevated part of the LCA and screening from landform.
- 6.185 The duration of these effects would be long term (35 years and assessed as permanent) although it should be noted that the effects would be largely reversed as a result of decommissioning (assessed separately).
- 6.186 As a result of the High-Medium sensitivity and the High magnitude of change, the level of effect on part of the *Rugged Massif - Inverness: North Rugged Massif* LCA would be **Substantial to Major** and significant, extending over a limited area up to approximately 0.5km north (the limits of this LCT in that direction) and up to approximately 2-2.5km east, west and southeast and 3-4km south / southwest from the proposed turbines as indicated by the ZTV. The effects would not be significant in terms of the overall landscape character and the nature of these effects would be long-term, direct and negative due primarily to the height and scale of the wind turbines and their effect on the perceptual qualities of this landscape.
- 6.187 This level of effect, and geographical extent, is to be expected for large-scale wind farm development and significant effects on the host landscape are unavoidable. The proposed development has undergone a series of design iterations and mitigation to reduce the landscape and visual effects is embedded into the proposed development.

- 6.188 Beyond 3-4km, inter-visibility with the turbines becomes patchy due to landform and the magnitude of change on the remaining areas of this part of the *Rugged Massif - Inverness: North Rugged Massif* LCA would reduce to between Medium-Low (on isolated summits) and Zero (for the majority of the central and west areas of the LCA leading to a **Moderate** effect or less that would not be significant in overall terms due to the large scale of this landscape. The nature of all these effects would be long-term (reversible) direct, and negative.

Cumulative Assessment: proposed development, Existing and Consented Wind Farms

- 6.189 There are no existing wind farms located within the *Rugged Massif - Inverness: North Rugged Massif* LCA. There are however indirect effects from Auchmore turbines located adjacent to the northeastern border of the LCA (High-Medium magnitude within ~2km of the turbines), and from Fairburn Wind Farm located approximately 3.5km to the north of the LCA (Medium / Medium-Low magnitude, reducing with distance).
- 6.190 Figure 6.13 indicates that cumulative visibility of Auchmore, Fairburn and the proposed development would be limited to the east and southeast of the *Rugged Massif - Inverness: North Rugged Massif* LCA with some theoretical visibility towards the centre on the facing slopes of Beinna' Bhathaich Ard and adjacent hills within this LCA.
- 6.191 The additional cumulative effect of the proposed development would remain **Substantial to Major** and Significant within 0.5-4km of the turbines. The nature of these effects would be long-term (reversible) direct, cumulative and negative.
- 6.192 The combined cumulative magnitude would be High, extending to within 0.5-4km distance from the proposed development, leading to a **Substantial to Major** and combined significant cumulative effect as a result of Auchmore and the proposed development (and not Fairburn due to the intervening distance of over 3.5km from the LCA). Unless consent is granted to extend operation, Auchmore would be decommissioned approximately 32 years prior to the end of the operational period of the proposed development, thereby reducing the cumulative effect. The nature of these effects would be long-term (reversible) direct, cumulative and negative.

Cumulative Assessment: proposed development, Existing, Consented and Application Wind Farms

- 6.193 The Carn Coire na Muic domestic scale turbines would be located at the southern boundary of the *Rugged Massif - Inverness: North Rugged Massif* LCA. At ~11m to blade tip they are unlikely to be visible from much of the LCA and would not have a characterising effect on the LCA. The scoping Fairburn Extension would be located on and adjacent to the northern boundary of the LCA. This would adjoin the existing Fairburn Wind Farm and the Auchmore turbines to form a small cluster of windfarm development influencing the eastern part of the LCA. The proposed development would add to this cluster of wind farm development and would thereby relate to the pattern of wind farm development towards the east of the LCA. Figure 6.13 indicates that the proposed development would be seen with Fairburn and Auchmore to the northeast of the LCA with some additional theoretical visibility within the LCA as a result of the addition of the

proposed development (indicated in blue) indicated to the southeast of the LCA. The clustering within one geographic area of the LCA (albeit with the scoping Fairburn Extension and existing Auchmore on the northern boundary of the *Rugged Massif - Inverness: North Rugged Massif* LCA) would enforce the existing perception of the LCA, and the wider LCT as a 'landscape with views of wind farms' as defined by NS – although there would be a greater density of turbines in views.

- 6.194 The combined or overall cumulative effect would remain significant (**Substantial to Major**) on part of the *Rugged Massif - Inverness: North Rugged Massif* LCA as a result of the scoping Fairburn Extension, Auchmore, and the proposed development (and not Fairburn due to the intervening distance of over 3.5km from the LCA). Unless consent is granted to extend their operation, Auchmore would be decommissioned approximately 32 years prior to the end of the operational period of the proposed development, thereby reducing the cumulative effect. However, cumulative effects would remain as a result of the proposed development, and the scoping Fairburn Extension Wind Farm. The additional cumulative effect of the proposed development would also remain **Substantial to Major** and Significant). The nature of these effects would be temporary to long-term (reversible), cumulative, direct and negative.
- 6.195 The probability of these effects occurring would range from certain (in terms of existing development) to uncertain (in respect of wind farm development at scoping and application stage).

Landscape Effects During Decommissioning

- 6.196 During decommissioning, the Site would return to a 'construction site' for a temporary period and the level of effect would be variable over the site and according to the phase of activity. In overall terms, the magnitude would reduce from operational levels to Very Low with the removal of the turbines and associated above ground infrastructure (excepting on-site access tracks). The residual landscape effect would be **Minor to Negligible** and Not Significant. All other wind farm operations would have ceased under the terms of their respective planning conditions for operation and the residual cumulative effects post decommissioning are also likely to be Negligible. The nature of these effects would be permanent, direct, and positive to neutral when compared to the pre-existing landscape of the local area.

Landscape Effects on Farmed Strath – Inverness LCT

- 6.197 Part of the Site infrastructure would have direct effects on the *Farmed Strath – Inverness LCT (Strathglass LCA)* to the south of the proposed development. This would consist of the Site entrance, a car parking area and a 1.8km section of the access track to the proposed turbines, overlapping with the *Farmed Strath – Inverness LCT (Strathglass LCA)* and connecting to the A831. The turbines and other elements of the proposed development such as the substation, battery storage, temporary construction compound, borrow pits would not directly affect this LCT.
- 6.198 There would be indirect effects as a result of the proposed turbines on this LCT which are assessed separately in Table 6.8.

6.199 The key characteristics of the *Farmed Strath – Inverness* LCT are described by NS as follows:

- “Linear to sinuous channels cut through uplands, with a central meandering river located in a flat or gently undulating strath floor, edged by the steep, rocky, side slopes.
- Pronounced and dynamic river meanders of Strathglass, emphasised by riparian trees, oxbow lakes and curved wetland features.
- Small scale broadleaf woodlands and small blocks of conifer forest within Strathnairn/Stratherrick strath floor which do not override openness of the strath.
- A few small settlements located on the strath floor or sides and infrequent small farms, crofts, estate buildings or groups of houses.
- Roads which generally relate well to landform, with a limited number of river crossing points.
- Many archaeological sites in Strathnairn dating from a range of periods.
- Contrast between the open, inhabited and agricultural landscape of the straths, the side slopes cloaked in alternating broadleaf woodlands, conifer forests and heather moorland, and the setting of adjacent rugged, remote uplands.
- Diversity of colour and texture added by river meanders, wetlands, damp pastures and thin bands of woodland.
- An overall sense of linear enclosure, which directs distant views along the strath and allows uninterrupted views of the flanking hill slopes”.

Landscape Sensitivity

6.200 The proposed turbines would not be located within the *Farmed Strath – Inverness* LCT (Strathglass LCA) and susceptibility to change is considered in relation to the Site entrance and access track only with the wider indirect effects relating to the introduction of the turbines on the *Farmed Strath – Inverness* LCT (Strathglass LCA) considered separately below.

6.201 Roads and access tracks are a common feature within the *Farmed Strath – Inverness* LCT (Strathglass LCA). Within the LCT, the A831 is the main transport route and follow lower lying contours through the LCT along the Rivers Beaulie and Glass. Forestry, settlement and farm access tracks running from these routes are a recurring feature and provide access to the surrounding landscape within the LCT and adjoining LCTs. The Site entrance and access track would be located at a location when an access track already exists (also a local recreational route – Scottish Hill Track 279) and where manmade features in the landscape are evident. Other manmade features in the landscape are evident such as the existing road, fencing, gates, telegraph poles, pylons and coniferous forestry. Therefore, susceptibility to change would be Low.

6.202 The Site entrance and other elements would not be located within a designated area although the access track is overlapped by a local recreational route and the value is considered to be *High-Medium*. Mature deciduous trees and coniferous forestry along the A831 are likely to be of Medium to Low sensitivity and form part of a roadside line of trees / woodland along this part of the route. The overall sensitivity to change considering the assessment of Medium to Low susceptibility and High-Medium value is considered to be

Medium. The assessment in THC OWESG is based on sensitivity to wind turbines and not access roads.

Effects During Construction

- 6.203 The construction phase would result in localised direct landscape effects as a result of the proposed access track, Site entrance, bell-mouth and associated visibility splays. The duration of these effects would be permanent.
- 6.204 In terms of the likely effects of the proposed access track on landscape character, the magnitude of change would range from Zero to High up to approximately 200 - 300m distance from the access track, during the construction phase; primarily as a result of tree and forestry removal and widening of the existing track. Overall, the landscape effects on the *Farmed Strath – Inverness LCT (Strathglass LCA)* as a result of the proposed access track would range from **None to Major** and Significant affecting a localised area (up to approximately 200 – 300m from the access track) of the *Farmed Strath – Inverness LCT (Strathglass LCA)*. The nature of these effects would also be direct and neutral to negative, where access is only upgraded.
- 6.205 The adverse and significant effects would be mitigated by the production and implementation of detailed design of the Site entrance, combined with a post-consent Landscape Plan, setting out tree / forestry retention and vegetation management which may require the establishment of new roadside vegetation to screen the access track, and maintain the 'treeline' on the northern side of the A831.

Effects During Operation

- 6.206 During operation, the Site entrance and access track would gain a more 'settled' appearance when compared to the same area during the construction period and the level of traffic and movement along the track will be considerably reduced.
- 6.207 The access track would be largely screened by roadside vegetation (subject to the tree retention and vegetation management plan) but the Site entrance would remain a localised visible feature in the landscape along the A831. The magnitude of change within this localised area (up to 200 - 300m of the access track) would be Low, reducing to Very Low as a result of the Landscape Plan leading to a **Minor**, reducing to **Negligible** and Not Significant effect. There would be no effect on the wider LCT and key characteristics of *Farmed Strath – Inverness LCT (Strathglass LCA)* due to the limited wider visibility. The nature of these effects would also be direct, and negative, altering to neutral.

Effects During Decommissioning

- 6.208 The access track would remain in-situ as permanent development post decommissioning.

Indirect Effects on the Surrounding Landscape Character

- 6.209 As described in the baseline, apart from the host LCT, eight other LCTs are assessed in detail in Table 6.8.

- 6.210 The effects on surrounding landscape character would be limited to effects on the key visual or perceptual characteristics of these landscapes, resulting from views of the proposed turbines and associated development where visible. The assessment considers the likely change to landscape character and as such it is different from the visual assessment of particular views, experienced by people.
- 6.211 In summary, an area of the *Rounded Rocky Hills – Ross & Cromarty LCT: South of Strathconon LCA* to the south and southeast of the LCA as the landform falls towards the River Orrin and Orrin Reservoir would be significantly affected by the proposed development up to 2.5-3km from the proposed turbines. A small area of the *Rugged Mountain Massif – Ross & Cromarty LCT: Orrin LCA* on its eastern fringes would also be significantly affected. There would also be significant cumulative landscape effects on both LCTs above and a further significant combined cumulative effect on the *Forest Edge Farming LCT: Auchmore LCA* as a result of the existing Fairburn and Auchmore turbines with the proposed development. None of the other LCTs would be significantly affected in terms of their landscape character, although there would be significant visual effects on the views from some of these areas.

Table 6.8 Indirect Effects on Surrounding Landscape Character within 15km

Landscape Character Type and Area	Assessment
220-Rugged Massif - Inverness LCT	
South Rugged Massif LCA	The <i>Rugged Massif - Inverness: South Rugged Massif LCA</i> is the southern unit of the host LCT and is located to the south of Glen Strathfarrar. The LCT is defined at its northern boundary by Glen Strathfarrar, to its eastern boundary by Strathglass, its southern boundary by Glen Cannich, and its western boundary by <i>Interlocking Sweeping Peaks LCT</i>. The key characteristics of the LCT are described above in the host North Rugged Massif LCA assessment. The LCA is overlapped by the locally designated Strathconon, Monar and Mullardoch SLA, partly overlapped by the nationally designated Glen Strathfarrar NSA to the north of the LCA, and the Central Highlands WLA, indicating a High landscape value. The susceptibility to change from the introduction of the proposed development is Medium due to the large scale of the LCA and expansive open nature of the landform. The overall sensitivity is therefore considered to be <i>High-Medium</i>. <u>Assessment: proposed development</u> The northeastern section of the LCA is located within 15km of the proposed turbines from approximately Meall a 'Mhadaibh east. None of the proposed turbines would be located within this LCA. The nearest proposed turbine would be located approximately 9.9km to the northeast. Theoretical visibility within this area, is patchy, occurring mostly to the northern edge on north facing slopes at Struy Forest and adjacent hills. Beyond this theoretical visibility becomes patchy and is mostly indicated on summits. Viewpoint 15, Figure 6.32 illustrates views from within the LCA and shows the proposed development visible beyond the intervening <i>Farmed Strath / Wooded Glen LCTs</i>. None of the key characteristics within this LCA would be notably affected by the proposed development. The magnitude of change would range from <i>Low-Very Low</i>, to <i>Zero</i> and the level of effect would be Minor to None and Not Significant. The nature of these effects would be long-term (reversible), indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u>

Landscape Character Type and Area	Assessment
	There are no existing or consented wind farms located within this LCA. Auchmore and Fairburn wind farms would be intervisible or partially intervisible with the proposed development from limited areas within the LCA (both Very Low to Zero magnitude). Other existing and consented wind farms would be visible at greater distances to the east, south and southeast in clear conditions (all very Low to Zero magnitude). The additional and combined cumulative effect would remain Minor to None and Not Significant. The nature of these effects would be long-term (reversible), cumulative, indirect and negative. <u>Cumulative Assessment: Existing + Consented + Applications + proposed development</u> There are no application wind farm developments within this LCA. Loch Liath Wind Farm would be intervisible to the south at approximately 10km (Low-Very Low magnitude). Other applications which would have an influence on this LCA include the scoping Fairburn Extension which would be mostly screened by landform (Very Low to Zero magnitude). Carn Coire na Muic turbines would be barely perceptible in views (Very Low magnitude). The additional and combined cumulative effect would remain Minor to None and Not Significant. The nature of these effects would be long-term (reversible), cumulative, indirect and negative.
222 – Rocky Moorland Plateau – Inverness LCT	
North of Glen Urquhart LCA	The Rocky Moorland Plateau – Inverness LCT: North of Glen Urquhart LCA is the northern unit of two units of the LCT separated by Glen Urquhart. It is located across the River Beaully strath to the south and southeast of the host LCA, between the River Beaully strath and Glen Urquhart and defined at its eastern boundary by the Great Glen Way and Loch Ness, and at its northeastern boundary by farmland. The key characteristics of the Rocky Moorland Plateau – Inverness LCT are described as: • “Open, gently rolling moorland plateaux with distinct edges descending to adjoining straths and glens or rising to merge with Rugged Massif. • Plateau with a patchy texture of small rocky outcrop hills, bogs and lochans in no clear hierarchy or discernible pattern. • Hilltops and upper slopes dominated by rocky heather moorland, except in the northeast where extensive, contrasting conifer forests dominate. • Regenerating trees and scrub in glens with rivers and sheltered lower hillsides. • Strong contrast in landcover and settlement between the plateau and adjoining straths and glens. • Sparsely inhabited and little evidence of active landuse. • A few historic sites indicating past settlement and land use. • Orientation is difficult due to the lack of hierarchy, pattern and foci in the landform and landcover. • Within the plateau distance and scale are generally difficult to perceive due to the lack of elements of known size. • Distinct edges isolate the plateau from adjacent areas and give the sense of a vast, remote, upland moor. • At the plateau edges, expansive views over inhabited straths and glens create surprise. • Eastern areas have a semi-exposed character with occasional views of distant hills framed by the distinct edges of conifer forests. • Perception of remoteness on the open plateau, from the rugged patchy texture and absence of obvious human artefacts.” The LCA is not overlapped by any landscape designations with the exception of the southeastern boundary which overlaps the locally designated Loch Ness and

Landscape Character Type and Area	Assessment
	Duntelchaig SLA indicating a Medium landscape value, slightly increasing to High-Medium at the southeastern edge of the LCA. The susceptibility to change from the introduction of the proposed development is Medium due to the large scale of the LCA and extensive forest cover. The overall sensitivity is therefore considered to be <i>Medium</i> (increasing to <i>High-Medium</i> at the southeastern edge of the LCA). <u>Assessment: proposed development</u> None of the proposed turbines would be located within this LCA, although the nearest proposed turbine would be located approximately 6.5km to the north. Theoretical visibility within this area, is patchy, occurring within forested areas to the north and centre of the LCA as well as some open areas within Eskdale Moor. Viewpoint 13, Figure 6.30 illustrates views from an open area to the east of the LCA and shows the proposed turbines in a different landscape character beyond the River Beaully strath adjacent to the existing Fairburn turbines. None of the key characteristics of this landscape would be notably affected by the proposed development. The magnitude of change would range from <i>Low-Very Low</i> to <i>Zero</i> and the level of effect Minor to None and Not Significant. The nature of these effects would be long-term (reversible), indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> There are no existing or consented wind farms located within this LCA. Auchmore and Fairburn wind farms would be located across the River Beaully strath forming a small wind farm cluster at approximately 8km and 12km from the LCA boundary respectively (both <i>Very Low</i> to <i>Zero</i> magnitude). The additional and combined cumulative effect would remain Minor to None and Not Significant. The nature of these effects would be long-term (reversible), cumulative, indirect and negative. <u>Cumulative Assessment: Existing + Consented + Applications + proposed development</u> There are no application wind farm developments within this LCA. Other applications which would have an influence on this LCA include the scoping Fairburn Extension which would be located across the River Beaully Strath and behind the proposed turbines, approximately 11km distance from the LCA at its closest point (<i>Very Low</i> to <i>Zero</i> magnitude). The additional and combined cumulative effect would remain Minor to None and Not Significant. The nature of these effects would be long-term (reversible), cumulative, indirect and negative.
226 – Wooden Glen – Inverness LCT	
Glen Strathfarrar LCA	Wooden Glen – Inverness LCT: Glen Strathfarrar LCA is located to the southwest of the proposed development at approximately 5.7km from the proposed turbines at its closest point. Within 15km, the Glen Strathfarrar LCA follows the River Farrar between Loch Beannacharan in the west, and Dunmaglass in the east. The Glen Strathfarrar LCA is typical of the key characteristics of Wooden Glen – Inverness LCT as described by NS: • “Long glens set within uplands and mountains, divided into upper and lower glens by a cross-cutting narrow farmed strath. • Lower glens broader, with steep upper slopes, undulating lower slopes and a narrow floor mostly occupied by river terraces; upper glens are narrower and more rugged, influenced by the surrounding mountains. • Rivers, water bodies (lochs and sometimes reservoirs), river flats and areas of wetland in valley floors. • Balance between open and enclosed space formed by the diverse mix of landscape patterns, land uses, conifer forests, woodlands and fields. • Distinctive mix of rugged hillsides, extensive Caledonian pine forest and lochs in the upper glens.

Landscape Character Type and Area	Assessment
	• <i>Actively farmed and relatively settled lower glen floors, with small clusters of houses near roads, and farms and crofts in open areas at the base of slopes.</i> • <i>Contrast between the settled and farmed floor of lower glens and their open heather moorland and forests of the upper slopes.</i> • <i>Sparse settlement in upper glens, limited to a few farms and crofts, isolated lodges and clusters of estate buildings usually sheltered by trees or woodland.</i> • <i>Central, major through-road in lower glens, with minor roads along the glen sides which are integrated with the landform and settlement pattern.</i> • <i>Single track road along the base of the upper glens, terminating at the upper edge of the glen.</i> • <i>Large number and range of archaeological remains in the lower glens.</i> • <i>Strong sense of history in upper glens created by the Caledonian pinewood stands.</i> • <i>Intimate, semi-enclosed landscape within the glen floor with limited visibility, due to the screening effect of trees and landform.</i> • <i>Distant views along the glens from open hill ground creating a feeling of openness and exposure.</i> • <i>Increasing sense of naturalness and remoteness traversing the upper glens into mountainous interior."</i> Glen Strathfarrar LCA is overlapped by the nationally designated Glen Strathfarrar NSA within the 15km study area, and the locally designated Strathconon, Monar and Mullardoch SLA indicating a High value. This LCA has a High - Medium susceptibility to views of wind turbines due to its small scale and partly settled character which has limited visibility of other wind farms from some locations. Views from within this landscape tend to be focused along the length of the glen and contained by enclosing landform, such that turbine visibility on the skyline, in line with the glen may be particularly noticeable. Overall, the sensitivity of Glen Strathfarrar LCA to the proposed development is <i>High</i>. <u>Assessment: proposed development</u> None of the proposed turbines would be located within this LCA and the physical characteristics of the Strath would remain unchanged by the introduction of the proposed development. The nearest turbine would be located approximately 5.7km to the northeast. ZTV coverage within the LCA is limited to small areas to the east and southeast. Visibility would be greatest on the open slopes to the north of Maol nan Ceap at the southeastern extent of the LCA where there would be theoretical visibility of all of the turbines to the northeast. From less elevated areas of theoretical visibility the ZTV indicates visibility of up to 15 turbines to the south of the River Farrar between Tom Ruigh na Beiste and northeast of Coille Gharbh, and north of the river in patchy elevated areas around Dunmaglass. From along the strath itself, visibility would be limited to small number of blades / blade tips and up to two hubs (Viewpoints A/B in Appendix 6.5). However much of this area is characterised by mixed woodland and coniferous forestry and many views would be filtered or screened. Due to the linear form and length of the LCA and partially wooded / forested nature of the glen, potential effects from the proposed development would vary as the distance, screening and perceived scale of the turbines in the landscape changes. Where visible the turbines would appear as a new feature beyond the valley or valley sides. Where visible, the turbines would appear as a new feature, mitigated slightly by the intervening distance and intervening landform. The magnitude of change on the landscape character would range from Low from limited areas to the east of the LCA where the turbines would be visible in open views at distances between 6.7 and 9km reducing to Very Low where there would be potential filtered views and Zero for the majority of the

Landscape Character Type and Area	Assessment
	LCA. The level of effect would range from Moderate and Not Significant (affecting limited open areas at the eastern and southeastern areas of the LCA), reducing to Minor to None and Not Significant with increased screening and distance. Due to the overall varied visibility of the turbines from within this LCT, it is not considered that the proposed development would significantly alter the key characteristics of this landscape overall. The nature of these effects would be long-term (reversible), indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> There are no existing or consented wind farms visible within this LCA within the 15km study area. Therefore, there would be no cumulative effects. <u>Cumulative Assessment: Existing + Consented + Applications + proposed development</u> The Carn Coire na Muic domestic scale turbines would be located at the boundary of the LCA. At ~11m to blade tip they are unlikely to be visible from much of the LCA and would not have a characterising effect on the LCA (Very Low to Zero magnitude). There are no further application or other proposed wind farm developments visible within this LCA. The additional and combined cumulative effect would remain Moderate to None and Not Significant. The nature of these effects would be long-term (reversible), cumulative, indirect and negative.
227 – Farmed Strath - Inverness LCT	
Strathglass LCA – this LCT would have theoretical visibility of the proposed turbines. Direct effects on this LCT from the introduction of access track are assessed separately above.	The <i>Farmed Strath - Inverness: Strathglass</i> LCA is located to the southwest, south and southeast of the proposed development at approximately 2.8km distance at its closest point (to the southeast). Within 15km, it encompasses the northern half of Strathglass and the River Beaully strath as it passes to the south and southeast of the proposed turbines. Key characteristics of the <i>Farmed Strath - Inverness LCT</i> as described by NS include: • "Linear to sinuous channels cut through uplands, with a central meandering river located in a flat or gently undulating strath floor, edged by the steep, rocky, side slopes. • Pronounced and dynamic river meanders of Strathglass, emphasised by riparian trees, oxbow lakes and curved wetland features. • Small scale broadleaf woodlands and small blocks of conifer forest within Strathnairn/Stratherrick strath floor which do not override openness of the strath. • A few small settlements located on the strath floor or sides and infrequent small farms, crofts, estate buildings or groups of houses. • Roads which generally relate well to landform, with a limited number of river crossing points. • Many archaeological sites in Strathnairn dating from a range of periods. • Contrast between the open, inhabited and agricultural landscape of the straths, the side slopes cloaked in alternating broadleaf woodlands, conifer forests and heather moorland, and the setting of adjacent rugged, remote uplands. • Diversity of colour and texture added by river meanders, wetlands, damp pastures and thin bands of woodland. • An overall sense of linear enclosure, which directs distant views along the strath and allows uninterrupted views of the flanking hill slopes". The <i>Farmed Strath – Inverness LCT: Strathglass</i> LCA is not within a designated landscape, with the exception of a very small area at Glen Strathfarrar where it is adjacent to the Glen Strathfarrar NSA and is slightly overlapped indicating an overall High-Medium value. It has a High-Medium susceptibility to views of wind turbines because of its enclosed, wooded character and its scattered settled

Landscape Character Type and Area	Assessment
	character. The curve of the straths often results in middle distance views along the straths (as illustrated in Viewpoint 5, Figure 6.22). Overall, the sensitivity of the <i>Farmed Strath - Inverness: Strathglass</i> LCA to the proposed development within 15km is <i>High-Medium</i>. <u>Assessment: proposed development</u> None of the proposed turbines would be located within this LCA. The nearest turbine would be located approximately 2.8km distance to the nearest point at the northern tip of the LCA. ZTV coverage is mostly absent along the strath floor in the River Beaully strath section of the LCA as it passes to the south and southeast of the proposed turbines. In this section of the LCA there is theoretical visibility of the proposed turbines from the elevated strath sides and boundaries of the LCA much of which would be screened or heavily filtered by forestry or mixed woodland. ZTV coverage along the open valley floor is indicated along the central and northern areas of Strathglass where typically up to 15 turbines would be theoretically visible. Viewpoint 5, Figure 6.22 illustrates views from this section of the LCA at 7km distance, and in particular illustrates the wooded and forested sides of the straths and intermittent woodland along the roadside and field boundaries within the strath floor which further filter views. Increased theoretical visibility of all the turbines is indicated again on the elevated valley sides and LCA boundaries along Strathglass, particularly to the east of the strath. From elevated strath sides and transitional boundary areas to the northern end of the LCA and along the River Beaully, the proposed turbines would be visible from limited open areas between forestry and woodland at between 2.8km and 6km. From these areas, the proposed turbines would clearly relate to adjoining upland LCAs and the effect on the character of the <i>Farmed Strath - Inverness: Strathglass</i> LCA (often visible in the opposite direction in views from the northern transitional edge) would be less apparent. From Strathglass valley floor there would be intermittent views where the proposed turbines would be visible beyond the valley sides partially screened by landform and vegetation (Low-Very Low and Zero). From Strathglass elevated strath sides and transitional boundary areas of the LCA, the proposed turbines would be visible across the strath from the eastern slopes at between 6km and 15km subject to screening from forestry and woodland (Low to Zero magnitude). Elsewhere there would be no visibility of the turbines from the LCA. It is not considered that the proposed development would significantly alter the key perceptual characteristics of this landscape character type, which would remain as '<i>Linear to sinuous channels cut through uplands, with a central meandering river located in a flat or gently undulating strath floor, edged by the steep, rocky, side slopes.</i>' The magnitude of change on the landscape character would be Medium-Low to Zero. The influence of the proposed turbines would be slightly reduced by screening from localised landform and tree cover / forestry from much of this area. The level of effect would be Moderate and Not Significant from elevated areas in the north and east (reducing to Minor to None and Not Significant along the strath floors and to the south of the LCT). The nature of these effects would be long-term (reversible), indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> There are no existing or consented wind farms located within this LCA. There would be theoretical views of the Auchmore turbines from some elevated locations and of Corrimony along the strath floor at Strathglass subject to forest and woodland cover (both Very Low to Zero magnitude). The additional and combined effect would remain Moderate and Not Significant from elevated areas in the north and east (reducing to Minor to None and Not Significant). The nature of these effects would be long-term (reversible), cumulative, indirect and negative. <u>Cumulative Assessment: Existing + Consented + Applications + proposed development</u>

Landscape Character Type and Area	Assessment
	There are no application wind farm developments within this LCA. There would be glimpsed partial views of the scoping Fairburn Extension from limited elevated areas (Very Low to Zero magnitude). The additional and combined effect would remain Moderate and Not Significant from elevated areas in the north and east (reducing to Minor to None and Not Significant). The nature of these effects would be long-term (reversible), cumulative, indirect and negative.
229 – Enclosed Farmland LCT	
Enclosed Farmland LCT	The <i>Enclosed Farmland</i> LCT is a relatively small LCT located near the Beaully Firth as the upland landscape associated with the <i>Rocky Moorland Plateau – Inverness LCT: North of Glen Urquhart</i> LCA descends towards the western edge of the Firth from the southwest and the Beaully River strath opens out into lower lying landform at its northern edge. The north and northeastern extent of this area transitions into the adjoining <i>Coastal Shelf</i> LCT and a narrow section of open <i>Farmed Slopes</i> LCT as the landform opens out towards the Firth coastline. Viewpoint 8 (Figure 6.25) is located within this LCA. The key characteristics of this LCT are described by NS as: • <i>“Broad undulating glens interspersed with low, rounded ridges sloping to lower plains.</i> • <i>Mixed agricultural land-use balanced with a high proportion of trees, woodlands, small scale forests and hedgerows.</i> • <i>Tree cover provides varying degrees of enclosure for fields and buildings as well as a diverse mix of landscape patterns, colours and textures.</i> • <i>Large areas of intensive agriculture with medium-sized geometric fields divided by rows of mature deciduous trees and woodland, with some stone dykes.</i> • <i>Contrasting small scale, intimate croft lands, small rectangular fields, simple arrangement of buildings, narrow lanes, gullies and small scrubby woodlands.</i> • <i>Diverse range of settlement with many small farms and crofts, several villages and estates.</i> • <i>Large estate houses set in woodlands and parklands with avenues of trees, prominent in the intensive agricultural land.</i> • <i>Network of major and minor roads following geometric field boundaries.</i> • <i>Wide distribution and range of historic sites dating from prehistoric cairns and settlements to more recent sporting estates.</i> • <i>Landform and tree cover limit long distance views, creating intrigue and screen many settlements from roads.</i> • <i>Restricted views and increased sense of enclosure in crofting areas, due to the density and close proximity of vertical landscape elements.”</i> The <i>Enclosed Farmland</i> LCT is not within a designated landscape, indicating a Medium value. The susceptibility to change from the introduction of the proposed development is Medium due to extensive tree cover, major road networks and settlements (along with grid infrastructure) within the LCT. The overall sensitivity is therefore considered to be <i>Medium</i>. <u>Assessment: proposed development</u> None of the proposed turbines would be located within this LCA. The nearest turbine would be located approximately 5.1km to the northwest. ZTV coverage is indicated across the LCT with some fragmented areas to the northwest and west of the LCT. Potential visibility from within the LCT is limited in places by extensive woodland and coniferous forestry in combination with local landform, although there are open fields which provide opportunities for longer distance views particularly from elevated areas. Viewpoint 8, Figure 6.25 illustrates the views from within the LCT at an elevated location to the south of the settlement of Kiltarlity. The view illustrates the typical extensive tree cover screening views both of the

Landscape Character Type and Area	Assessment
	settlement and potential views from the settlement, as well as the main access roads into the settlement. Where there are open views, the proposed turbines would be visible at between 5.1km to 12km distance on the upland landscape beyond the enclosed farmland that characterises this LCT. As a result, visibility of the proposed development would not significantly alter or affect the landscape character of this area and the magnitude of change on the character and key characteristics would range from Low to Zero, reducing with distance. The level of effect on the landscape character of this area would be Moderate to Minor, to None and Not Significant. The nature of these effects would be long-term (reversible) indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> There are no existing or consented wind farm developments within this LCA. There would be theoretical views of the Auchmore turbines from some elevated locations (Very Low to Zero magnitude). Further and more distant existing windfarms are theoretically visible to the north including Novar, Novar Extension, and Coire na Cloiche at distances over 30km subject to screening from vegetation (all Very Low to Zero magnitude). The additional and combined cumulative effect would remain Moderate to Minor, to None and Not Significant. The nature of these effects would be long-term (reversible), cumulative, indirect and negative. <u>Cumulative Assessment: Existing + Consented + Applications + proposed development</u> There are no application wind farm developments within this LCA. There would be glimpsed partial views of the scoping Fairburn Extension from limited elevated areas (Very Low magnitude). Abhainn Dubh would also be theoretically visible from elevated areas in distant views to the north (Very Low to Zero magnitude). The additional and combined cumulative effect would remain Moderate to Minor, to None and Not Significant. The nature of these effects would be long-term (reversible), cumulative, indirect and negative.
331 - Rounded Rocky Hills – Ross & Cromarty LCT	
South of Strathconon LCA	The <i>Rounded Rocky Hills – Ross & Cromarty LCT: South of Strathconon</i> LCA is the southern unit of three units within the 15km study area of the LCT and is separated from the closest unit by Strathconon which defines its northern and northwestern boundary. It shares its southern boundary (and many key features) with the host LCA and is defined at its eastern boundary by <i>Forest Edge Farmland LCT</i>. The other two units in the north of the study area are excluded from the assessment due to the overall limited visibility from within these units. The key characteristics of the <i>Rounded Rocky Hills – Ross & Cromarty LCT</i> are described by NS as: • “Moderate scale, well-defined hills with rounded and domed profiles, relatively steep sides and rocky moorland surface texture. • Hills separated by low, curving glens, lochs and straths. • High proportion of exposed, glaciated rock at upper levels, with perched lochans, bogs and burns. • Mosaic of vegetation and variety of textures at lower levels consisting of heather, rough grassland, pockets of broad leaved woodland and regenerating trees, and coniferous forests. • Rocky landform and low, moorland land cover contrasts with surrounding sheltered wooded glens and smoother moorlands. • Low intensity land use and limited access contrasts with adjacent farmed plains and straths. • Extensive views of adjoining plains, firths and mountains from higher levels.

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	- Occasional masts and pylons tend to be visually absorbed by rocky landforms and vegetation. - Wild character in the south-west area, which is more remote and has few built structures." The Rounded Rocky Hills – Ross & Cromarty LCT: South of Strathconon LCA is partially overlapped by the locally designated Strathconon, Monar and Mullardoch SLA at its western extent, and the Central Highlands WLA to the centre and west of the LCA indicating a High / High-Medium value in those areas reducing to Medium to the east. The susceptibility to change from the introduction of the proposed development is Medium due to the expansive open nature of the LCA, as well as existing wind farm development within the LCA. The overall sensitivity is therefore considered to be <i>High-Medium</i> (reducing to <i>Medium</i> in the eastern part of the LCA). <u>Assessment: proposed development</u> Although none of the proposed turbines would be located within this LCA, they would be located adjacent to the southern boundary of the LCA at a minimum 0.3km distance. ZTV coverage is indicated across the facing slopes to the south of the LCA as the landform falls towards the River Orrin and Orrin Reservoir. There are additional areas of ZTV coverage on some summits and facing slopes towards the centre of the LCA. There is no ZTV coverage to the north of the LCA and patchy visibility to the southwest of the LCA. Viewpoint 1, Figure 6.18 illustrates the views from the facing slopes to the south of the LCA. The view illustrates the typical open nature of the LCA. Due to the close proximity of the proposed turbines to the southern boundary of the LCT and the similar topography and features of the Site location, the proposed turbines would have a significant effect on the character of the landscape at the southeastern edge of the LCA (High magnitude within 2.5-3km of the turbines after which the existing Fairburn and Auchmore wind farms located within this LCA would influence the character). Elsewhere within the LCA the magnitude of change would reduce to Zero with distance and reduced visibility. The level of effect on the LCA would be Substantial to Major and Significant (within 2.5-3km of the turbines within the southeastern part of the LCA) reducing to None and Not Significant. The nature of these effects would be long-term (reversible) indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Fairburn Wind Farm is located within this LCA approximately 4km to the north of the proposed turbines (High magnitude within 2km of the turbines. Auchmore turbines are also located at the eastern tip of the LCA (High-Medium magnitude within 2km). Further and more distant existing windfarms are theoretically visible from elevated areas and summits within the LCA to the southeast at distances over 24km (all Very Low to Zero magnitude). The additional effect of the proposed development would be slightly reduced to Major and Significant (due to the overlapping influence of Fairburn Wind Farm, and Auchmore to a lesser extent), to None and Not Significant. The combined landscape effect would be Substantial to Major and Significant (due to Fairburn, Auchmore and the proposed development), to None and Not Significant. Unless consent is granted to extend their operation, Fairburn and Auchmore would be decommissioned approximately 30-32 years prior to the end of the operational period of the proposed development, thereby reducing the cumulative effect. The nature of these effects would be long-term (reversible), cumulative, indirect and negative. <u>Cumulative Assessment: Existing + Consented + Applications + proposed development</u> There are no application wind farm developments within this LCA. The scoping Fairburn Extension would be partially located to the south of this LCA (High magnitude within 2.5-3km of the turbines). Other and more distant application wind farms are theoretically visible from elevated areas and summits within the LCA

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	to the southeast at distances over 24km (all Very Low to Zero magnitude). The additional effect of the proposed development would be further reduced to Major to Moderate and Significant (due to the scoping Fairburn Extension), to None and Not Significant. The combined landscape effect would be Substantial to Major and Significant (due to Fairburn, Auchmore, Fairburn Extension and the proposed development), to None and Not Significant. Unless consent is granted to extend their operation, Fairburn and Auchmore would be decommissioned approximately 30-32 years prior to the end of the operational period of the proposed development, thereby reducing the cumulative effect, however significant effects would remain due to Fairburn Extension and the proposed development. The nature of these effects would be long-term (reversible), cumulative, indirect and negative.
328 – Rugged Mountain Massif – Ross & Cromarty LCT	
Orrin LCA	There are several units of <i>Rugged Mountain Massif – Ross & Cromarty LCT</i> to the west, north and northwest of the wider (45km) study area indicating that it is a common LCT in the wider area. Within the 15km detailed Study Area, there is one small LCA unit (Orrin LCA) that borders the host LCA and the <i>Rounded Rocky Hills – Ross & Cromarty LCT: South of Strathconon LCA</i>. This unit covers the Orrin Reservoir and a relatively small area of hills to the south of the reservoir. The key characteristics of the <i>Rugged Mountain Massif – Ross & Cromarty LCT</i> are described by NS as: • “High rugged mountains on a broad, bulky base, forming discrete groups separated by deep linear glens and fjords. • Angular skyline of rocky peaks and ridges, stony summits, steep mountain sides, and scree slopes. • Glacial landforms including corries, narrow mountain lochs, deep u-shaped valleys, basin-shaped lochans and deep gorges. • Horizontal terraces and craggy slopes on Torridonian sandstone. • High proportion of bare rock on summits. • Patches and bands of remnant native pinewoods and broadleaf woodland at the base of mountains. • Little settlement, few roads or other structures, and little evidence of historic or current land use. • Mountain scale and height emphasised by the contrast with surrounding low moorlands and sea, and by reference to the few man-made features present. • Wild character derived from the natural, rugged and remote landscape.” The <i>Rugged Mountain Massif – Ross & Cromarty: Orrin LCA</i> is overlapped by the Central Highlands WLA and the locally designated <i>Strathconon, Monar and Mullardoch SLA</i> borders the LCA at its southwestern extent indicating an overall High value. The susceptibility to change from the introduction of the proposed development is Medium due to the expansive open nature of the LCA and some influence of the existing Fairburn Wind Farm. The overall sensitivity is therefore considered to be <i>High-Medium</i>. <u>Assessment: proposed development</u> Although none of the proposed turbines would be located within this LCA, they would be located at a minimum 1.3km distance to the eastern boundary. ZTV coverage is limited to the eastern edge of the LCT on facing slopes and summits, and in particular across less elevated landform to the northeast. Due to the close proximity of the proposed turbines to the eastern boundary of the LCA the proposed turbines would have a significant effect on the character of the landscape in this localised area (High magnitude along the eastern edge of the

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	LCA). Elsewhere within the LCA the magnitude of change would reduce to Medium along the eastern boundary and Zero for the majority of the LCA. The level of effect on the landscape character of this area would be Substantial to Major and Significant (along the eastern edge of the LCA) reducing to Moderate and Not Significant (due to the change in elevation and character where the proposed turbines would be associated with lower-lying hills in a different character area), and None and Not Significant for the majority of the LCA. The nature of these effects would be long-term (reversible) indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Fairburn Wind Farm is located approximately 2km to the northwest of the LCA boundary (High-Medium magnitude within 2-3km of the turbines). Auchmore turbines are located approximately 8km to the east at their closest point (Very Low magnitude). Further and more distant existing windfarms are theoretically intervisible from elevated areas and summits within the LCA to the Northeast, south and southeast at distances over approximately 20km (all Very Low to Zero magnitude). The additional effect of the proposed development would remain Substantial to Major and Significant (eastern edge of the LCA), reducing to Moderate and None and Not Significant. The combined landscape effect would be Substantial to Major and Significant (due to proposed development and Fairburn), to None and Not Significant. Unless consent is granted to extend their operation, Fairburn would be decommissioned approximately 30 years prior to the end of the operational period of the proposed development, thereby reducing the cumulative effect. The nature of these effects would be long-term (reversible), cumulative, indirect and negative. <u>Cumulative Assessment: Existing + Consented + Applications + proposed development</u> There are no application wind farm developments within this LCA. The scoping Fairburn Extension would be partially located within the LCA to the northeast of the area (High magnitude within 2-3km of the turbines) and would appear adjacent to the proposed development from some locations within the LCA. Other more distant application wind farms are theoretically visible from elevated areas and summits within the LCA at distances over 20km (all Very Low to Zero magnitude). The additional effect of the proposed development would be slightly reduced to Major and Significant (due to the overlapping influence of Fairburn Extension), to None and Not Significant. The combined landscape effect would be Substantial to Major and Significant (due to proposed development, Fairburn Extension and Fairburn), to None and Not Significant. Unless consent is granted to extend their operation, Fairburn would be decommissioned approximately 30 years prior to the end of the operational period of the proposed development, thereby reducing the cumulative effect, however significant effects would remain due to the proposed development and Fairburn Extension. The nature of these effects would be long-term (reversible), cumulative, indirect and negative.
341 – Forest Edge Farming LCT	
Auchmore LCA, and Ulladale LCA	There are several units of <i>Forest Edge Farming LCT</i> to the east and northeast of the wider (45km) study area indicating that it is a common LCT in the area. Within the 15km detailed Study Area, there are two small LCA units (Auchmore LCA, and Ulladale LCA) which are both located to the northeast. The LCT is located at the transition between lowlands and uplands and the Auchmore LCA is located to the east of the <i>Rounded Rocky Hills – Ross & Cromarty LCT: South of Strathconon LCA</i>, and host LCA as they transition to lower lying areas near the Beaully Firth, and the Ulladale LCA is located at the southern edge of the upland rocky moorlands to the north of the Study Area descend towards river plains at Strathconon. The key characteristics of the <i>Forest Edge Farming LCT</i> are described by NS as:

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	• <i>"Gentle to moderately steep convex slopes, occasional minor straths and glens with sinuous burns and rivers, and occasional high level, flatter undulating moorlands.</i> • <i>Rocky, steeper slopes occur in the southern part of the type.</i> • <i>Mix of agriculture and farming, varying from an equal balance to marginally more agriculture.</i> • <i>A patchwork of semi-improved and improved pasture, arable fields, conifer forestry blocks, woodlands, shelterbelts, trees and hedges.</i> • <i>The topography and geometric pattern of enclosure are emphasised by walls, hedges and hedgerow trees.</i> • <i>Variable field sizes, many are large and open and dominate the landscape; others are smaller and create diverse patterns and textures.</i> • <i>The contrasting upland character of higher ground emphasised by stone walls, rough grassland and less tree cover.</i> • <i>The scale of woodlands is in keeping with the geometry of fields and narrow roads.</i> • <i>Conifer forests vary in size, the larger ones superimposed on the field pattern.</i> • <i>The edge of forestry blocks creates enclosed spaces around fields and buildings, and forms a dark background to enclosed features.</i> • <i>Tree cover creates enclosed or intermittent distant views and helps to screen structures such as pylons and masts,</i> • <i>Far reaching views to the south and east from high ground or open areas, often framed and enhanced by foreground trees."</i> The Forest Edge Farming LCT: Auchmore LCA, and Ulladale LCA are not within a designated landscape, indicating a Medium value. The susceptibility to change from the introduction of the proposed development is Medium due to the extensive forest cover limiting views and upland forest edge in limited open areas, particularly in the Auchmore LC, and influence of existing wind farms. The overall sensitivity is therefore considered to be <i>Medium</i>. <u>Assessment: proposed development</u> None of the proposed turbines would be located within these LCAs. The nearest turbine would be located over 3km from the Auchmore LCA, and over 8km from the Ulladale LCA. ZTV coverage is sparse within the Auchmore LCA, limited to localised patches along the western transitional edges. Most of these areas are forested, but where there are open areas such as Cnoc Udias, the turbines would be visible across open landscape beyond the existing Auchmore turbines, although clearly relating to the adjacent upland landscape type at approximately 3km (Medium magnitude). Within the interior of the Auchmore LCA, ZTV coverage indicates partial visibility of the proposed turbines in limited areas at Fairburn House and around Orrinside. Most of these areas are forested. Viewpoint 3, Figure 6.20 illustrates views from an open area adjacent to Orrinside and illustrates the surrounding forestry and mixed woodland as well as the limited visibility of the turbines which appear set back from the forested landscape and features in the view (Low magnitude on the landscape character). Within the Ulladale LCA, ZTV coverage is patchy across the LCA with fewer turbines theoretically visible as the LCA descends towards the strath edges. Much of the LCA is characterised by forest and woodland areas. Where there are open views from elevated areas, the proposed development would be seen in views across other landscape types and beyond intervening hills. The effects on the character of the LCA would therefore be limited (Very Low magnitude). The level of effect on Forest Edge Farming LCT would be mostly Minor to None across the two LCAs (with isolated areas of Moderate and Not Significant on the

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	transitional western edge of the Auchmore LCA). The effect would not be significant due to the influence of the existing Auchmore (and Fairburn) wind farms already having an influence on this LCA and the proposed development, where visible, would be seen beyond these wind farms. The nature of these effects would be long-term (reversible) indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> There are no existing or consented wind farms within the <i>Forest Edge Farming LCT</i> within the detailed study area, although the two Auchmore wind turbines are located beyond the western boundary and would be visible to the fore of the proposed development (High-Medium to Zero magnitude). Fairburn Wind Farm is located approximately 1.5km to the west of the forested LCA boundary (High-Medium to Zero magnitude). More distant existing and consented wind farms are theoretically intervisible from elevated areas within the LCAs to the northwest, south and southeast at distances over approximately 18km (all Very Low to Zero magnitude). The additional effect of the proposed development would remain Minor to None across the two LCAs (with isolated areas of Moderate to Minor and Not Significant on the transitional western edge of the Auchmore LCA – reduced due to the presence of Auchmore and Fairburn wind farms). The combined landscape effect would be Major to Moderate and Significant (due to Fairburn, Auchmore and the proposed development), to None and Not Significant. Unless consent is granted to extend their operation, Fairburn and Auchmore would be decommissioned approximately 30-32 years prior to the end of the operational period of the proposed development, thereby eliminating the cumulative effect. The nature of these effects would be long-term (reversible), cumulative, indirect and negative. <u>Cumulative Assessment: Existing + Consented + Applications + proposed development</u> There are no application wind farm developments within this LCA. The scoping Fairburn Extension would be located approximately 2km to the west of the Auchmore LCA (Medium magnitude). Other more distant application wind farms are theoretically visible from elevated areas and summits within the LCA at distances over 20km (all Very Low to Zero magnitude). The additional effect of the proposed development would remain Minor to None across the two LCAs (with isolated areas of Moderate to Minor and Not Significant on the transitional western edge of the Auchmore LCA – reduced due to the presence of Auchmore, Fairburn and Fairburn Extension wind farms). The combined landscape effect would be Major to Moderate and Significant (due to Fairburn, Auchmore, Fairburn Extension and the proposed development), to None and Not Significant. Unless consent is granted to extend their operation, Fairburn and Auchmore would be decommissioned approximately 30-32 years prior to the end of the operational period of the proposed development, thereby reducing the cumulative effect. However, cumulative effects would remain as a result of Fairburn Extension and the proposed development. The nature of these effects would be long-term (reversible), cumulative, indirect and negative.
345 – Farmed and Forested Slopes - Ross & Cromarty LCT	
Altvaich LCA, Strathpeffer LCA, and Black Isle LCA	There are several units of <i>Farmed and Forested Slopes - Ross & Cromarty LCT</i> to the east and northeast of the wider (45km) study area indicating that it is a common LCT in the area. Within the 15km detailed Study Area, there are three small LCAs (<i>Altvaich LCA</i>, <i>Strathpeffer LCA</i>, and <i>Fettes LCA</i>) which are all located to the east and northeast of the area. The LCT is located on sloping landform as it transitions to <i>Farmed River Plains LCT</i> and the <i>Beaully Firth</i>. The key characteristics of the <i>Farmed and Forested Slopes - Ross & Cromarty LCT</i> are described by NS as: • “Complex pattern of farmland, tree cover, forests and woodland on sloped, often terraced land rising from firths or river plains to mid-elevations

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	<i>and often backed by large scale forest plantations where there are adjacent hills.</i> • <i>Overall impression of a well-treed landscape, but within which farming is the dominant land use.</i> • <i>Generally higher proportion of trees, woodland and forest plantations in upper slopes, forming a well-connected network within which fields are located.</i> • <i>Terraces of open land, interspersed with forest plantations and woodlands on mid slopes.</i> • <i>Gradual change to more open landscapes at lower levels.</i> • <i>Wide range and distribution of archaeological sites indicating a long history of human settlement.</i> • <i>Occasional large settlements in a predominantly rural landscape.</i> • <i>Views from more open, terraced areas across lowlands or firth to hills or out to sea."</i> The <i>Forest Edge Farming LCT</i> LCAs are not within a designated landscape, indicating a Medium value. The susceptibility to change from the introduction of the proposed development is High-Medium due to the enclosed, forested landscape interspersed with some agricultural fields. The overall sensitivity is therefore considered to be <i>High-Medium</i>. <u>Assessment: proposed development</u> None of the proposed turbines would be located within these LCAs. The nearest turbine would be located over 3km from the <i>Altvaich</i> LCA, over 8km from the <i>Strathpeffer</i> LCA and over 11km from the <i>Black Isle</i> LCA. <i>Altvaich</i> LCA wraps around the upland forming a transition between the elevated slopes of the <i>Forest Edge Farming LCT</i> and the southeastern edge of the host LCA, the <i>River Plains</i> LCA of the River Conon and the River Beaully. ZTV coverage is sparse within the <i>Altvaich</i> LCA, limited to partial visibility in localised patches at Auchnasoul / Muir of Fairburn towards the north of the LCA, and Drumindorsair at the southern tip of the LCA. Views from Auchnasoul would be similar to Viewpoint 3, Figure 6.20, although tree cover would heavily filter views from this LCA. The existing Auchmore turbines also have a partial influence on this LCA. Similarly, visibility from Drumindorsair would be filtered or screened by vegetation, although there would be some open views from fields and gaps in the vegetation as illustrated at Viewpoint 2, Figure 6.19. The magnitude of change on the landscape character of <i>Farmed and Forested Slopes - Ross & Cromarty LCT: Altvaich</i> LCA would be Low-Very Low. The <i>Strathpeffer</i> LCA is located to the north and west of the River Conon as it curves from Strathconon in the west to Cromarty Firth to the northeast. It is distinct from neighbouring areas of open farmland by its forest and woodland cover and the settlement of Strathpeffer. ZTV coverage is patchy across the LCA and is mostly indicated on facing slopes to the south and southeast of the LCA. Visibility of the proposed turbines reduces as the LCA nears the River Conon plains to the southwest of the LCA. Much of the LCA is characterised by forest and woodland areas, particularly where the most extensive ZTV coverage is indicated which would limit visibility of the proposed development. Where there are open views, the proposed development would be seen in views across the River Conon Plain and partly beyond intervening hills where it would relate more directly to other landscape character types. This is illustrated in Viewpoints 9 and 10, Figures 6.26, and 6.27. The effects on the character of the LCA would therefore be limited (Very Low magnitude). The <i>Black Isle</i> LCA is an extensive unit located to the north of the Beaully Firth. The western extent of the LCA (west of Muckernich) is within the 15km study area and is

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	considered below. ZTV coverage is indicated across the majority of the areas within 15km of the turbines (becoming more patchy in the wider LCA). Although there are forested areas within this area of the LCA, there are also open views primarily to the south and west in response to the falling landform which affords longer range views. Visibility from this LCA is illustrated in Viewpoint 14, Figure 6.31 which illustrates the view towards the proposed development across intervening landscape types. Due to the distance and intervening LCTs, the effects on the character of the LCA would be limited (Very Low magnitude). The level of effect on <i>Farmed and Forested Slopes LCT</i> would be Minor to None and Not Significant across the three LCAs (with isolated areas of Moderate to Minor and Not Significant on the western edges of the <i>Altvaich LCA</i>). The nature of these effects would be long-term (reversible) indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> There are no existing or consented wind farms within the <i>Farmed and Forested Slopes - Ross & Cromarty LCT</i> within 15km. The most visible existing or consented wind farms would be the Auchmore and Fairburn wind farms which would both be partially visible from the LCAs, although mostly screened by intervening landform (Low-Very Low to Zero magnitude). More distant existing and consented wind farms are theoretically intervisible from elevated areas within the LCAs to the northwest, south and southeast at distances over approximately 18km (all Very Low to Zero magnitude). The additional effect of the proposed development would remain Minor to None and Not Significant across the three LCAs (reduced slightly due to the presence of Auchmore and Fairburn). The combined landscape effect would be Minor to None and Not Significant (Moderate to Minor and Not Significant on the western edges of the <i>Altvaich LCA</i>). The nature of these effects would be long-term (reversible), cumulative, indirect and negative. <u>Cumulative Assessment: Existing + Consented + Applications + proposed development</u> There are no application wind farm developments within this LCA. The scoping Fairburn Extension which would be partially screened by intervening landform in most views from the LCAs (Low-Very Low to Zero magnitude). The additional effect of the proposed development would remain Minor to None and Not Significant across the three LCAs (reduced slightly due to the presence of Auchmore, Fairburn and Fairburn Extension). The combined landscape effect would be Minor to None and Not Significant (Moderate to Minor and Not Significant on the western edges of the <i>Altvaich LCA</i>). The nature of these effects would be long-term (reversible), cumulative, indirect and negative.

Effects on Landscape Planning Designations and Wild Land Areas

- 6.212 The proposed development is not located within any landscape planning designations. Therefore, there can be no physical or direct impact on landscape planning designations within the 45km Study Area, which include five NSAs, seven WLAs and eight SLAs. Nonetheless, the proposed development may indirectly affect the Special Landscape Qualities (SLQ), including views and perceptual qualities, for which the NSA and SLAs are valued and designated.
- 6.213 As set out in the baseline and as agreed during consultation, the indirect effects on one NSA and two SLAs are included in the assessment, as follows:
- Glen Strathfarrar NSA (NSA 3);

- Strathconon, Monar and Mullardoch SLA (SLA 16); and
- Ben Wyvis SLA (SLA 17).

6.214 The effects on the Central Highlands WLA are assessed separately in Technical Appendix 6.4.

6.215 It is important to note that wind farm development is not necessarily incompatible with the valued qualities of a landscape, this will depend on the nature and / or effects of the development and the nature of the SLQs. A visual effect on a view from within the NSA for example, may or may not affect the SLQ and the integrity of the designation. In particular, paragraph 5.46 of GLVIA 3 further advises:

- *"An internationally, nationally or locally valued landscape does not automatically or by definition have high susceptibility to all types of change."*
- *"It is possible for an internationally, nationally or locally important landscape to have relatively low susceptibility to change resulting from the particular type of development in question, by virtue of both the characteristics of the landscape and the nature of the proposal."*
- *"The particular type of change or development proposed may not compromise the specific basis for the value attached to the landscape."*

6.216 The effects of the proposed development on the SLQs have been assessed in accordance with the methodology set out in Technical Appendix 6.1 and with the NS Guidance on *Special Landscape Qualities – Guidance on Assessing Effects* (January 2025). However, this guidance advises on assessing SLQs for national level designations rather than regional or local designations. Therefore, this guidance has mainly been used for the assessment on the SLQs of the nationally designated Glen Strathfarrar NSA.

6.217 A full night-time assessment of the aviation warning lights is provided in Technical Appendix 6.3.

6.218 In summary, none of the landscape planning designations within the Study Area including the SLQs of the Glen Strathfarrar NSA, Strathconon, Monar and Mullardoch SLA and Ben Wyvis SLA would be significantly affected by the proposed development. There would however be significant effects of the proposed development on part of WLQ1: *An extensive and awe-inspiring range of large scale, high and rugged mountains* in the eastern flank of the Central Highlands WLA, as noted in Technical Appendix 6.4. However, it is recognised that this part of the WLA has a weak or largely absent WLQ in the east. The proposed development would not significantly affect the remaining three WLQs of the Central Highlands WLA.

Glen Strathfarrar NSA

6.219 Glen Strathfarrar NSA is located approximately 6.8km southwest of the proposed development at its closest point. Figure 6.9b illustrates the blade tip and hub height visibility of the proposed development from within the NSA. Viewpoint 15 is located within the NSA. A number of additional viewpoint wirelines from within the NSA are included in Technical Appendix 6.5.

Step 1: Review and describe the proposal

- 6.220 The proposed development is not located within the Glen Strathfarrar NSA and comprises 20 wind turbines partially located in an upland basin to the south of Gleann Goibhre, surrounded by low hills. The proposed turbines would comprise nine turbines (T1, T2, T4, T5, T6, T8, T11, T13 and T14) up to a maximum blade tip height of 200m, and 11 turbines (T3, T7, T9, T10, T12 and T15-T20) up to a maximum blade tip height of 230m with associated infrastructure, and aviation warning lights on T2, T3, T7, T14, T17 and T20. Infrastructure associated with the proposed development includes one site entrance from the A831, internal access tracks and hardstanding areas, crane pads, one temporary construction compound, an energy storage compound, up to three borrow pits and grid connection infrastructure (including one on-site substation and underground cables linking the turbines to the substation), as described in detail in Chapter 3.
- 6.221 Effects are considered to arise mainly from the introduction of the proposed wind turbines, including visible aviation lighting (as detailed in Technical Appendix 6.3). Effects arising from the introduction of access tracks and other infrastructure are unlikely to form discernible features in views from the Glen Strathfarrar NSA.
- 6.222 The proposed development includes embedded mitigation that has been developed through the iterative design and assessment process described in Chapter 4 and previously noted above in this chapter.

Step 2: Identify the SLQs that may be affected

Step 2a: Relevant information

- 6.223 The Glen Strathfarrar NSA boundary is illustrated in Figure 6.9b which is overlapped by the blade tip and hub height ZTV, indicating the maximum extent of theoretical visibility across the NSA. Areas within the NSA, from where the proposed development may be theoretical visible, range in distance from the proposed development between 6.8km at the northeastern tip (Creag Ard (318m AOD)), to 14.5km to the southwest extent at Meall a 'Mhadaibh (684m AOD). The NSA is described in the SNH description from Scotland's Scenic Heritage 1978 as follows:

"Three great glens feed into Strathglass and the Beaully River: Glen Strathfarrar, Glen Cannich and Glen Affric. Of these the last has already been described. All three are in the form of long deep troughs, studded with lochs, declining eastwards from high mountains and becoming avenues of wooded verdure while still flanked by lofty skylines. In scenic terms, all three have been adversely affected by hydro-electric schemes, Glen Cannich and Glen Strathfarrar more so than Glen Affric.

Neither of these two northern glens attains the excellence of Glen Affric, with the exception of the lower middle portion of Strathfarrar. Here the sinuous steep-sided glen is enhanced by its shining river and extensive natural pine woodland. Loch Beannacharan offers a calm contrast to the river, the rushing waters of which finally plunge over the Culligran Falls into the lower strath."
(Scotland's Scenic Heritage, Countryside Commission for Scotland, 1978.)

6.224 This description was retained by the 2010 SNH report which supplemented the NSA description by providing a list of the 'special qualities' of the Glen Strathfarrar NSA (referred to here as SLQs) summarising these as follows:

- "An archetypal Highland glen
- Ancient Caledonian pine forest amidst rocky slopes
- A sinuous, fast-moving river emerging out of a peaceful loch
- The contrasts in colour, light and views
- A sense of peace and tranquillity."

(The Special Qualities of the National Scenic Areas, SNH Commissioned Report No.374, 2010)

6.225 The NSA description may be further updated by acknowledging that the special qualities and scenic value of the NSA remain strong today. This is despite development within the NSA since its designation, including the construction of access tracks, pylons, overhead lines and hydroelectric schemes, and wind farm development that is visible from several locations in the hills beyond the NSA boundary, as illustrated in Viewpoint 15, Figure 6.32.

6.226 The landscape character of the landscape within the NSA is identified in Figures 6.7-6.8. The key features of these areas and potential effects from the proposed development are assessed previously in Table 6.9.

Step 2b: Site visit and identify key SLQs

6.227 Several viewpoints and interconnected routes have been examined on site with the aid of ZTV maps and wirelines. In addition, assessment viewpoints agreed with NS and THC include one that is listed within the NSA as Viewpoint 15: Meall a' Mhadaibh. Three additional wirelines from within the NSA are illustrated in Technical Appendix 6.5. The site visits were undertaken on several occasions between October 2024 and June 2025.



View from the summit of Meall a' Mhadaibh looking north towards Beinn a' Bhathaich and the western edge of the glen floor with lodges visible.



View from the summit of Meall a 'Mhadaibh looking east towards the eastern part of the NSA and beyond. The floor of the glen is not visible from this location.



View looking west into the Glen (Source: Gallus Running)



View of the Hydroelectric Works within Glen (Source: Gallus Running)



Wind farms and pylons visible from the NSA.



Culligran Power Station at eastern end of NSA



Wooded eastern part of Glen

- 6.228 As noted above, there are five SLQs associated with Glen Strathfarrar NSA. Each of these has been considered to determine which of the identified SLQs of the NSA would potentially be influenced by the proposed development. This consideration has involved desk-based research, including analysis of OS mapping, ZTVs and wirelines, landscape character descriptions, and site survey to gain an understanding of each of the SLQs and the underpinning landscape, coastal, wildness and historic characteristics.
- 6.229 Given the location of the proposed development outwith the NSA, particular emphasis is given to the ZTV analysis in determining the areas likely to be influenced by the proposed development. An exploration of the underpinning key features on those areas overlapped by the ZTV mapping is gained through landscape character assessment (see Table 6.7 above). In summary, the ZTV shown on Figure 6.9b indicates potential theoretical visibility across three LCTs (Figures 6.7/6.8) within the NSA as follows:
- *Rugged Massif - Inverness LCT (220)*. There are two LCAs overlapped by the NSA near their boundaries, North Rugged Massif LCA (the host landscape); and South Rugged Massif LCA. Very sparse ZTV coverage is indicated with theoretical visibility of up to 15 turbines indicated at 6.8km from the NSA from within the *North Rugged Massif LCA* in the area overlapped by the NSA (mostly blade tips and nacelles). Greater visibility of all of the proposed turbines is indicated in the *South Rugged Massif LCA*, although limited to facing slopes in the northeastern area of the LCA at a longer distance of over ~10km (within the NSA);
 - *Wooded Glen - Inverness LCT (226)*. ZTV coverage within the LCA is limited to areas to the east and southeast and in particular on the open slopes at the southeastern extent of the LCA where there would be theoretical visibility of all of the proposed turbines at distances between 8-9km. However extensive woodland within the LCA would filter or screen views of the turbines; and
 - *Farmed Strath - Inverness LCT (227)*. The *Strathglass LCA* is located adjacent to Glen Strathfarrar and slightly overlapped at its boundary by the NSA. ZTV coverage indicates that there would be theoretical visibility of all the turbines from this very small geographical area of the LCA with some potential screening from intervening coniferous forestry.
- 6.230 The assessment of effects on landscape character concludes significant effects on the the *Rugged Massif - Inverness LCT: North Rugged Massif LCA* within 0.5-4km of the proposed turbines as would be expected within the 'host' LCT. There were no significant effects on the remaining two LCTs given the separation distance of these landscapes and overall limited visibility.
- 6.231 As noted above, one viewpoint is located within the NSA and a summary of the viewpoint assessment, reported in Technical Appendix 6.2, and Table 6.5 is provided as follows:
- Viewpoint 15 – Meall a 'Mhadaibh – Moderate and Significant.
- 6.232 In the context of the potential effects of the proposed development on landscape character and views from the NSA, the special qualities (SLQs) of the NSA are considered in Table 6.10 which lists and describes each of the SLQs and provides a justification for inclusion and/or exclusion of the SLQ from further assessment. The SLQs with the potential

to be affected by the introduction of the proposed development have, however, been already agreed with NS during consultation.

Table 6.10 Glen Strathfarrar NSA initial review of SLQs

SLQ	Included / Excluded	Justification
SLQ 1: <i>An archetypal Highland glen</i>	✓	The proposed development would not be located within the glen but would be situated across an upland landscape beyond the glen at over 6.8km distance. There would be no direct effects on features within the glen that are 'considered as romantic and iconic of the Highlands' such as 'heather-clad slopes; a rock-bound loch and glen; a rushing river; dark Caledonian pinewoods and beautiful individual trees'. The sense of enclosure with views of distant mountain peaks would, however, potentially be affected from the introduction of the proposed development which may be visible on the skyline of some views to the northeast, particularly from elevated areas to the south and east of the NSA.
SLQ 2: <i>Ancient Caledonian pine forest amidst rocky slopes</i>	X	There would be no effect on the Ancient Caledonian pine forest from the introduction of the proposed turbines which would be located in an upland location geographically separated from the forest.
SLQ 3: <i>A sinuous, fast-moving river emerging out of a peaceful loch</i>	X	There would be no effect on the River Farrar through the glen from the introduction of the proposed turbines which would be located in an upland location geographically separated from the glen and watercourse.
SLQ 4: <i>The contrasts in colour, light and views</i>	X	The contrasts in colour, light and views within the glen would be unaffected by the introduction of the proposed development which would be located outwith the NSA and would therefore not alter the sense of light and colour.
SLQ 5: <i>A sense of peace and tranquillity</i>	✓	The sense of peace and tranquillity within the NSA is partially linked to the undeveloped nature of the area. The proposed development would introduce a new element of human development into some limited views from the NSA and has the potential to affect the perception of peace and tranquillity.

Step 2c: Identify the study area

- 6.233 Taking into account the nature of the included SLQs and their focus on the perception across the whole of the NSA as both an archetypal Highland glen, and a sense of peace and tranquillity, the study area considers the NSA as a whole. Particular focus in the assessment is centred on the experience of visitors and their perception of these qualities in views northeast towards the proposed turbines. ZTV analysis indicates that potential views towards the proposed development is more prevalent on southern hill summits and facing slopes and some limited potential visibility at the eastern edge of the NSA along the valley floor and on summits and elevated areas to the northeast of the NSA. Although

experience of the NSA would primarily be from the Core Path that follows the valley floor between Dunmaglass and Loch Monar (IN26.01 Glen Strathfarrar road), there are further tracks that connect the glen floor with the hills and slopes to the south of the NSA including Meall a'Mhadaibh to the southwest, and Blar Mor to the southeast via Carn nam Barran (546m AOD) to the south. There are also access tracks in the northeast of the NSA but it is noted that there are no direct tracks to areas with patchy ZTV coverage (Carn Coire na Muic 329m AOD, and Creag Ard (318m AOD).

6.234 The ZTV pattern reflects the underlying landform within the NSA and the percentages of theoretical visibility cover are summarised as follows:

- Total ZTV (to blade tip) coverage accounts for 39.89% of the entire Glen Strathfarrar NSA (60.11% outwith ZTV); and
- Total ZTV (to hub height) coverage accounts for 36.74% of the entire Glen Strathfarrar NSA (63.26% outwith ZTV).

Step 2d: Assess the sensitivity of the key SLQs to the proposal - SLQ 1 and SLQ 5

SLQ 1: An archetypal Highland glen

6.235 SLQ 1: 'An archetypal Highland glen' is primarily focused on the perception of Glen Strathfarrar as a location which features many of the iconic Highland elements. A key component of this is the experience of views towards the skyline ridges within the NSA and of distant mountain peaks outwith the NSA.

6.236 The SNH Commissioned Report No.374, 2010 further describes this special quality as follows (WSP emphasis underlined):

"This is an inspiring and invigorating landscape where many of the features considered as romantic and iconic of the Highlands are found within a small area: distant views of snow-capped mountains; rocky ridges and heather-clad slopes; a rock-bound loch and glen; a rushing river; dark Caledonian pinewoods and beautiful individual trees – and all without obvious intrusion of modern artefacts."

6.237 Further Information:

"The NSA includes the eastern part of a long, linear glen stretching from high mountains in the west, eastwards to Strathglass and gentler hills.

A combination of elements – river, a steep-sided glen, Caledonian forest reaching up the ridges to the skyline – gives an enclosed but wild and remote feel to the lower and middle glen (the NSA). This sense of enclosure in turn contrasts with Loch Beannacharan where the landscape opens to views of distant mountain peaks".

6.238 The proposed development would be located outwith the NSA at approximately 6.8km distance at its closest point on an upland basin surrounded by low hills and although it would not affect the perception of Highland qualities or views within the NSA, it would be potentially visible from the summits and slopes to the south of the NSA and from the eastern

edge of the glen floor and isolated summits to the east of the NSA and as such would have some potential to affect the experience of this SLQ. The view in the direction of the proposed turbines is already partly influenced by wind farm development at Auchmore in the same FoV as the proposed development from elevated locations and further wind farm development is also visible in other directions. Thus, the proposed development would not appear as a completely new feature in all views.

- 6.239 The relevant components of this SLQ is the perception of features considered as romantic and iconic of the Highlands and views of the skyline and distant mountains. The sensitivity of this SLQ is assessed as *High*. This has been derived from the High value of the NSA designation and the High susceptibility of this SLQ to change.

SLQ 5: A sense of peace and tranquillity

- 6.240 SLQ 5: 'A sense of peace and tranquillity' is primarily focused on the perception of Glen Strathfarrar as an undeveloped and 'natural' environment. A key component of this is the general absence of human development within the NSA.
- 6.241 The SNH Commissioned Report No.374, 2010 further describes this special quality as follows (WSP emphasis underlined):

"With its extensive native woodland and moorland, its flowing river, its surrounding hills and general absence of artefacts, the glen has a natural and peaceful feel, an oasis from the modern world."

- 6.242 Further Information:

"Although possessing an undeveloped feel, there are isolated estate buildings and houses, and screened works related to hydro-electric schemes (a dam and power station). Evidence of previous use is evident in the shooting estate around Benachran Lodge, abandoned farmsteads on the lochside, and the prehistoric site of Culligran Dun. A single-track, tarred road and power lines traverse the length of the NSA."

- 6.243 The relevant components of this SLQ is the perception of peace and tranquillity derived from a lack of human development. There is however some human development within the glen including access tracks, hydroelectric schemes and overhead lines with visibility of wind farms available from elevated slopes and summits. The sensitivity of this SLQ is assessed as *High*. This has been derived from the High value of the NSA designation and the High susceptibility of this SLQ to change.

Step 2e: Consult relevant organisations

- 6.244 Consultation with NS and THC in relation to the NSA and its inclusion in the LVIA assessment is referenced in Table 6.1.

Step 3: Assessment of effects on SLQs and design objectives

Step 3a: Design objectives in direct response to SLQs - SLQ 1 and SLQ 5

- 6.245 The proposed development includes embedded mitigation that has been developed through the iterative design and assessment process described in Chapter 4 and previously noted above in this chapter. Special attention was paid to the visual composition and extent of visibility of the turbines from the southwest, minimising visibility from much of the glen itself, thereby limiting the greatest views from elevated slopes and summits. This has ensured the turbine composition would appear as a simple, cohesive, and ordered layout when viewed from the NSA. The height of the turbines is also considered to fit with the large-scale landscape setting of its location.
- 6.246 The proposed development is not within the NSA so the physical integrity of the NSA as a whole would remain intact. The only potential for effects would occur as a result of intervisibility between the NSA and the proposed development.

Step 3b: Assessment of effects on SLQs - SLQ 1 and SLQ 5

SLQ 1: An archetypal Highland glen

- 6.247 There would be No View of the proposed development from some locations described in the SLQ description, as follows:
- The lower glen – from the majority of the lower glen with the exception of the eastern edge of the Glen where theoretical visibility is indicated between Culligran Wood and Dunmaglass; and
 - Loch Beannacharan.
- 6.248 ZTV coverage (Figure 6.9b) indicates that the proposed development would be theoretically visible (up to three blade tips and two occasional hubs) intermittently from two short sections of the glen floor to the south and west of Dunmaglass and Culligran power station, and southeast of Culligran Wood with greater visibility indicated from open hill slopes and summits to the south of the NSA (and some lower summits to the north and northwest of Culligran power station). No visibility of the proposed development is indicated from large parts of the NSA, including from the majority of the Core Path and lower glen.
- 6.249 From the glen floor to the south and west of Dunmaglass and Culligran power station, and southeast of Culligran power station, the proposed turbines (up to eight blade tips and two occasional hubs) would be mostly screened by intervening landform and mature mixed vegetation and woodland. Whilst wirelines (Figure 6.5.A-B in Technical Appendix 6.5) from along the eastern edge of the glen floor including the Core Path indicate that there would be theoretical visibility of some of the turbines, they would be mostly imperceptible due to intervening mature woodland. Other tracks and accessible areas are also routed through woodland areas resulting in heavily filtered winter views towards the proposed turbines. The magnitude of change on the features of an archetypal Highland glen would be Low-Very Low to Zero from this area.

- 6.250 Visibility would gradually increase in the elevated glen slopes to the south of the NSA. These slopes are north facing and although the character of the landscape changes from an intimate 'Wooded Glen' LCT to a more expansive and open 'Rugged Massif' LCT, the slopes form the middle and upper glen sides and the 'containing' ridgeline of the glen. The slopes are accessed from the lower glen floor at Pollcherian Bridge via hill tracks to the southwest (Meall a 'Mhadaibh), and to the southeast to Blar Mor and Struy via Carn nam Barran summit. Due to the open and expansive nature of these slopes, the "*enclosed but wild and remote feel*" of the glen is absent as are the views from within the lower glen of "*rocky ridges and heather-clad slopes; a rock-bound loch and glen; a rushing river; dark Caledonian pinewoods and beautiful individual trees*", although some of these features can be seen in the context of the wider uplands and mountains outside the NSA. In general, views become increasingly available of the wider surrounding landscape with elevation. Views from Meall a 'Mhadaibh (Viewpoint 15, Figure 6.32) illustrate the panoramic nature of the elevated views, featuring layers of mountains, hills, lowlands and glens as well as distant landscape features including Beaully Firth in clear conditions. The wooded Glen Strathfarrar slopes form foreground features in these long-range views. The proposed development would be visible in a small part of the panoramic view (8° horizontal FoV), where it would be associated with an upland landscape beyond the intervening foreground glen. Similar views would be available from the summits forming the southern ridgeline of the NSA (varying from Low to Very Low magnitude of change on the features of an archetypal Highland glen).
- 6.251 Along the north facing upper slopes accessed from the track to Struy via Carn nam Barran (Viewpoint C – Figure 6.5.C in Technical Appendix 6.5), views would be more contained within Glen Strathfarrar, although there would still be elevated views along the glen towards Beaully Firth. From here, the proposed development would be partly visible (mostly upper towers, hubs and blades) on the skyline where it would be associated within an upland landscape beyond the intervening foreground glen. Some of the turbines would be screened by landform and the lower towers of most of the remaining visible turbines (up to 15 turbines) would also be partially screened. The turbines would appear as a new feature on the skyline in these views (although the Auchmore turbines would be partially visible in the same views), affecting no more than approximately 10° of the horizontal FoV. The turbine composition would appear as a simple linear group of turbines (with some overlapping turbines) set along and beyond the ridgeline. The magnitude of change from the upper slopes and summits would be Low due to the less enclosed and more expansive nature of the view which includes distant views of human development in lowland areas to the northeast and does not feature many of the key characteristics of 'an archetypal Highland glen' associated with views from the lower glen such as "*a rock-bound loch and glen; a rushing river*" as part of an overall composition with "*rocky ridges and heather-clad slopes...dark Caledonian pinewoods and beautiful individual trees*".
- 6.252 From the isolated craggy summits to the northeast boundary of the NSA, wireline analysis indicates that up to nine turbines would be theoretically visible as hubs and partial blades. From these locations the turbines would be visible in the opposite direction from the NSA and above the lower glen. Thus, the features of 'an archetypal Highland glen' prevalent within the NSA ("*rocky ridges and heather-clad slopes; a rock-bound loch and glen; a rushing river; dark Caledonian pinewoods and beautiful individual trees*") would either not be seen in the view towards the proposed turbines or would be less visible in the periphery of the view (Very Low to Zero magnitude).

- 6.253 For the above reasons, the proposed development would result in a **Moderate** level of effect on the perception of 'an archetypal Highland glen' which would not be Significant due to views of the proposed development from open, elevated slopes and summits to the south of the NSA where the perception of features of the SLQ would be less perceptible or prominent. The perception of 'an archetypal Highland glen' would be unaffected within the lower glen which relates more directly to the SLQ and is most likely to be frequented due to the paved road and promoted Core Path. The nature of this effect would be long term (reversible), indirect, and negative to neutral.
- 6.254 Existing and consented turbines at Auchmore would be partially intervisible with the proposed turbines from elevated slopes and summits to the south of the NSA (Very Low to Zero magnitude) and appear in the same view as the proposed development. From higher summits within the NSA such as Viewpoint 15, there would be distant views of wind farm clusters to the southeast and south (all Very Low to Zero magnitude on the perception of an archetypal Highland glen). The level of combined cumulative landscape effect on this SLQ would be **Moderate** and Not Significant. The additional cumulative landscape effect on this SLQ would also remain **Moderate** and Not Significant. The nature of this effect would be cumulative, indirect, long term (reversible) and negative to neutral.
- 6.255 The application Carn Coire na Muic turbines would be located within the NSA towards the northern edge of the NSA where they would be above the main features of the SLQ. Their domestic scale (11.1m to blade tip) would reduce their prominence and intervening landform and vegetation would screen the turbines in most views from the lower valley. They would be seen in the same views as the proposed development from localised areas near the northern boundary (Low-Very Low to Zero magnitude). Other application wind farm development would be visible in clear conditions from summits at the southern boundary of the NSA where the SLQ features are less applicable due to the panoramic and long-distance views (Very Low to Zero magnitude). The level of combined cumulative landscape effect on this SLQ would be **Moderate** and Not Significant. The additional cumulative landscape effect on this SLQ would remain **Moderate** and Not Significant. The nature of this effect would be cumulative, indirect, long term (reversible) and negative to neutral.

SLQ 5: A sense of peace and tranquillity

- 6.256 As noted above, ZTV coverage (Figure 6.9b) indicates that the proposed development would be theoretically visible (up to three blade tips and two occasional hubs) intermittently from two short sections of the glen floor to the south and west of Dunmaglass and Culligran power station, and southeast of Culligran Wood with greater visibility indicated from open hill slopes and summits to the south of the NSA (and some lower summits to the north and northwest of Culligran power station). No visibility of the proposed development is indicated from large parts of the NSA, including from the majority of the Core Path and lower glen.
- 6.257 From the glen floor to the east of the NSA, theoretical visibility of up to eight blade tips and two occasional hubs is indicated in an area of the NSA influenced by existing human development including the Culligran Power Station, access tracks / paved road and pylons and overhead lines. The proposed turbines would be mostly screened by intervening landform and mature woodland / vegetation from this part of the glen

including the Core Path. Other tracks and accessible areas are also routed through mature woodland areas resulting in heavily filtered winter views towards the proposed turbines. Pylons and overhead lines would be visible from tracks north of the Core Path. The magnitude of change from the introduction of the turbines on the perception of peace and tranquillity would be Very Low to Zero from this area.

- 6.258 Visibility of the proposed development would gradually increase in the elevated glen slopes to the south of the NSA. As noted above, the character of the landscape changes from an intimate 'Wooded Glen' LCT to a more expansive and open 'Rugged Massif' LCT, although the slopes form the middle and upper glen sides and the 'containing' ridgeline of the glen. The slopes are accessed from the lower glen floor at Pollcherian Bridge via hill tracks to the southwest (Meall a 'Mhadaibh), and to the southeast to Blar Mor and Struy via Carn nam Barran summit. The open and expansive slopes and summits are located above the "extensive native woodland and ... flowing river" of the lower glen and views become increasingly available of the wider surrounding landscape with elevation. Views from Meall a 'Mhadaibh (Viewpoint 15, Figure 6.32) illustrate the panoramic nature of the elevated views, where distant landscape features including Beaully Firth, and Kessock Bridge, settlements, roads, pylons and wind farms would all be visible in clear conditions and the sense of "an oasis from the modern world" is reduced. The proposed development would be visible in a small part of the panoramic view (8° horizontal FoV), where it would be associated with an upland landscape beyond the intervening foreground glen. Similar views would be available from the summits forming the southern ridgeline of the NSA (Low to Very Low magnitude of change on the perception of peace and tranquillity particularly in relation to the perception of 'an oasis from the modern world').
- 6.259 Along the north facing upper slopes accessed from the track to Struy via Carn nam Barran, views would be more contained within Glen Strathfarrar, although there would still be elevated views along the glen towards Beaully Firth and distant settlement. From here, the proposed development would be partly visible on the skyline beyond Glen Strathfarrar. Some of the turbines would be screened by landform and the lower towers of most of the remaining visible turbines (up to 15 turbines) would also be partially screened. The turbines would appear as a new feature on the skyline in these views (although the Auchmore turbines would be partially visible in the same views), affecting no more than approximately 10° of the horizontal FoV. The turbine composition would appear as a simple linear group of turbines (with some overlapping turbines) set along and beyond the skyline. The magnitude of change from the upper slopes and summits would be Low due to the less enclosed and more expansive nature of the view which includes distant views of human development in lowland areas to the northeast which reduces the peace and tranquillity resulting from a sense of disconnection from human development and the 'modern world'.
- 6.260 From the isolated craggy summits to the northeast boundary of the NSA, wireline analysis indicates that up to nine turbines would be theoretically visible as hubs and partial blades. From these locations the turbines would be visible in the opposite direction from the NSA and from above the lower glen. Thus, the perception of 'peace and tranquillity' prevalent within the NSA, and particularly the lower glen would not be as prevalent in the view towards the proposed turbines (Low to Very Low magnitude).

- 6.261 For the above reasons, the proposed development would result in a **Moderate** level of effect on the perception of 'A sense of peace and tranquillity' which would not be Significant due to the location of views of the proposed development mostly on open slopes and summits to the south of the NSA where the perception of the SLQ would be less perceptible or prominent. The perception of 'peace and tranquillity' would be unaffected within the lower glen which relates more directly to a sense of enclosure and separation from the wider landscape and thereby 'an oasis from the modern world.' This part of the NSA is also the most accessible and most likely to be frequented due to the paved road and promoted Core Path. The nature of this effect would be long term (reversible), indirect, and negative to neutral.
- 6.262 Existing and consented turbines at Auchmore would be partially intervisible with the proposed turbines from elevated slopes and summits to the south of the NSA (Very Low to Zero magnitude) and appear in the same view as the proposed development. From boundary summits there would be distant views of wind farm clusters to the southeast and south (all Very Low to Zero magnitude on the perception of peace and tranquillity). The level of combined cumulative landscape effect on this SLQ would be **Moderate** and Not Significant. The additional cumulative landscape effect on this SLQ would also remain **Moderate** and Not Significant. The nature of this effect would be cumulative, indirect, long term (reversible) and negative to neutral.
- 6.263 The application Carn Coire na Muic turbines would be located within the NSA towards the northern edge of the NSA where they would be above the main features of the SLQ. Their domestic scale (11.1m to blade tip) would reduce their prominence and intervening landform and vegetation would screen the turbines in most views from the lower valley. They would be seen in the same views as the proposed development from localised areas near the northern boundary (Low-Very Low magnitude). Other application wind farm development would be visible in clear conditions from summits at the southern boundary of the NSA where the SLQ features are less applicable due to the panoramic and long distance views (Very Low to Zero magnitude). The level of combined cumulative landscape effect on this SLQ would be **Moderate** and Not Significant. The additional cumulative landscape effect on this SLQ would remain **Moderate** and Not Significant. The nature of this effect would be cumulative, indirect, long term (reversible) and negative to neutral.

Step 4: Summary of effects on SLQs

- 6.264 The proposed development is not located within the Glen Strathfarrar NSA, being 6.8km from the nearest point of theoretical visibility within the NSA and would be largely seen in outward views beyond the NSA. The NSA citation notes five SLQs, of which two was considered to be potentially affected by the proposed development - SLQ 1: "An archetypal Highland glen", and SLQ 5: "A sense of peace and tranquillity".
- 6.265 NSAs are afforded the highest level of protection within NPF 4. Although NPF 4 is clear that wind farm development will not be acceptable within National Parks and NSAs (Policy 11, page 53), development which is sited outside of an NSA can be considered (albeit with the potential to indirectly affect its SLQs).

- 6.266 In assessing the indirect effects of the proposed development on the perceptual SLQs of the NSA the assessment has concluded that there would be no significant effects on any of the SLQs of the NSA, including SLQ 1 and SLQ 5. In particular the proposed development would not significantly affect the perception of "*distant views of snow-capped mountains; rocky ridges and heather-clad slopes; a rock-bound loch and glen; a rushing river; dark Caledonian pinewoods and beautiful individual trees*" (SLQ 1), or of "*extensive native woodland and moorland, its flowing river, its surrounding hills and general absence of artefacts, the glen has a natural and peaceful feel, an oasis from the modern world*" (SLQ 5) – both of which are most evident from the lower glen where there would be little or no visibility of the proposed turbines.
- 6.267 Where visible on the middle and upper slopes of the glen, the proposed development would be seen from open and exposed areas where there are views to surrounding landscapes and human development including the Auchmore turbines which would be seen in the same view as the proposed development. As an additional feature perceived from the NSA in wide and/or panoramic views, the proposed development would not significantly contribute to combined cumulative effects resulting from other existing and consented wind farms and wind farm applications.
- 6.268 The proposed development has been sited and designed to reduce as far as practicable, the potential for significant adverse (negative) effects on the NSA and alteration of its defined SLQs, and includes embedded mitigation as noted in Chapter 4 and in the design and mitigation section of this chapter.
- 6.269 A summary of the SLQ assessment for the NSA is set out in Table 6.11.

Table 6.11: SLQ Assessment for the Glen Strathfarrar NSA

Special Landscape Quality (SLQ)	Sensitivity	Magnitude	Level of Effect
SLQ 1: An archetypal Highland glen	High	Low	Moderate (Not Significant)
SLQ 2: Ancient Caledonian pine forest amidst rocky slopes	Not assessed – physical characteristic that could not be affected by the proposed development which is beyond the NSA boundary.		
SLQ 3: A sinuous, fast-moving river emerging out of a peaceful loch	As above.		
SLQ 4: The contrasts in colour, light and views	Not assessed – characteristics that relate to vegetation and perceptual experience within the glen and could not be affected by the proposed development which is beyond the NSA boundary.		
SLQ 5: A sense of peace and tranquillity	High	Low	Moderate (Not Significant)

Strathconon, Monar and Mullardoch SLA (SLA 16)

- 6.270 SLAs are non-statutory designations that represent landscapes and features of local / regional importance and value within THC area. Further guidance on SLAs and their

special qualities and features of importance is provided by THC in their *Assessment of Highland Special Landscape Areas*¹¹.

- 6.271 The *Strathconon, Monar and Mullardoch* SLA is located approximately 6.3km distance to the southwest of the proposed development at its closest point and extends further west and southwest to over 45km distance. It covers an extensive area of open moorland hills, glens, straths and lochs (92,300 ha) between Loch Orrin and Loch Long and includes Loch Monar, Loch Mullardoch, Glen Ling, Glen Strathfarrar upstream of Loch Beannacharan, a short (3 km) stretch of lower Glen Affric, and an array of summits many of which exceed 1000m AOD. The SLA shares boundaries with four NSAs to the south, east and north within the study area. There are many special qualities and features of importance within this SLA and reference has been restricted to those that are considered relevant to the proposed development which are overlapped by the ZTV. Viewpoint 16 is located within the SLA whilst Viewpoint 15 is located on the boundary of the SLA and Glen Strathfarrar NSA, and Viewpoint 4 is located close to the eastern boundary of the SLA.
- 6.272 The SLQ's (referred to in the document as 'special qualities') are listed by THC in the above document and are described and assessed individually in Table 6.12 against the proposed development. A high-level assessment has been undertaken reflecting the limited ZTV coverage, distance from the proposed development and the lower likelihood of significant effects, which has been confirmed by this assessment. This assessment therefore does not follow the four-stage approach of the NS '*Special Landscape Qualities – Guidance on assessing effects*', January 2025 which is aimed at nationally designated landscapes.
- 6.273 Although locally designated, the SLA is indicative of High value as it overlaps with the Central Highlands WLA, adjacent to three NSAs, and the North Coast 500 Tourist Route passes through part of it in the northwest. The landscape is of High-Medium susceptibility to the proposed development due to the wild land qualities of remoteness and wildness in combination with views of '*increased levels of hydroelectric infrastructure, access tracks, and pylons within the SLA*' and '*views of large-scale human development such as wind farms visible beyond the SLA*'. However, the eastern and some southeastern parts of the SLA are less susceptible due to the influence of nearby human development visible in these directions. As a result, the sensitivity of the SLA is assessed as *High-Medium* in the eastern (and some southeastern) parts of the SLA increasing to *High* from the remainder of the SLA.

Assessment: proposed development

- 6.274 As illustrated in Figure 6.9a, ZTV coverage is limited within the SLA to scattered slopes to the east and occasional summits to the centre, north and south, accounting for 4.4% blade tip and 2.9% hub height visibility of the proposed development within the entire SLA. The nearest areas of theoretical visibility are indicated on elevated slopes and summits to the north of Glen Orrin including Meall Dubh (588m AOD), Corrachan Buidhe (598m AOD), and Carn na Cre (586m AOD). Further theoretical visibility is indicated on isolated summits to the south of Glen Orrin including Sgurr na Cairbe (686m AOD) on the eastern boundary of the SLA. ZTV coverage is also indicated along the southern boundary of the SLA along

¹¹ <https://www.highland.gov.uk/downloads/file/2937/assessment-of-highland-special-landscape-areas>

the ridgeline to the south of Glen Cannich and Loch Mullardoch. Elsewhere in the SLA ZTV coverage becomes very sparse and is indicated on scattered summits between approximately 12km and 33km distance from the turbines as shown in Figure 6.9a. Viewpoint 16, Sgurr a Choire Ghlais (Figure 6.33) illustrates visibility from a summit towards the centre-east of the SLA at a distance of 15.2km and shows partial screening of the proposed turbines by intervening landform.

6.275 The assessment against each of the SLQs of the SLAs is reported in Table 6.12, as follows:

Table 6.12: SLQ Assessment for the Strathconon, Monar and Mullardoch SLA

Special Landscape Quality Citation (Note text in <i>italics</i> is extracted from the citation in full)	Assessment
Key Landscape and Visual Characteristics	
1. <i>Extensive tract of moorland and hills which are difficult to access, largely uninhabited and consequently possesses wild land qualities. Deeply dissected mountain massif with mountain ridges on a grand scale with interconnected narrow crests.</i>	The turbines would not affect the topography, scale, moorland vegetation or accessibility. Due to the turbine locations outwith the SLA, there could be no direct effect on the physical or topographical features. Although the proposed turbines would be visible from some summits within the core of the SLA, there would be no effect on the uninhabited remoteness of the SLA and wild land qualities arising from that. There would be no effect on this key characteristic.
2. <i>Relatively uniform low land cover on hill slopes and summits, dominated at higher elevations by intact mosaics of montane heaths, grasses, and mosses, the low level of which contribute to the very open and highly exposed character of these areas in contrast to the partly wooded straths.</i>	The turbines would be located outwith the SLA and consequently there would be no effect on landcover within the SLA. There would be no effect on this key characteristic.
3. <i>Large scale water bodies extend deep into the remote hills.</i>	The large waterbodies within the SLA would not be affected by the proposed development which would be located outside the SLA boundary. There is no ZTV coverage indicated on the main waterbodies within the SLA indicating no visibility from these locations. There would be no effect on this key characteristic.
4. <i>Major glens, with many interlocking and overlapping spurs, define a distinctive sequence of alternating enclosed and expansive views for road users.</i>	ZTV coverage indicates very limited visibility from summits within the SLA. With the exception of the western part of Glen Orrin which is located in the eastern part of the SLA where blade tips would be theoretically visible from the glen floor (although unlikely to be discernible in views), there would be no views from glen floors or from the main roads through the area including the A890 (NC 500) route. There would be no significant effect on this key characteristic (Very Low to Zero magnitude and Minor to None level of effect).

Special Landscape Quality Citation (Note text in italics is extracted from the citation in full)	Assessment
<i>5. Small but significant remnants of Caledonian Pinewood, reinforced by natural regeneration schemes, contribute to a greater diversity of land cover within the glens and western strath; this includes semi-natural broadleaved woodland on river banks and steep-sided gullies, occasional, unfenced grassland on the strath floor river flats, and mature, predominantly coniferous plantations.</i>	There would be no direct effects on the Caledonian Pinewood or other woodland vegetation within the SLA. There would be no effect on this key characteristic
<i>6. Evidence of previous occupation is relatively common on the shallow slopes of the glens and straths, and on the floodplains of the larger rivers where the remains of buildings, small farmsteads, enclosures and numerous, sometimes extensive boundary dykes can be seen. There are few buildings or structures within the interior, with the exception of the major dams and their ancillary infrastructure, the most prominent being sporting estate lodges, sometimes with associated cottages and smallholdings.</i>	The proposed turbines would be located outwith the SLA and would have no effect on the historic build environment within the SLA, particularly within the lower glens and straths where there is no theoretical visibility is indicated by ZTV coverage. There would be no effect on this key characteristic.
<i>7. There are strong contrasts in the visual characteristics between the enclosed middle and lower glens, the more open upper glens and reservoirs, the expansive mountain ridges and summits and the wide strath in the northwest.</i>	Although the proposed development would be visible from some summits within the SLA, there would be no effects on the contrasts in visual characteristics between lower glens, upper glens, and summits within the SLA due to the location of the proposed turbines outwith the SLA boundary. There would be no effect on this key characteristic.
<i>8. By far the most significant human impact on the landscape in this area has resulted from the damming of lochs for hydro-electric power. Although the hydro buildings tend to be fairly inconspicuous within the wider landscape, draw-down scars have formed on the shorelines of the two major reservoirs and some access tracks are widely visible in clear conditions, including from neighbouring peaks. These human impacts tend to detract from the sense of wildness of some parts of the interior, where otherwise it would be very intense. However, the large scale and predominantly undeveloped character of the area is such that a strong sense of wildness still pervades most of it and the impacts of some human structures may be reversible over a long enough time frame. In the northwestern part of the area, the main road and railway line through Glen Carron and Strath Carron are prominent.</i>	Although the proposed turbines would introduce human development into the surrounding landscape, the proposed turbines would be located outwith the SLA and therefore effects on the SLA would be indirect. ZTV coverage indicates that the proposed development would be visible from scattered summits within the SLA where it would be seen in the same FoV as other wind farm development which are also visible in other directions. Thus, although there would be an increase in the density of wind turbines in this part of the view, the proposed development would not be incongruous. There is also other large-scale development visible from the SLA including human development within the SLA. Nevertheless, the strong sense of wildness in most of the SLA would remain strong and largely unaffected by the proposed development. There would be no significant effect on this key characteristic (Low-Very Low to Zero

Special Landscape Quality Citation (Note text in italics is extracted from the citation in full)	Assessment
	magnitude and Moderate to Minor, to None level of effect).
Grand Mountain Ridges, Long Glens and Wide Strath	
1. <i>A series of grand, broadly parallel, high mountain ridges, separated by long, sinuous, steep-sided glens and straths combine to form a landscape of immense scale which tend to be experienced in sequentially along the ridges and/or glens and straths.</i>	The turbines would not affect the topography, of the SLA. There would be no effect on this SLQ.
2. <i>There is a marked contrasts between the bare, dramatic scenery of the ridges and upper glens - exaggerated by the huge scale of lochs Monar and Mullardoch - and the more tranquil and intimate qualities of the strath and glen floors, with their patchworks of grassland, bog, birch and pine wood, river and lochan.</i>	Although the proposed development would be visible from some summits within the SLA, there would be no effect on the contrasts in scenery between the bare, dramatic scenery of the ridges and upper glens, and the intimate strath and glen floors within the SLA due to the location of the proposed turbines outwith the SLA boundary. The exception is at Glen Orrin on tracks in the lower glen either side of Carn na Cre. Wireline analysis indicates that blade tips would be theoretically visible from these locations which are likely to be barely perceptible in views towards the proposed development. There would be no significant effect on this key characteristic (Very Low to Zero magnitude and Minor to None level of effect).
3. <i>Distinctive sequential changes in the visual and landscape qualities travelling along the glens reflect a transition from lowland strath to mountain interior.</i>	ZTV coverage indicates that there would be no visibility along the lower glens and lowland straths. There would be no effect on this SLQ.
4. <i>There is an intimate sequential travelling experience on the A890 through Strathcarron with ever changing enclosure and exposure and views to adjacent features.</i>	There is no ZTV coverage along the A890 as it passes through the SLA. There would be no effect on this SLQ.
5. <i>There are contrasting deep, steep-sided glens and wide, wooded straths on the eastern and western periphery.</i>	Although there would be no effects on the physical contrasts between the deep, steep-sided glens and wide, wooded straths, there would be some potential visibility from the north of Glen Orrin on tracks in the lower glen either side of Carn na Cre near the eastern periphery of the SLA. Wireline analysis indicates that blade tips would be theoretically visible from these locations which are likely to be barely perceptible in views towards the proposed development. There would be no significant effect on this key characteristic (Very Low to Zero magnitude and Minor to None level of effect).
Wildness and Remoteness	

Special Landscape Quality Citation (Note text in italics is extracted from the citation in full)	Assessment
<i>6. There is a very strong sense of wildness and remoteness within most parts of this landscape, typically evoked by the long journey from the main access points into this area from the east along winding single-track roads to the head of the glens. A sense of wildness is also influenced by the sparse network of rough, isolated paths and tracks, and the spectacular summit views over vast expanses of moorland and hills. The main detractors from these qualities are reservoir draw down scars and tracks compromise the sense of wildness within the interior.</i>	The proposed development would be located outwith the SLA and therefore any effects on this quality would be indirect. ZTV coverage indicates that the proposed development would be visible from the eastern parts of the SLA which is already influenced by visibility of human development beyond the SLA including wind farms and pylons, and hydro schemes within the SLA. The sense of wildness within this part of the SLA is already compromised. Thus, although there would be an increase in the density of wind turbines in this part of the view, the proposed development would not appear incongruous. The sense of wildness within the interior and core area of the SLA would be largely unaffected by the proposed development due to the overall limited visibility (mainly from some distant summits) which would remain strong. There would be no significant effect on this special quality (Low magnitude and Moderate to None level of effect).
<i>7. The mountain interior and upper reaches of the glens are out of sight of public roads, remote from any habitation, and are among the most remote areas of mainland Britain. The only part of this area significantly less remote is within Strathcarron where there are road and rail links.</i>	The proposed development would have no effect on the visibility of the mountain interior and upper reaches of glens from public roads or habitation. There would be no visibility from Strathcarron. There would be no effect on this SLQ.
<i>8. Extensive areas of hill slopes and summits are dominated by native vegetation that contributes to the wildness qualities, including mosaics of montane heaths, grasses, and mosses contrast with the afforested side slopes and partly wooded flood plain at Strathcarron. There are also important remnants of native Caledonian pinewood.</i>	There would be no effects on the Caledonian Pinewood or other vegetation within the SLA that contribute to the wildness qualities which would continue to remain strong as a result of the proposed development. There would be no effect on this SLQ.
<i>9. The mountain terrain is physically challenging to access and ideally suited to adventurous ridge walkers. The area is very popular with hill walkers, with a high number of Munro mountains in close proximity. Also, given the large extent of the area and the limited accessibility, many wild camp within the area.</i>	The proposed development would not affect access within or to the SLA. Whilst the proposed development would be visible from some Munro summits as seen in Viewpoint 16, intervening landform would largely screen the turbines and where visible, there would be seen in panoramic views in the context of other human development including wind farms. There would be no significant effect on this special quality (Low-Very Low magnitude and Moderate to Minor, to None level of effect).

- 6.276 In summary, the proposed development would not significantly affect any of the SLQs of the *Strathconon, Monar and Mullardoch* SLA.
- 6.277 The nearest point on the SLA boundary to the proposed turbines is approximately 6.3km distance. There is very limited ZTV coverage across the SLA, where theoretical visibility is indicated it does not overlap with the main features of importance listed within the *Assessment of Highland Special Landscape Areas*¹².
- 6.278 Overall, the magnitude of change within the SLA would range from Low to Zero and the level of effect **Moderate to None** and Not Significant. The nature of these effects would be long-term (reversible), indirect and negative.

Cumulative Assessment: Existing + Consented Sites + proposed development

- 6.279 There are no existing or consented wind farms located within the SLA. There are three clusters of existing wind farm development located within approximately 8km of the SLA boundary comprising the Lochluichart, Lochluichart Extension, and Corriemollie cluster to the northeast (including consented Lochluichart Extension II and Kirkan), the Fairburn and Auchmore cluster to the east and the Corriemony and Bhlaraidh cluster (including consented Chrathaich and Bhlaraidh Extension) to the southeast. These would be mostly visible in adjacent upland areas and would not significantly affect the SLQs of the SLA. The level of effect would be greatest where visible near the boundary (ranging from Low to Very Low magnitude – reducing with distance and visibility). Other more distant existing wind farms are visible in clear conditions to the south, southeast and northeast from occasional elevated parts of the SLA at over approximately 20km distance (all Very Low to Zero magnitude). The additional effect of the proposed development would remain **Moderate to None** and Not Significant. The combined effect would also be **Moderate to None** and Not Significant taking account of all existing and consented wind farm development. The nature of these effects would be long-term (reversible), cumulative, indirect and negative.

Cumulative Assessment: Existing + Consented Sites + Applications + proposed development

- 6.280 There would be no application wind farms located within the SLA. Carn Coire na Muic would be located adjacent to the border of the SLA but due to its domestic scale (11.1m to blade tip), the influence and visibility of the two turbines would be very limited. Abhainn Dubh Wind Farm would be located to the northeast of the SLA at over ~20km and would be mostly visible from scattered summits and some facing slopes south of Glen Orrin (Very Low to Zero magnitude). Similarly, Loch Liath Wind Farm would be located ~10km to the southeast of the SLA and would be visible from limited locations to the southeast of the SLA (Very Low to Zero magnitude). The scoping Fairburn Extension would have some influence on the eastern edge of the SLA as it is closer to the boundary than the proposed development (Low to Zero magnitude). The additional effect of the proposed development would be slightly reduced to **Moderate to Minor, to None** and Not Significant (due to Fairburn Extension). The combined effect would also remain **Moderate** and Not Significant (due to a combination of Fairburn Extension and the proposed development).

¹² <https://www.highland.gov.uk/downloads/file/2937/assessment-of-highland-special-landscape-areas>

and taking account of all other wind farm development. The nature of these effects would be long-term (reversible), cumulative, indirect and negative.

Ben Wyvis SLA (SLA 17)

- 6.281 The Ben Wyvis SLA is located approximately 13km distance to the north of the proposed development at its closest point and extends further north to over 26km distance. It covers the rounded summits and foothills of Ben Wyvis from the southern shores of Loch Glass in the north-east to Little Wyvis in the south-west (7,689ha). Ben Wyvis is isolated from the main mountain areas to the west and north, and its bulk and profile make it a dominant landmark in the inner Moray Firth area. Viewpoint 21 is located within the SLA. The description in the 'Assessment of Highland Special Landscape Areas' states that:

"Ben Wyvis is a substantial hill massif with an area above 900m covering several square kilometres, a broad, relatively level summit ridge more than 7 kms long, and several corries which hold snow until the spring. It is somewhat isolated from the main mountain areas to the west and north, so its bulk and profile make it a dominant landmark in the inner Moray Firth area, visible from many surrounding locations. Views from its summit are both extensive and varied. Unusually for a Munro, the nearby views include substantial areas of arable land, an industrial port (Invergordon) and often also marine drilling rigs (which visit the Cromarty Firth for repair and decommissioning)."

Ben Wyvis is an important part of the wider landscape setting for settlements in the inner Moray Firth, not least Inverness. Here some of the most iconic views downriver from the city centre feature Wyvis as a backdrop and over the year the changing colours of the hill act as a visual marker of the changing seasons for local residents."

- 6.282 There are many special qualities and features of importance within this SLA and reference has been restricted to those that are considered relevant to the proposed development which are overlapped by the ZTV. The SLQ's (referred to in the document as 'special qualities') are listed by THC in the above document and are described and assessed individually in Table 6.13 against the proposed development.
- 6.283 The SLA although locally designated is indicative of High value as it overlaps with the Rhiddoroch – Beinn Dearg – Ben Wyvis WLA. The landscape is of High-Medium susceptibility to wind farm development due to the wild land qualities of remoteness, wildness and naturalness in combination with views of 'substantial areas of arable land, an industrial port (Invergordon) and often also marine drilling rigs' as described above. However, the southern, eastern and western parts of the SLA are less susceptible due to the influence of the human development including wind farms. As a result, the sensitivity of the SLA is assessed as ranging from *High* in the northern parts of the SLA to *High-Medium* in other parts of the SLA.

Assessment: proposed development

- 6.284 As illustrated in Figure 6.9a, ZTV coverage is limited within the SLA to slopes and summits to the south / southeast and occasional slopes and summits to the east of the SLA. The nearest areas of theoretical visibility are indicated on the southern slopes and summit of Carn Gorm (556m AOD) at the southern boundary of the SLA. Further theoretical visibility

is indicated on the southern slopes and summits of adjoining hills including Little Wyvis (763m AOD), Tom na Caillach (705m AOD), Cnoc nan Each Mor (606m AOD), Meall na Speireig (620m AOD), and on the more elevated summits and facing slopes of An Cabar (946m AOD), and Glas Leathad Mor (1046m AOD) towards the centre of the SLA. Patchy visibility to the west of the SLA is indicated along the 'horseshoe' hill formation around Loch Misirich (Meall na Tunn (681m AOD), Glas Leathad Beag (928m AOD), Meall na Drochaide (704m AOD), and Meall a' Chrimig (542m AOD)). Viewpoint 21, Ben Wyvis (Figure 6.38) illustrates visibility from the most popular summit within the SLA at a distance of 20.6km and shows the panoramic views from this location.

6.285 The assessment against each of the SLQs of the SLAs is reported in Table 6.13, as follows:

Table 6.13: SLQ Assessment for the Ben Wyvis SLA

Special Landscape Quality Citation (Note text in italics is extracted from the citation in full)	Assessment
Key Landscape and Visual Characteristics	
<i>1. Ben Wyvis stands in an isolated position, forming a dominant 'whaleback'-shaped landmark in the landscape, especially when viewed from the south. The broad ridge and gently ascending upper slopes surmount the very steep middle slopes of Ben Wyvis. The nature of these slopes means that the summit of the mountain is concealed from view from locations at or near its base.</i>	The proposed development would be located over 13km from the SLA and would not affect the location or the 'dominant landmark' of Ben Wyvis when viewed from the surrounding area. There would be no effect on this key characteristic.
<i>2. From the west, Ben Wyvis appears as a flat-topped mountain with unbroken uniform grassy slopes falling steeply to dense forest plantations. From the east, its character is defined by a series of high, deep, craggy corries extending into the upper slopes and containing lochans and fast flowing rocky burns.</i>	There would be no effect on the topography of Ben Wyvis from the introduction of the proposed turbines. Views of the landform on the approach from the east or west of the hill would not be affected by the proposed development. There would be no effect on this key characteristic.
<i>3. The flat open summit is carpeted in yellow-green woolly hair moss, forming one of the largest continuous expanses in the country and producing a distinctive character to the summit plateau. On the lower slopes, uniform blankets of heather, grassland and heath emphasise the simple, rounded profile of the mountain.</i>	The landcover on Ben Wyvis summit plateau would be unaffected by the proposed development given this physical characteristic. There would be no effect on this key characteristic.
<i>4. Existing plantations appear incongruous in the surrounding landscape, especially when seen from the mountain top, due to their contrast of colour, shape, line and texture. Collectively, these seem to almost encircle the mountain.</i>	The proposed development would not affect the forest plantations at the base of the mountain. There would be no effect on this key characteristic.
Dominant Landmark and Uninterrupted Panoramas	
<i>5. Standing well above a surrounding range of much lower foothills, Ben Wyvis has a commanding presence with its</i>	Ben Wyvis' prominence as a landmark feature would be unaffected by the proposed development. Views from Inverness are

Special Landscape Quality Citation (Note text in italics is extracted from the citation in full)	Assessment
<i>broad and fairly level summit ridge stretching more than 7kms from Garbat to Loch Glass. It is a dominant landmark feature from many locations, most notably from the south and northwest, including Inverness and the Black Isle. Little Wyvis also appears prominent at a local level</i>	illustrated at Viewpoint 19, A862, Clachnaharry (Figure 6.36) where the proposed turbines would be seen in a different part of the view to Ben Wyvis, Viewpoint 22, Kessock Bridge, (Figure 6.39) (no view of Ben Wyvis), and Viewpoint 23, A96 Alturlie Junction (Figure 6.40) where the landform of Ben Wyvis is mostly screened by intervening hills and, although in the same FoV, the proposed turbines would be seen in a different part of the view beyond Kessock Bridge. In views from the Black Isle, the proposed turbines would also be seen in a different part of the landscape. There would be no significant effect on this key characteristic (Very Low to Zero magnitude and Minor to None level of effect).
6. The summit of Ben Wyvis provides some of the most extensive panoramas in Scotland. These include the wild and dramatic mountain profiles of Wester Ross and Sutherland to the north and west, the indented coastline and settled, fertile lowlands of Easter Ross and the Black Isle to the east, and the distant summits of the Cairngorms and Ben Nevis to the south.	Views to the north, east and west from the summit of Ben Nevis would be unaffected by the proposed development. Views to the southwest from Ben Wyvis is illustrated in viewpoint 21, Figure 6.38 and assessed in Technical Appendix 6.2 (Moderate to Minor and Not Significant visual effect). The proposed turbines would be visible in part of the view already affected by wind farm development (and seen beyond existing wind farms) and would occupy 13° of the 360° view. There would be no significant effect on this key characteristic (Low-Very Low magnitude and Moderate to Minor level of effect).
7. Views of the top and the overall profile of the mountain are limited from the immediate surroundings, due to its massive scale and convex upper slopes. The form of the mountain is most clearly appreciated when viewed from a distance, for example from Inverness and the Black Isle.	See SLQ 5 above. There would be no significant effect on this key characteristic (Very Low to Zero magnitude and Minor to None level of effect).
8. Ben Wyvis is a popular Munro due in part to its proximity to Inverness but also because it is a relatively straightforward walk with a broad, easy ridge from which the panoramic views can be appreciated. It is also popular for cross-country skiing.	The proposed turbines would be located over 13km to the southwest and would not affect the accessibility to the summit Ben Wyvis for recreational use. See SLQ6 for effects on panoramic views from the summit. There would be no significant effect on this key characteristic (Low-Very Low magnitude and Moderate to Minor level of effect).
9. With the exception of Wyvis Lodge, the odd shieling hut, and the very occasional boundary wall and rough track there is virtually no visible evidence of human occupation in the SLA.	The proposed development would not affect evidence of human occupation in the SLA including Wyvis Lodge. The proposed turbines would be located outwith the SLA and would not contribute to any human development within the SLA.

Special Landscape Quality Citation (Note text in italics is extracted from the citation in full)	Assessment
	There would be no effect on this key characteristic.

- 6.286 In summary, the proposed development would not significantly affect any of the SLQs of the Ben Wyvis SLA.
- 6.287 The nearest point on the SLA boundary to the proposed turbines is approximately 13km distance. There would be no effect on Ben Wyvis as a 'dominant landmark' when viewed from the surrounding area or in particular from Inverness and the Black Isle, and there would be a very limited effect on the character of the extensive panoramas which the proposed development would form 13° of the 360° view and seen beyond and in the context of existing wind farm and other human development to the south / southwest. Further there would be no effect on the walking resource of this SLA.
- 6.288 Overall, the magnitude of change within the SLA would be Low-Very Low to Zero and the level of effect **Moderate to Minor, to None** and Not Significant. The nature of these effects would be long-term (reversible), indirect and negative.

Cumulative Assessment: Existing + Consented Sites + proposed development

- 6.289 There are no existing or consented wind farms located within the SLA. Novar and Novar Extension are located a minimum of 2km to the east of the SLA boundary, and the Lochluichart, Lochluichart Extension, and Corriemollie cluster would be visible to the west (including consented Lochluichart Extension II and Kirkan) at a minimum distance of 6km from the SLA boundary. Both of these clusters would affect the panoramic views from the summit and ridgeline (ranging from High to Medium magnitude). Existing wind farms visible with the proposed development to the south include Fairburn, Auchmore and Auchmore II (all Very Low magnitude on panoramic views). Other wind farms would be visible in clear conditions at greater distances (all Very Low to Zero magnitude). The additional effect of the proposed development would remain **Moderate to Minor, to None** and Not Significant. The combined effect would be **Substantial to Major** and Significant (due to potential effects on panoramic views from the Novar and Lochluichart clusters) taking account of all wind farm development. The nature of these effects would be long-term (reversible), cumulative, indirect and negative.

Cumulative Assessment: Existing + Consented Sites + Applications + proposed development

- 6.290 There would be no application wind farms located within the SLA. Abhainn Dubh Wind Farm would be located to the east of the SLA at approximately 2km where it would have a direct effect on the forest at the base of the SLA (SLQ4) and would be partly visible in panoramic views from the summit (High-Medium magnitude). The scoping Fairburn Extension would be visible slightly overlapping the proposed development (Low-Very Low magnitude). Other application wind farms would be partially visible in clear or exceptional conditions to the southwest and southeast at over ~42km. The additional effect of the proposed development would remain **Moderate to Minor, to None** and Not Significant.

The combined effect would be **Substantial to Major** and Significant (due to potential effects on panoramic views from the Novar and Lochluichart clusters and Abhainn Dubh) taking account of all wind farm development. The nature of these effects would be long-term (reversible), cumulative, indirect and negative.

Residual Visual Effects

- 6.291 Visual effects are assessed by considering the sensitivity of the receptor (people in the landscape) and the magnitude of change that would affect the view or overall visual amenity. They are defined by the Landscape Institute in GLVIA 3, paragraphs 6.2 as follows:

"An assessment of visual effects deals with the effects of change and development on the views available to people and their visual amenity. The concern here is with assessing how the surroundings of individuals or groups of people may be specifically affected by changes in the content and character of views as a result of the change or loss of existing elements of the landscape and/or introduction of new elements."

- 6.292 The assessment has taken a precautionary approach and focused on visual receptors within 15km of the proposed development, in order to assess the likely significant visual effects. This has been guided by the results of the viewpoint analysis (Technical Appendix 6.2) which indicated that significant visual effects would be limited to within approximately 15km distance from the proposed development (subject to a clear view of the proposed turbines, landform and vegetation screening), as indicated by Viewpoints 1, 3, 4, 5, 8, 11, 12, 13, 15 and 17. Significant visual effects would be limited to views from the southwest, southeast, east and northeast. Within the wider Study Area, the assessment has included receptors of national importance such as Scotland's Great Trails, Sustrans Cycle Routes and popular hill walking summits (Munros and Corbetts) that are overlapped by the blade tip ZTV.

Visual Effects during Construction, Operation and Decommissioning

- 6.293 The majority of the significant visual effects would be experienced as a result of views of the proposed turbines during the operational period and this forms the main focus of the assessment. However, the visual effects associated with the construction and decommissioning phases of the proposed development and the infrastructure components also have the potential to be significant and these have been included in the assessment where there is the potential for a significant visual effect.
- 6.294 An outline description of the visual effects associated with the construction and decommissioning phases is set out here.

Visual Effects during Construction

- 6.295 The assessed levels of effect will increase from Zero, at the start of construction and progressively increase to a maximum level of effect, equal to that occurring during operation, upon completion of the construction period. The construction effects although temporary are likely to involve greater movement of machinery and visibility of contrasting

construction activity, background noise and associated lighting. The nature of these effects would be temporary, direct, and negative. Some construction activities may be remote from the turbine locations (access works) and / or temporary (temporary construction compounds) and subject to restoration on completion of the construction period.

6.296 An outline assessment of each of the component parts of the proposed development likely to be constructed during the construction period is provided as follows:

- **New Internal Access Tracks, Turning Heads and Crane Hard-standings:**
Approximately 17km of new or upgraded access tracks are unlikely to cause significant visual effects on local receptors as they would have low visibility due to the Site location and the surrounding landform. Small sections of the access tracks would be visible from Viewpoints 4, 5 and 8 within 10km of the proposed development. Parts of the access track in the east and southeast would be overlapped by Scottish Hill Track 279 which would be temporarily re-routed during construction.
- **Temporary construction compound:**
One temporary construction compound is proposed and as with the internal access tracks it is not sited in a visually prominent location and is unlikely to cause significant visual effects during the construction period. The construction compound would be largely screened by intervening landform which would provide sufficient screening to avoid wider visibility or significant visual effects from surrounding receptors. It would not be visible from any viewpoints within 10km.
- **Grid Connection Infrastructure:**
As with the temporary construction compound, the substation and Energy Storage Compound (ESC) would be largely screened by intervening landform which would provide sufficient screening to avoid wider visibility or significant visual effects from surrounding receptors. The top of the substation is theoretically visible from Viewpoints 4 and 8; however, it would be barely perceptible due to the intervening landform and forestry. It would not be visible from any other viewpoints within 10km.

Electrical cables connecting to the proposed turbines to the substation would be underground within the Site, and post construction there would be no visual effects.
- **On-Site Borrow Pits:**
There would be limited visibility of the three borrow pit locations due to the screening effects of the surrounding landform which would provide sufficient screening to avoid wider visibility or significant visual effects from surrounding receptors. Each borrow pit would be subject to a more detailed excavation and restoration plan.

Visual Effects during Operation

6.297 The assessed levels of effect are likely to be at their greatest during the period of operation (which is the focus of the main visual assessment), due to the visibility of the proposed turbines and associated infrastructure. However, in comparison to a busy construction site, the appearance of the proposed development would also recover a 'calmer' visual character with negligible levels of maintenance activity visible on Site.

Visual Effects during Decommissioning

6.298 During decommissioning the wind farm would return to a construction site for a temporary period and the level of visual effect would gradually reduce with the removal of the turbines and associated above ground infrastructure. Therefore, the visual effects likely to be experienced during the decommissioning period would reduce from the operational levels and would not be significant on completion of the decommissioning. As with the construction period, although temporary, these works are likely to involve greater movement of machinery and visibility of contrasting construction activity, background noise and associated lighting. In overall terms the level of visual effect would reduce to non-significant levels and the nature of these effects would be permanent, direct, and neutral when compared to the pre-existing baseline landscape of the local area.

Visual Effects on Views from Settlements and Residential Properties

6.299 The visual effects likely to be experienced from settlements include consideration of residential areas, the public realm and public open spaces within the settlement boundaries that would be frequented by people. The sensitivity of each of these receptors (people) has been assessed as *High*.

6.300 As outlined in the baseline, there are no residential properties within 2km of the proposed turbines and in accordance with the Landscape Institute guidance, a Residential Visual Amenity Assessment (RVAA) is excluded from the assessment.

6.301 In summary, there would be significant visual effects on two settlements within 15km including parts of Kiltarlity and Conon Bridge. There would also be significant visual effects from the western fringes of the dispersed communities between 2-4km to the southeast, mainly around Breakachy and Farley. There would be no significant effects from any other defined settlements within the Study Area.

Table 6.14: Visual Effects on Views from Settlements

Settlement	Assessment
Settlements within 5km	
None	
Settlements between 5-10km	
Muir of Ord	Muir of Ord is a small settlement located to the northwest of the River Beaully/Beaully Firth. The settlement is in a relatively flat and low-lying area located on river plains flanked by gently rising landform to the east and west. This has resulted in a generally north-south settlement spread, although there are some parts of the settlement that are located on more elevated landform to the east and west. The settlement is accessed by two major road corridors. The A862 provides access from the Beaully in the south, and Inverness to the southeast as well as Conon Bridge and Dingwall to the north. The A832 provides access from Cromarty and Fortrose in the Black Isle to the east and the A835 at Moy to the northwest. The settlement is interspersed with mature trees and small woodland areas and in combination with the flat landform and the built streetscapes, views within the settlement tend to be mostly close to mid-range with views of the hills to the east and west often screened or filtered or occurring above surrounding vegetation and buildings as illustrated in Viewpoint 7. <u>Assessment: proposed development:</u>

Settlement	Assessment
	The main settlement area is located between approximately 7.9 – 8.7km distance from the nearest proposed turbine. ZTV analysis indicates that theoretical visibility from the settlement would be limited to between 1-5 turbines and would occur across the majority of the settlement with the exception of areas to the centre-west and south of the settlement. Wireline analysis indicates that there would be up to two blade tips visible from the centre of the settlement, which would increase to up to five partial blades / tips at the elevated eastern edge of the settlement boundary near Rose Croft. Views from the centre of the settlement are illustrated in Viewpoint 7, Figure 6.24 which shows the typical streetscape with surrounding trees and woodland, as well as screening from forestry on the rising hills to the west. In elevated areas to the east of the settlement, views are often filtered by roadside trees and garden vegetation. The magnitude of change would be Very Low to Zero across the settlement. The level of effect from the settlement would range from Negligible and Not Significant to No View. The nature of these effects would be long-term (reversible), indirect and neutral. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> One of the Auchmore turbines would be visible in the same view as the proposed Development from the elevated east of the settlement subject to screening from vegetation (Very Low magnitude), Fairburn would also be partially visible to the northwest along the same ridgeline as hubs and blades (Very Low magnitude). The additional effect of the proposed development would range from Negligible and Not Significant to No View. The combined effect would also be Negligible and Not Significant to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and neutral. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> Abhainn Dubh would be theoretically visible to the north from the centre of the settlement but would be screened by buildings and vegetation (Zero magnitude). Two hubs and up to four blades of the scoping Fairburn Extension would be theoretically visible from the elevated eastern edge of the settlement subject to screening from intervening vegetation. Only blades or partial blades would be theoretically visible from the majority of the settlement (Low magnitude). The additional effect of the proposed development would range from Negligible and Not Significant to No View. The combined effect would be Moderate to Minor and Not Significant (due to Fairburn Extension) to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
Beauly	Beauly is a small settlement located to the west of the River Beauly as it meanders towards the Beauly Firth from the southwest. The river defines the eastern edge of the settlement which is located in the flat river plains and flanked by gently rising landform to the west and southeast. Although bounded by the river, the settlement has expanded along the main road corridor in the settlement (A862) and is defined at its western edge by a railway line which curves in a semi-circle around the settlement connecting to Inverness to the east and Muir of Ord to the north. Views within the settlement are often screened by the surrounding built form and surrounding trees coupled with the flat landform. However, from open spaces within the settlement and the settlement edges, the low hills to the north and west are visible features. From the south and east edges of the settlement, views of the surrounding landscape are mostly across the River Beauly and/or the flat river plain. Views from the settlement are represented in Viewpoint 6. <u>Assessment: proposed development:</u> The main settlement area is located between approximately 6.8 – 7.7km distance from the nearest proposed turbine. ZTV analysis indicates that theoretical visibility from the settlement would be limited to between 1-10 turbines and would occur across the majority of the settlement with the greatest level of theoretical visibility to the southwest of the settlement. Wireline analysis indicates that there would be mostly blade tips theoretically visible from the majority of the settlement to the north of the A862, increasing to up to nine turbines with partial visibility of hubs theoretically visible to the southwest of the settlement. Views from the centre of the settlement are illustrated in Viewpoint 6, Figure 6.23 which shows the view west towards the rising landform clad with forestry which mostly screens the proposed turbines. Views from the southwest of the

Settlement	Assessment
	settlement are mostly screened by surrounding built form or heavily filtered by mature trees lining the A862 (which rises on slight embankment to cross the rail line), along the rail line and field boundaries, and in gardens. The magnitude of change would be Very Low to Zero across the settlement. The level of effect from the settlement would range from Negligible and Not Significant to No View. The nature of these effects would be long-term (reversible), indirect and neutral. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> A cluster of wind farms to the north would be theoretically visible at over 25km including Novar / Extension and Coir na Cloiche but would be mostly screened by intervening buildings and vegetation (Very Low to Zero magnitude). The additional effect of the proposed development would range from Negligible and Not Significant to No View. The combined effect would remain Negligible and Not Significant to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and neutral. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> Abhainn Dubh would be partly theoretically visible to the north but would be mostly screened by intervening buildings and vegetation (Very Low to Zero magnitude). Fanellan substation would be theoretically visible to the south at approximately 5km but would be mostly screened by forestry (Very Low to Zero magnitude). The additional effect of the proposed development would range from Negligible and Not Significant to No View. The combined effect would remain Negligible and Not Significant to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and neutral.
Kiltarlity	Kiltarlity is located inland to the south and east of the River Beaully as it meanders towards the Beaully Firth from Strathglass. It is situated within a forested landscape interspersed with open agricultural fields as the landform descends from an upland plateau in the south towards the river plains of the Beaully River. The settlement has mostly formed along the main access road (Allarburn Drive) on a roughly southwest – northeast axis, although the boundary extends south to include the school and church at Tomnacross. Views within the settlement are mostly near and middle distance with views of the surrounding landscape screened by the extensive woodland and forestry surrounding the settlement. However, there are more elevated and open views from the southern / southeastern edge of the settlement at Tomnacross where the rising landform to the north and northwest of the settlement form the skyline as illustrated in Viewpoint 8, Figure 6.25. <u>Assessment: proposed development:</u> The main settlement area is located between approximately 7.6 – 8.4km distance from the nearest proposed turbine. ZTV analysis indicates full theoretical visibility of all of the turbines across the settlement. Wireline analysis indicates that the proposed turbines would be visible on the skyline to the northeast. Site visits indicate that views towards the proposed turbines from the main settlement area would be mostly screened by the surrounding built environment and forestry. Views would however be available from the open and slightly elevated areas to the south / southeast of the settlement at Tomnacross. From here there would be visibility of the turbines on the hills forming the skyline of the view as illustrated in Viewpoint 8, Figure 6.25 which also shows the density of trees around the main settlement area. The magnitude of change would range between Low-Very Low to Zero in the main settlement area, to Medium in the elevated south / southeast of the settlement area. The level of effect from the settlement would range from Moderate to Minor and Not Significant to No View in the main settlement area to Major and Significant from the south / southeast of the settlement. The nature of these effects would be long-term (reversible), indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Novar, Novar Extension, and Coire na Cloiche would be theoretically visible to the north at distances over 30km subject to screening from vegetation (all Very Low to Zero magnitude). The additional effect of the proposed development would range from Moderate to Minor and Not Significant to No View in the main settlement area to Major and Significant in the south / southeast of the settlement. The combined effect would

Settlement	Assessment
	remain Moderate to Minor and Not Significant to No View to Major and Significant (due to the proposed development). The nature of these effects would be long-term (reversible) indirect, cumulative and negative. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> The scoping Fairburn Extension would be theoretically visible behind the proposed development but would be screened by intervening forest (Very Low magnitude). Abhainn Dubh would be partially visible to the north subject to screening from intervening vegetation (Very Low to Zero magnitude). Fanellan substation would be theoretically visible in an elevated location to the northwest at approximately 3km and would appear in the same view as the proposed development mainly from the south / southeast of the settlement (Medium to Zero magnitude). The additional effect of the proposed development would range from Moderate to Minor and Not Significant to No View in the main settlement area to Major and Significant in the south / southeast of the settlement. The combined effect would remain Moderate to Minor and Not Significant to No View to Major and Significant (due to the proposed development and Fanellan substation). The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
Contin (Growing Settlement)	Contin village is situated to the north of Strathconon. The settlement is bounded to the west by the Black Water River and rises steeply to the east. The settlement is access by the A835 (part of the NC 500 tourist route) and due to the topography, has mostly developed along the A835 between the Black Water River to the west and the steep landform to the east, although them development has occurred along lower slopes to the east. There is extensive woodland interspersed through the settlement and forestry in the surrounding landscape. Although views in the settlement are often filtered by vegetation, the main views from the settlement are across the Black Water rover plains towards the west and south where Torr Achilty (252m AOD) and other hills from focal points on an undulating skyline. Viewpoint 9 is located within the settlement. <u>Assessment: proposed development:</u> The settlement is located between approximately 7.8 – 8.9km distance from the nearest proposed turbine. ZTV analysis indicates theoretical visibility of between 6-10 turbines across the settlement. Wireline analysis indicates that up to 10 proposed turbines would be partially visible on the skyline to the south and southwest. The turbines would be partially screened by intervening landform such that up to six of the turbines would appear as partial blades or blade tips. Site visits indicate that views towards the proposed turbines from the main settlement area would be screened by the surrounding built environment or heavily filtered by trees within the settlement resulting in glimpsed views or filtered winter views from some areas. More open views would be available from the western edge of the settlement where views towards the proposed turbines would typically be from the rear of properties subject to intervening vegetation, or from gaps between properties as illustrated in Viewpoint 9, Figure 6.26. The magnitude of change would range between Low-Very Low to Zero across the settlement area. The level of effect would range from Moderate to Minor and Not Significant to No View. The nature of these effects would be long-term (reversible), indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Blade tips of Fairburn are barely discernible in the view from elevated eastern areas of the settlement (Very Low to Zero magnitude). Auchmore would be visible to the south (Low-Very Low magnitude). The additional effect of the proposed development would range from would be Moderate to Minor and Not Significant to No View. The combined effect would also remain Moderate to Minor and Not Significant to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and negative. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> A hub and blade of the scoping Fairburn Extension would be visible to the fore of the proposed development (Low-Very Low magnitude). The additional effect of the proposed development would range from would be Moderate to Minor and Not Significant to No View. The combined effect would also remain Moderate to Minor and

Settlement	Assessment
	Not Significant to No View . The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
Settlements between 10-15km	
Kirkhill	Kirkhill is a small settlement situated to the southwest of the Beaully Firth, separated from the Firth by a relatively small expanse of flood plain. It is located on a slightly raised area of land which gently falls towards the river plains to the north, east and south from a high point to the southwest of the settlement. Views within the settlement are mostly near and middle distance, although often with glimpsed views of the surrounding hills to the southeast, west and northwest between buildings and urban trees, and from open edges of the settlement. <u>Assessment: proposed development:</u> The settlement is located between approximately 10 – 11.6km distance from the nearest proposed turbine. ZTV analysis indicates theoretical visibility of between 1-15 turbines across the settlement with some areas of no visibility. Wireline analysis indicates that up to 15 proposed turbines would be visible on the skyline to the west which would be partially screened by intervening landform such that seven of the turbines would appear as hubs and/or blades. Site visits indicate that views towards the proposed turbines from the main settlement area would be mostly screened by the surrounding built environment and interspersed trees resulting in glimpsed views from some areas. More open views would be available from the slightly elevated western edge of the settlement where views towards the proposed turbines would typically be from the rear of properties subject to intervening vegetation. The magnitude of change would range between Very Low to Zero in the majority of the settlement area, to Low on the western edge of the settlement. The level of effect would range from Minor and Not Significant to No View in the majority of the settlement area to Moderate and Not Significant from the western edge of the settlement. The effect would be not significant due to the limited extent of visibility from the settlement due to intervening built-form and vegetation with the proposed turbines visible beyond pylons and overhead lines. The nature of these effects would be long-term (reversible), indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> There would be clusters of wind farms visible to the northwest at over 28km (Lochluichart and extensions, Corriemollie and Kirkan) and to the north at over 24km (Novar, Novar Extension) (subject to screening from buildings and vegetation (all Very Low to Zero magnitude). The existing Auchmore turbines would also be partially visible as a hub and a blade in the same view as the proposed turbines (Low-Very Low to Zero magnitude). The additional effect of the proposed development would range from Moderate to No View and Not Significant. The combined effect would also remain Moderate to No View and Not Significant. The nature of these effects would be long-term (reversible) indirect, cumulative and negative. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> Abhainn Dubh would be partially visible to the north at approximately 20km subject to screening from intervening vegetation (Very Low to Zero magnitude). The additional effect of the proposed development would range from Moderate to No View and Not Significant. The combined effect would also remain Moderate to No View and Not Significant. The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
Strathpeffer	The settlement of Strathpeffer is located to the west of Loch Ussie and at the head of Strath Peffer, between Strath Peffer and Strathconon. The settlement is spread across the upper reaches of the strath and the landform rises from the centre to the east and southeast, West and southwest, and to the south creating a mixture of elevations and building orientations within the settlement. The settlement is accessed by the A834 which generally follow the lower contours within the settlement on a southwest-northeast axis. Views within the settlement are contained within the rising strath sides and are across the settlement from elevated areas, although there are some elevated long range views along the strath from the northeastern edges of the settlement. Views south

Settlement	Assessment
	from the southern edge of the settlement are screened by layers of intervening woodland and forest. <u>Assessment: proposed development:</u> The main settlement area is located between approximately 10 – 12km distance from the nearest proposed turbine. ZTV analysis indicates that theoretical visibility from the settlement would be limited areas to the elevated west and to the south of the settlement where up to 20 turbines would be theoretically visible. Wireline analysis indicates that up to 18 turbines would be partially screened by intervening landform such that mostly hubs, blades and blade tips would be visible. Site visits indicate that most of the views towards the proposed development from within the settlement would be screened or heavily filtered by buildings and/or successive layers of surrounding vegetation. Where views are present, they would typically be glimpsed or partial views of the proposed turbines. The magnitude of change would be Very Low to Zero across the settlement. The level of effect would range from Minor and Not Significant to No View. The nature of these effects would be long-term (reversible), indirect and neutral. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Fairburn and the Auchmore turbines would be partially visible in the same view as the proposed development in heavily filtered, or glimpsed views from the south and west of the settlement (Very Low magnitude). Other more distance wind farms at Dunmaglass and Aberarder would be screened by successive vegetation (Zero magnitude). The additional effect of the proposed development would range from Minor and Not Significant to No View. The combined effect would remain Minor and Not Significant to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and neutral. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> The scoping Fairburn Extension would be visible to the fore of the proposed development in glimpsed views (Very Low magnitude). The additional effect of the proposed development would range from Minor and Not Significant to No View. The combined effect would remain Minor and Not Significant to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and neutral.
Conon Bridge	The settlement of Conon Bridge is located to the south of the River Conon and southwest of the Cromarty Firth. The settlement is located on rising landform that is mostly facing northwest across the River Conon or northeast across the Cromarty Firth. The settlement is accessed by the A862 which passes through the settlement and the A835 which passes to the east of the settlement. Views within the settlement are generally short to medium range due to the surrounding built environment, local landform and urban and garden vegetation. Views from the urban edges of the settlement are also heavily filtered by layers of intervening woodland, forestry and shelterbelt planting. <u>Assessment: proposed development:</u> The main settlement area is located between approximately 11.8 – 13.1km distance from the nearest proposed turbine. ZTV analysis indicates full theoretical visibility across the settlement reducing to partial visibility in the lower lying areas at the west and northwest edges of the settlement. Wireline analysis indicates that the proposed turbines would be theoretically visible to the southwest. The view in this direction is along Gleann Goibhre and some of the turbines would be partially screened by the undulating ridgelines of the glen such that only hubs or blades of a minimum of 12 turbines would be visible from the elevated south of the settlement, with the screening increasing as the landform falls towards the River Conon. Site visits indicate that most of the views towards the proposed development from within the settlement would be screened or heavily filtered by buildings and/or successive layers of surrounding vegetation. Where views are present they would typically be glimpsed or heavily filtered. There would be some views from the elevated eastern and southern edges of the settlement where the proposed turbines would appear on hills above the settlement and in channelled views along roads to (Low magnitude). The magnitude of change would Low to Zero across the settlement. The level of effect would range from Moderate and Significant (eastern and southern edges)

Settlement	Assessment
	to Minor to No View and Not Significant (remainder of settlement). The nature of these effects would be long-term (reversible), indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Fairburn and the Auchmore turbines would be partially visible in the same view as the proposed development in heavily filtered, or glimpsed views from the south and west of the settlement (Very Low magnitude). The additional effect of the proposed development would range from Moderate and Significant to Minor and No View and Not Significant. The combined effect would remain Moderate and Significant (due to the proposed development) to Minor and No View and Not Significant. The nature of these effects would be long-term (reversible) indirect, cumulative and negative. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> The scoping Fairburn Extension would be mostly screened by landform in the same view as the proposed development (Very Low to Zero magnitude). The additional effect of the proposed development would range from Moderate and Significant to Minor and No View and Not Significant. The combined effect would remain Moderate and Significant (due to the proposed development) to Minor and No View and Not Significant. The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
Dispersed settlement / communities between 2-4km southeast from the proposed development	There are several areas of dispersed settlement / communities between 2-4km to the southeast of the proposed development including: Farley, Cruinassie, Leanassie, Torgormack, and Druindorsair. These are generally located on the southeast facing slopes as the landform falls from rugged uplands towards the River Beaully. The area is characterised by steep slopes, scattered woodland / forest plantations, and occasional burns feeding the river to the south. The settlements are accessed through a network of minor roads via the A831 and A862. Views within the settlement are generally orientated south and southeast, away from the proposed development, where there are long distance views across and along the River Beaully valley. In other directions to the west, north and northeast views are generally limited due to rising landform and forest. <u>Assessment: proposed development:</u> The scattered communities assessed are located between 2 – 4km distance from the nearest proposed turbine. ZTV analysis indicates patchy theoretical visibility across the settlements with up to 15 turbines theoretically visible. Wireline analysis indicates that the proposed turbines would be theoretically visible to the northwest with the greatest potential visibility indicated to the western fringes of the communities at Farley and Breakachy where up to 15 proposed turbines would be theoretically visible across the undulating landform on the skyline (partial towers, hubs and blades). Away from the western edges, views towards the turbines are often along the sloping landform and away from the main views to the south. Viewpoint 2, Figure 6.19 illustrates views from this location and shows the sloping landform with views along the slopes towards the proposed turbines. Site visits indicate that most of the views towards the proposed development from within these communities would be screened or heavily filtered by successive layers of surrounding vegetation. This is particularly evident at Farley and the western fringes where woodland or forestry surrounds the communities to the north and west although there may be winter views and views between vegetation in some locations. The magnitude of change would range between Medium in filtered and glimpsed views to the west of the communities around Farley and Breakachy, to Low away from the western fringes, to Zero. The level of effect would range from Major and Significant (western fringes at Farley and Breakachy) to Moderate to No View and Not Significant (remainder of the communities). The nature of these effects would be long-term (reversible), indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Corriegarth, Dunmaglass and Aberarder would be theoretically visible to the south in clear conditions but would be mostly screened (Very Low to Zero magnitude). The additional effect of the proposed development would range from range from Major and Significant to Moderate to No View and Not Significant. The combined effect would remain Major and Significant (due to the proposed development) to Moderate to No

Settlement	Assessment
	View and Not Significant. The nature of these effects would be long-term (reversible) indirect, cumulative and negative. <u>Cumulative Assessment: proposed development + Existing + Consented Sites + Applications</u> Blade tips of Loch Liath would not be discernible to the southwest (Zero magnitude). The application Fanellan substation would be theoretically visible to the south but would be mostly screened by forestry (Very Low magnitude). The additional effect of the proposed development would range from range from Major and Significant to Moderate to No View and Not Significant. The combined effect would remain Major and Significant (due to the proposed development) to Moderate to No View and Not Significant. The nature of these effects would be long-term (reversible) indirect, cumulative and negative.

Visual Effects on Views from Transport Routes

- 6.302 This section of the assessment considers the sequential and cumulative visual effects on views of the proposed development from selected transport routes within 15km of the proposed development.
- 6.303 The views from these routes (including rail routes) would be experienced transiently by road users (mainly drivers / passengers and where appropriate cyclists) who would experience the wind farm as part of the changing sequence of views experienced from the road / rail route. Each of the roads were driven in both directions to assess the potential effects. All routes were assessed with the assistance of sequential wirelines, ZTV maps and True View Visuals 3D augmented reality software. The assessment has also taken account of other wind farms visible from these routes.
- 6.304 In summary, significant effects would be limited to sections of the following transport routes:
- Up to approximately 3.8km of the 45km route of the A831 between Crelevan and Struy Bridge for northbound users;
 - Up to approximately 1.5km of the 203km route of the A832 (eastbound users) and 0.5km (westbound users)) in intermittent open sections between Clash Wood and Arcanside – this section of the route is overlapped by the NC500 Tourist Route;
 - Up to approximately 1.6km of the 15km route of the A833 (northbound views) between Culmill and the Balgate junction to Kiltarlity;
 - Up to approximately 3.3km of the 107km route of the A835 (westbound users) intermittently between west of Tore and Wester Moy – part of this section is overlapped by the Sustrans Cycle Route 1;
 - Up to approximately 2km of the 16.7km route of the B9169 (westbound users) between Knocknafanaig and Highfield Park; and
 - Up to approximately 1km of the Far North (Inverness to Wick) Railway Line / Inverness to Kyle of Lochalsh Railway Line in glimpsed views and open views north of Riverford.
- 6.305 The A862 would also be significantly affected for approximately 0.6km of the route, however, this route is assessed as part of the NC500 Tourist Route (and Moray Firth Tourist Route) and is summarised in the next section.

- 6.306 None of the remaining transport routes would be significantly affected by the proposed development.

Table 6.15 Visual Effects on Views from other Transport Routes

Transport Route	Description of Effects
A831	The A831 is approximately 45km in length and connects Drumnadrochit in the south to Beaulieu via Strathglass. Some of the route to the south is located just beyond the 15km study area but the full route is included as a precaution. From the south, the route travels west along Glen Urquhart until it reaches Strathglass at Cannich where the route turns northeast and follows the strath until it reaches the A862 to the south of Beaulieu. Views are generally channelled along the glen and strath in the direction of travel with the strath sides forming the skyline and screening longer range views in other directions. The sides of the glen and strath are generally forested or wooded and intermittent woodland along the valley floors further restricts views in places. Viewpoint 5 (Figure 6.22) is located along this route. Although the route is not overlapped by any national or local landscape designations, a small section of the route to the east of Cannich is overlapped by the Affric Kintail Way at the western end of Glen Urquhart indicating a High value for this section and a Medium overall value. The views from the route would be experienced by road users whose attention is likely to be focussed on the road ahead (Medium susceptibility), and walkers in the south along the Affric Kintail Way (High susceptibility). Therefore, the overall sensitivity along this section of the route is assessed as <i>Medium (High in the south at the western end of Glen Urquhart)</i>. <u>Assessment: proposed development</u> Travelling south to north, theoretical visibility is first indicated along ~1.7km of the route as the route approaches Strathglass and Cannich. Views would be available for south/eastbound users only and would be heavily filtered due to roadside vegetation. A maximum of 13 proposed turbines would be theoretically visible along Strathglass at a distance of ~15.3km. Due to the roadside vegetation, views would mostly be heavily filtered winter views (Very Low to Zero magnitude). There would be very limited theoretical visibility as the route progresses along the southern half of Strathglass (theoretical visibility of a blade tip at Glassburn would be screened by dense vegetation). ZTV coverage is again indicated as the route reaches Crelevan and continues for ~3.8km of the route until it reaches Struy Bridge. Views would be available for northbound road users and would be filtered in places due to roadside vegetation. Wireline analysis indicates that 15 proposed turbines would be theoretically visible in views along Strathglass at a distance of ~9km as the route approaches Jocks Lodge. Site visits indicate that these views would be intermittent between roadside vegetation (Medium magnitude for 0.7km), reducing to partial views of between one and 12 turbines as the route meanders along the eastern strath edge and turbines are intermittently screened by the strath sides. Views along this section of the route would also be intermittently screened by roadside vegetation. Viewpoint 5, Figure 6.22 illustrates typical views from open sections of the route (intermittent Medium magnitude for ~3.1km). Theoretical visibility is also indicated for south/westbound road users as the route passes through Kilmorack. Wireline analysis indicates that up to 13 turbines would be theoretically visible in the direction of travel. In reality, views towards the proposed turbines would be mostly screened by dense vegetation such that mostly partial blades would be visible above the treeline for ~0.5km between the minor road junction to the east of the village and the cemetery (Low magnitude). West of the cemetery, views are restricted by steep, wooded landform at either side of the road. A short section of the route (0.4km) is overlapped by the ZTV at Wester Balblair as the route joins the A862. Wirelines indicate that several blade tips would be theoretically visible in the direction of travel (westbound). These would be screened by intervening vegetation (Zero magnitude). The magnitude of change on 'northbound' users of the A831 (travelling from Drumnadrochit to Beaulieu) would range between Medium to Zero resulting in a Moderate and Significant effect (intermittently for approximately 3.8km of the 45km route) to No View (remainder of the route). The level of effect on 'southbound' road users (travelling from Beaulieu to Drumnadrochit) would be Minor and Not Significant (for approximately 0.5km of

Transport Route	Description of Effects
	the route) at Kilmorack, Minor to Negligible and Not Significant (for approximately 1.7km of the route) at Cannich, and No View (for the remainder of the route). The nature of these effects would be long-term (reversible), indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> There are partial views of Corriemoney Wind Farm for southbound road users along Strathglass but would be heavily filtered by roadside vegetation (Very Low to Zero magnitude). The additional effect of the proposed development would be Moderate and Significant (for 3.8km) to No View and Not Significant. The combined effect would also be Moderate and Significant (due to the proposed development) to No View and Not Significant. The nature of these effects would be long-term (reversible) indirect, cumulative and negative. <u>Cumulative Assessment: proposed development + Existing + Consented Sites + Applications</u> There are no application or other wind farm developments visible along the route. Therefore, there would be no further cumulative effects.
A832	This route runs between Cromarty in the Black Isle and Gairloch on the west coast, before turning north along the west coast, and southeast inland to Braemore (a total of 203km). There is a break in the route where it is connected by the A835 between Wester Moy and Garve. The route is overlapped by the NC500 between the Muir of Ord and the route termination at Braemore Junction (with the exception of a section at Glen Docherty) and is intermittently crossed by the Sustrans cycle network in the Black Isle (but is not overlapped by the Sustrans route). Within 15km, the A832 passes between Tore (Linnie) at the western edge of the Black Isle, and Wester Moy. Since the route is overlapped with the NC500, the route is assessed between Tore (Linnie) and Braemore Junction within the 45km study area (see Figure 6.10). The route passes through a variety of landscapes providing scenic views of mountains, moorlands and seascapes including: Beaully Firth, Strath Conon, Strath Garve, Strath Bran, Loch a'Chroisg, Glen Docherty, Loch Maree, and Braemore. Views are generally channelled as the route passes along the straths and glens and are more open views across the Beaully Firth and as the route passes through open farmland and river plains between Tore and Wester Moy. The value of this route varies between High (where it is overlapped by the NC500) and Medium (between Tore and Muir of Ord). The route would be mostly experienced by tourists (High susceptibility) and other road users (particularly between Tore and Muir of Ord which is not a tourist route). The sensitivity would therefore vary between <i>High</i> (NC500) and <i>Medium</i>. <u>Assessment: proposed development</u> ZTV coverage indicates theoretical visibility to the east of the route between Tore and Muir of Ord with visibility reducing as it nears Muir of Ord, and patchy theoretical visibility between Muir of Ord and Wester Moy. There is no theoretical visibility indicated between Garve and Braemore (with the exception of a glimpsed blade tip at Corriemollie which would not be perceptible in the view). Travelling from east to west, there would be visibility of all 20 turbines (hubs and blades) for westbound users in the direction of travel for approximately 4.5km between Linnie and Tarradale at between approximately 11-15km distance. Views from this section would be intermittently screened by forestry and roadside vegetation. Viewpoint 14, Figure 6.31 illustrates the views from this section of the route (Medium- Low magnitude for 4.5km). At Tarradale, theoretical visibility reduces to one or two hubs alongside blades and blade tips, and this further reduces to blades and tips by Balvattie (Low magnitude for 1.7km). Between Balvattie and the centre of Muir of Ord there would be theoretical visibility of between three and one blade tips (Viewpoint 7, Figure 6.24 illustrates views from the centre of Muir of Ord). The magnitude of change would be Very Low to Zero for this section of the route where views would become increasingly by urban buildings. ZTV coverage becomes fragmented as the route continues to the northwest of the Muir of Ord with three partial blades/tips theoretically visible as the route passes the distillery. However, buildings and vegetation screen views from this section of the route (Zero magnitude). Between Muir of Ord and Marybank theoretical visibility increases to up to 13 turbines. These would mostly be visible in oblique views to the southwest although screening from vegetation would limit visibility to open sections of the route at: 0.4km north of Clash

Transport Route	Description of Effects
	Wood (intermittent winter views between roadside trees), 0.5km at Wester Urray (open oblique views for eastbound road users), and 1.1km between Arcan Mains and Arcanside (open oblique views for westbound road users). Along this section of the route the turbines would be visible at ~7.6km and as a mixture of towers, hubs and blades along Gleann Goibhre with the visible turbines seen in the 'dip' between the valley sides and the remainder screened or partially screened by the hills forming the glen sides distance (Medium magnitude). Theoretical visibility is also indicated between the junction at Wester Moy and Marybank this would be experienced by eastbound road users where up to four turbines would be partially visible including one hub and up to three partial blades / tips for 0.3km in the direction of travel. In reality, views from this section of the route would be heavily filtered by roadside vegetation in winter views (Very Low to Zero magnitude). There would be no visibility of the proposed turbines for the remainder of the NC500 (A832 section) beyond this point. The magnitude of change on 'westbound' users of the A832 travelling from Tore to Muir of Ord (Medium sensitivity) would range between Medium-Low and Zero resulting in a Moderate to Minor and Not Significant effect (intermittently for approximately 4.5km of the route between Linnie and Tarradale), and Minor to Negligible, to No View (between Blavattie and Muir of Ord). The level of effect on road users accessing the parts of the A832 overlapped by the NC500 travelling from Muir of Ord to Marybank (High sensitivity) would be Major and Significant (for a total of 1.5km (eastbound views), and 0.5km (westbound views)) in intermittent open sections of the route between Clash Wood and Arcanside. There would be No View for the remainder of the route overlapped by the NC500. The nature of these effects would be long-term (reversible), indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Fairburn and Auchmore would be partially visible on the skyline in the same views as the proposed development (Low-Very Low to Zero magnitude). Lochluichart and Corriemollie wind farms visible would be of Very Low magnitude due to the intervening distance where visible between Tore and Arcanside, or very limited visibility due to screening from landform and roadside vegetation as the route passes to the south of the wind farms at Corriemollie. Other existing and consented wind farms would be visible at greater distances from parts of the route (most notably the open views between Tore and Muir of Ord) including Moy, and Tom na Clach (all Very Low to Zero magnitude). The additional effect of the proposed development would be Major and Significant (for 2km) to No View. The combined effect would also be Major and Significant (due to the proposed development) to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and negative. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> Fairburn Extension would be partly visible adjacent to the proposed development from west of Tore (Low magnitude) and as blades between Muir of Ord and Wester Moy (Very Low magnitude). Loch Liath would be partially visible to the southeast from west of Tore subject to screening from roadside vegetation (Very Low to Zero magnitude). The additional effect of the proposed development would be Major and Significant (for 2km) to No View. The combined effect would also be Major and Significant (due to the proposed development) to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
A833	The A833 passes on a north-south axis between Milton in Glen Urquhart on the A831 and Balchraggan adjacent to the River Beauly on the A862. The route is 15km in length and climbs through dense woodland in the south to an undulating wooded moorland upland with areas of plantation forest, infrequent areas of open moorland and wooded glens. There are some longer-range open views as Glen Convinth widens and as the route begins to descend towards the River Beauly valley at Tomnacross, but the majority of views are short to medium range with dense roadside woodland and mature trees screening views of the surrounding landscape. Scattered settlement is a feature in views from the northern part of the route between Convinth and Tomnacross. The route is not located within a nationally or locally designated landscape neither is it overlapped by a tourist route, indicating a Medium value. The view would be experienced

Transport Route	Description of Effects
	by road users whose attention or interest is likely to be focused on the road ahead and susceptibility to change is assessed as Medium, and the sensitivity is assessed as <i>Medium</i>. <u>Assessment: proposed development</u> Starting from the south of the route, ZTV coverage indicates that there would be no theoretical visibility between Milton and Convinth. Full visibility is indicated between Ardendrain and the northern end of the route at the A831 (approximately 5.2km). Wireline analysis indicates that all of the proposed turbines would be visible on the skyline to the northwest along this section of the route as illustrated in the nearby viewpoint at Kiltarlity (Viewpoint 8, Figure 6.25). In reality, views between Ardendrain and Culmill (~2km) would be heavily filtered by roadside trees (even in winter views), although there may be glimpsed views from parts of the route or views of partial blades above middle distance trees in more open views (Very Low to Zero magnitude). The most open section occurs between Culmill and the Balgate junction to Kiltarlity (approximately 1.6km of the route) where there would be intermittent open views and filtered winter views towards the proposed turbines at approximately 8.5km distance for northbound road users (Medium magnitude). Beyond the Kiltarlity junction, roadside woodland and forest screen views of the proposed turbines and there would be no visibility of the turbines for the remainder of the route. The magnitude of change would range between Medium (between Culmill and the Balgate junction to Kiltarlity for approximately 1.6km) and Very Low (between Ardendrain and Culmill for approximately 2km), and Zero for the remainder of the route. The level of effect would range from Moderate and Significant (between Culmill and the Balgate junction to Kiltarlity for approximately 1.6km for northbound users only) and Negligible and Not Significant to No View on the remainder of the route. The nature of these effects would be long-term (reversible), indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Novar, Novar Extension, and Coire na Cloiche would be theoretically visible to the north from the north of the route at distances over 30km subject to screening from vegetation (all Very Low to Zero magnitude). The additional effect of the proposed development would range from Moderate and Significant (for approximately 1.6km) and Negligible and Not Significant to No View on the remainder of the route. The combined effect would be Moderate and Significant (due to the proposed development) to Negligible to No View and Not Significant. The nature of these effects would be long-term (reversible) indirect, cumulative and negative. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> The blades of the scoping Fairburn Extension would be theoretically visible behind the proposed development from the north of the route (Very Low magnitude). Abhainn Dubh would be partially visible to the north subject to screening from intervening vegetation (Very Low to Zero magnitude). Fanellan substation would be theoretically visible in an elevated location to the northwest at approximately 4km as the route passes near to Kiltarlity and would appear in the same view as the proposed development (Medium magnitude). The additional effect of the proposed development would be Moderate and Significant (for approximately 1.6km) to Negligible to No View and Not Significant (the remainder of the route). The combined effect would be Moderate and Significant (due to Fanellan substation and the proposed development) to Negligible to No View and Not Significant. The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
A834	The A834 passes roughly southwest to northeast between Contin on the A835 and Dingwell adjacent to the River Beaully on the A862. The route is approximately 11km in length and from east to west passes through the urban setting of Dingwall and along Strath Pfeffer where views are contained within the strath along the treelined road to the settlement of Strathpeffer where views continue to be contained. Beyond Strathpeffer, views are restricted by roadside trees and surrounding woodlands until the route passes Jamestown where the route begins to descend to Strathconon and there are long range open views across the strath to the south and southwest and along the strath to the east until the route enters the strath at Contin and the A835.

Transport Route	Description of Effects
	The route is not located within a nationally or locally designated landscape neither is it overlapped by a tourist route, indicating a Medium value. The view would be experienced by road users whose attention or interest is likely to be focused on the road ahead and susceptibility to change is assessed as Medium, and the sensitivity is assessed as <i>Medium</i>. <u>Assessment: proposed development</u> Starting from the east of the route, ZTV coverage indicates that there would be no theoretical visibility between Dingwall and Strathpeffer. Visibility of 16-20 turbines is indicated between Kinellan and Coulwood (approximately 0.4km) after which, theoretical visibility reduces to up to 15 turbines and up to 10 turbines as the route progresses towards Strathconon. Wireline analysis indicates that between Kinellan and Contin between 6 and 16 of the proposed turbines would be theoretically visible beyond and between intervening landform (Cul Mor and Cul Beag) such that the turbines would be visible as hubs and blades with the number of visible turbines reducing as the road falls towards Strathconon valley floor. Views from this section of the route would be similar to Viewpoint 10, Figure 6.27 which shows the view from Jamestown adjacent to the route. Views between Kinellan and Coulwood would be mostly screened by roadside vegetation and surrounding forest and woodland with glimpsed or partial views available intermittently in the direction of travel (westbound) (Low to Very Low for 0.4km). As views open beyond Jamestown up to 14 turbines would be theoretically visible at 9.2km distance (up to 4 hubs and 10 partial blades / tips) gradually reducing to six visible turbines at 8km distance (two hubs and four partial blades/tips) at the western end of the route. The magnitude of change would be Low for this section of the route (approximately 2km). The magnitude of change would range between Low (between Jamestown and Contin / A835 for approximately 2km) and Very Low (between Kinellan and Coulwood for approximately 0.4km), and Zero for the remainder of the route. The level of effect would range from Minor and Not Significant (between Jamestown and Contin / A835 for approximately 2km) and Negligible and Not Significant to No View on the remainder of the route. The nature of these effects would be long-term (reversible), indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Blades and tips of Fairburn are visible above the ridgeline and on the horizon to the right of the view the view (Very Low magnitude). Auchmore would be visible in the same view as the proposed development on the ridgeline to the left (Low-Very Low magnitude). Other more distant wind farms would be theoretically visible in clear conditions along the strath in oblique views to the southeast (Very Low to Zero magnitude). The additional effect of the proposed development would range from Minor and Not Significant to No View. The combined effect would remain Minor and Not Significant to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and negative. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> The scoping Fairburn Extension would be visible overlapping with the proposed development (Medium-Low magnitude). Abhainn Dubh would be partially visible to the north subject to screening from intervening vegetation (Very Low to Zero magnitude). The additional effect of the proposed development would range from Minor and Not Significant to No View. The combined effect would be Moderate to Minor and Not Significant (due to Fairburn Extension) to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
A835	This route connects Ullapool to Tore and the A9 in the Black Isle (approximately 107km). The route is overlapped by the NC500 between Wester Moy and Garve, and by the Sustrans Cycle Route 1 between Tore and Maryburgh. Within 15km, the A835 passes between Tore at the western edge of the Black Isle, and Garve. The route passes through farmed and forested slopes either side of the River Beaully and river plains, to the north of Strath Conon and along the southern edge of the Black Water glen to Glen Garve. Views along the route are near to medium range between Tore and Leanaig where the landform falls and there are long range views across and along the River Beaully strath and plains (with intermittent screening) until northwest of Maryburgh where views become channelled by roadside trees and forest. There are intermittent views south as the route progresses along Strath Conon and intermittent open views along the strath in the direction of travel until Contin. After

Transport Route	Description of Effects
	Contin views become channelled by landform and/or roadside vegetation until the route approaches Loch Garve when views open towards and across the loch and strath to the north and east of the route. The value of this route varies between High (where it is overlapped by the NC500 / Sustrans Cycle Route 1) and Medium for the rest of the route. The route would be experienced by tourists who would be focused on the surrounding landscape (High susceptibility) and other road users who would be focused on the road ahead (Medium magnitude). The sensitivity would therefore vary between <i>High and Medium</i>. <u>Assessment: proposed development</u> ZTV coverage indicates theoretical visibility between Tore and Contin, with the numbers of turbines reducing as the route approaches Contin. Between Dingwall and the B9169 at Leanaig, views would be screened by roadside or successive layers of vegetation as well as local landform and occasional cuttings. Views of the proposed turbines along this section would at most be glimpsed (Very Low to Zero magnitude for westbound users). At Leanaig, views open and the proposed turbines would be visible in oblique views to the west as illustrated in Viewpoint 12, Figure 6.29 which is located at the B9169 adjacent to the junction. Visibility would be experienced for approximately 0.3km before hedgerow and a road cutting screens views. There would be intermittent oblique views for eastbound road users for approximately 2.5km between the A862 and the southern edge of Conon Bridge where gaps in roadside vegetation would allow views of the turbines to the southwest beyond the near distance settlement of Conon Bridge (Low magnitude). Between the A862 and Brahan, there would be glimpsed views for westbound road users between dense roadside vegetation (Low to Zero magnitude). Beyond Brahan, roadside screening becomes thinner and there would be open views towards the proposed turbines for westbound road users where up to 17 turbines visible on the skyline at approximately 9km distance (Medium and Low magnitude for approximately 3.3km of the route). At Wester Moy, views become more oblique. The turbines would also become increasingly screened by intervening landform from this open section of the route and the magnitude would reduce to Low-Very Low at Wester Moy where there would be only blades and tips visible. Between Wester Moy and Contin, visibility would continue to be oblique, and the turbines would remain mostly screened by landform such that only blades and tips would be visible and occasionally a hub (Low-Very Low magnitude for approximately 3.7km of the route). Viewpoint 9, Figure 6.26 illustrates views from the settlement of Contin. Theoretical visibility along the route to the north of Little Garve would be screened by dense roadside vegetation (Zero magnitude). There would be no views from the rest of the route within the study area. The magnitude of change on users of the A835 travelling between Tore and Wester Moy would range between Medium and Zero resulting in a Major and Major to Moderate Significant (cyclists on Sustrans Cycle Route 1) to Moderate and Significant (other road users) (intermittently for approximately 3.3km of the route between Brahan and Wester Moy), Moderate to Minor and Not Significant (for approximately 2.5km of the route at Conon Bridge), and No View. The level of effect on road users accessing the parts of the A835 overlapped by the NC500 travelling from Wester Moy to west would be Moderate to Minor and Not Significant (for a total of 3.7km in intermittent open sections of the route between Wester Moy and Contin. There would be No View for the remainder of the route overlapped by the NC500. The nature of these effects would be long-term (reversible), indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Fairburn and Auchmore would be partially visible on the skyline in the same views as the proposed development (Low-Very Low to Zero magnitude). Other clusters of wind farm development would be theoretically visible at greater distances in clear conditions to the south and southwest but would be mostly screened by layers of intervening vegetation along the route (Very Low to Zero magnitude). The additional effect of the proposed development would be Major / Moderate and Significant (for 3.3km) to No View. The combined effect would also be Major / Moderate and Significant to No View (due to the proposed development) to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and negative.

Transport Route	Description of Effects
	<u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> Fairburn Extension (scoping) would be partly visible adjacent to the proposed development from various locations along the route including the more sensitive section of the NC500 where the magnitude of change would be (Medium magnitude). Loch Liath would be partially visible to the southeast from west of Tore subject to screening from roadside vegetation (Very Low to Zero magnitude). The additional effect of the proposed development would be Major / Moderate and Significant (for 3.3km) to No View. The combined effect would be Major / Moderate and Significant (due to Fairburn Extension and the proposed development) to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
A862	The A862 connects Inverness and Adullie (38.1km) passing to the south of Beaulie Firth, through the settlements of Beaulie, Muir of Ord and Dingwall before passing to the north of Cromarty Firth and joining with the A9. The route is overlapped by the NC500 / Moray Firth Tourist Route in its entirety and is therefore assessed as part of the NC500 Tourist Route in Table 6.16.
B9163	The B9163 traverses the north of the Black Isle, connecting Cromarty to Conon Bridge. The route is 31.5km in length and transits both the coastal edge at Cromarty Bay and Culbokie, and a low inland ridgeline connecting the two. Within 15km of the proposed turbines, the route travels between Alcaig and Conon Bridge. In this section of the route, the road travels inland and roughly follows south of the River Conon to Conon Bridge. Views along this section of the route are generally short to medium range due to roadside vegetation. The route is not overlapped by any designated landscapes and is not part of a tourist route and the value of this route is therefore Medium. The route would be mostly experienced by road users who would be focused on the road ahead (Medium susceptibility). The sensitivity would therefore be <i>Medium</i>. <u>Assessment: proposed development</u> ZTV coverage is indicated across the route within 15km. Travelling from Alcaig to Conon Bridge, there would be intermittent views and heavily filtered winter views between Alcaig and Corntown (Very Low to Zero magnitude). At Corntown, there would be channelled partial views of the proposed turbines along the road in the direction of travel (westbound) with occasional wider views (Low magnitude for 0.5km of the route). At the junction with the A835 and before the approach into Conon Bridge there would be wider views of the turbines in the direction of travel at a distance of approximately 13km distance (Low magnitude) for approximately 0.4km. The magnitude of change on users of the B9163 would range between Low (for 0.9km) to and Very Low to Zero resulting in a Minor and Not Significant effect (for approximately 0.9km of the route) and Negligible to No View for the remainder of the route. The section of the route where the B9163 meets the A835 and as it enters Conon Bridge would be significant for residents which is assessed in Table 6.14 as part of the settlement assessment of Conon Bridge considering high sensitivity receptors. The effect would not be significant for road users given their lower sensitivity. The nature of these effects would be long-term (reversible) indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Fairburn and Auchmore would be partially visible on the skyline in the same views as the proposed development but would not be visible in channelled views (Low-Very Low to Zero magnitude). The additional effect of the proposed development would be Minor and Not Significant (for 0.9km) to Negligible to No View and Not Significant. The combined effect would also be Minor and Not Significant to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and negative. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> Fairburn Extension (scoping) would be theoretically visible as blades adjacent to the proposed development in some channelled views (Very Low to Zero magnitude). Blades of Abhainn Dubh would be theoretically visible to the north, but would be barely discernible (Very Low to Zero magnitude). The additional effect of the proposed development would be Minor and Not Significant (for 0.9km) to Negligible to No View. The combined effect

Transport Route	Description of Effects
	would also be Minor and Not Significant to No View and Not Significant. The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
B9164	The B9164 is a short 5km route that passes between Inchmore and Dunballoch via Kirkhill. Views along the route are generally short to medium range due to roadside vegetation with some longer-range views to the west of the route. The route is not overlapped by any designated landscapes and is not part of a tourist route and the value of this route is therefore Medium. The route would be mostly experienced by road users who would be focused on the road ahead (Medium susceptibility). The sensitivity would therefore be <i>Medium</i>. <u>Assessment: proposed development</u> ZTV coverage indicates that up to 15 turbines would be visible from the majority of the route. Views from much of the route are heavily screened by surrounding vegetation and there would be at most glimpsed views as the route passes west of Kirkhill (Low-Very Low to Zero magnitude). There would be some oblique views from the west of the route as it turns south between Ferrybrae and Dunballoch. The proposed turbines would be visible on the skyline of the view mostly appearing as hubs and blades in gaps in the roadside vegetation for approximately 0.4km (Low to Zero magnitude). The magnitude of change on users of the B9164 would range between Low (for 0.4km) to Very Low to Zero resulting in a Minor and Not Significant effect (for 0.4km of the route between Ferrybrae and Dunballoch), and Minor to Negligible, to No View for the remainder of the route. The nature of these effects would be long-term (reversible) indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> The existing Auchmore turbines would also be partially visible as a hub and a blade in the same view as the proposed turbines in glimpsed views from west of Kirkhill (Low to Zero magnitude). The additional effect of the proposed development would be Minor and Not Significant (for 0.4km), to Minor to Negligible, to No View. The combined effect would also be Minor and Not Significant to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and negative. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> There would be no application or other wind farm development visible along the route due to screening from vegetation and/or landform. Therefore, there would be no further cumulative effects.
B9169	The B9169 passes between the B9163 at Culbokie on the Black Isle and Muir of Ord (16.7km). Within 15km, the route passes between Easter Kinkell and Muir of Ord. Views along this section of the route range between long distance views along and across the Cromerty Firth (north-eastbound) and along Strath Canon (south-westbound), to medium to near distance views as the route passes through occasional woodland or passes scattered settlement. The route is not overlapped by any designated landscapes and is not part of a tourist route and the value of this route is therefore Medium. The route would be mostly experienced by road users who would be focused on the road ahead (Medium susceptibility). The sensitivity would therefore be <i>Medium</i>. <u>Assessment: proposed development</u> ZTV coverage indicates theoretical visibility across the whole of the route within 15km, with visibility reducing as it reaches Muir of Ord. Views from much of the route are open and long distance, the turbines would be visible in the direction of travel becoming more oblique as the route turns slightly south at Bishop Kinkell. As the route approaches Muir of Ord, the proposed turbines become increasingly screened by intervening landform such that a hub and blade tips would be visible as the route reaches the edge of settlement. The magnitude of change would be Medium-Low between Easter Kinkell and the Knocknafanaig (approximately 1.3km). Between Knocknafanaig and Highfield Park (approximately 2km) the magnitude of change would increase to Medium due to clear open views and the orientation of the road towards the turbines as illustrated in Viewpoint 12, Figure 6.29. Views of the proposed turbines would become intermittent at Highfield Park

Transport Route	Description of Effects
	until Ord Muir due to settlement and woodland (Medium-Low to Zero magnitude for 1.9km). There would be open views of hubs and blades on the skyline between Ord Muir and Muir of Tarradale in slightly oblique views (south-westbound) (Medium-Low magnitude for 0.8km), and views of partial blades and a hub between Broadbrae and Muir of Ord, with views increasingly screened by vegetation as the route enters Muir of Ord (Very Low to Zero magnitude). The magnitude of change on users of the B9169 would range between Medium (for 2km), Medium to Low (at various locations totalling 4km of the route), to Very Low to Zero resulting in a Moderate and Significant effect (for approximately 2km of the route between Knocknafanaig and Highfield Park). This would be significant due to the open views in the direction of travel (southwest) and extent of visibility of the turbines on the skyline. Elsewhere along the route views would not be significant and the proposed turbines would result in a Moderate to Minor level of effect for 4km of the route and Negligible to No View for the remainder of the route. The nature of these effects would be long-term (reversible) indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Fairburn and Auchmore would be partially visible on the skyline in the same views as the proposed development with Auchmore seen to the fore of the turbines as the route progresses southwest (Low-Very Low to Zero magnitude). Novar, Novar Extension and Coire na Cloiche would be visible in clear conditions to the north (northwest bound) (Very Low to Zero magnitude). The additional effect of the proposed development would be Moderate and Significant (for 2km) to No View and Not Significant. The combined effect would also be Moderate and Significant (due to the proposed development) to No View and Not Significant. The nature of these effects would be long-term (reversible) indirect, cumulative and negative. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> The scoping Fairburn Extension would be visible adjacent to the proposed development (Medium magnitude for 2km). Abhainn Dubh would be partially visible to the north in clear conditions (Very Low magnitude). The additional effect of the proposed development would be Moderate and Significant (for 2km) to No View and Not Significant. The combined effect would also be Moderate and Significant (due to Fairburn Extension and the proposed development) to No View and Not Significant. The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
The Far North (Inverness to Wick) Railway Line / Inverness to Kyle of Lochalsh Railway Line	The Far North Railway Line extends between Inverness and Thurso / Wick and is approximately 260km in length. The Inverness to Kyle of Lochalsh Railway Line is approximately 129km in length and follows the same route within 15km, branching off at Dingwall. Within 15km, the (joint) route passes along Beaulie Firth from Phopachy to Beaulie and north to Dingwall. The route follows the coastal edge of the firth before crossing the Iver Beaulie and the river plains and continues along the low landform through Muir of Ord to Strath Conon, crossing the River Conon and heading towards the Cromarty Forth coastal edge east of Dingwall. Views towards the proposed development from the route are orientated towards rising landform and are intermittently screened or filtered by landform or rail-side vegetation. Occasionally the route passes through cuttings and views are further screened by close range landform. From Dingwall, the Inverness to Kyle of Lochalsh route branches south and heads along Strathpeffer and Strath Garve where views are generally contained within the straths. The rail route is promoted by Scotrail as a 'Great Scenic Line' but does not pass through any designated landscapes within 15km. The value of the route is therefore assessed as High-Medium. The susceptibility of passengers on the train is assessed as High to Medium, due to the transient nature of the views experienced and the location of the proposed development in the wider area where the passenger's attention or interest is promoted as part of the route. Rail passengers would only be able to experience the view from one side of the train carriage, perpendicular to the route and dependent on the orientation of their seat. As a result, the sensitivity of the rail passengers on this section of the route is judged to be <i>High-Medium</i>.

Transport Route	Description of Effects
	The assessment has considered a return journey as a normal part of the passenger experience. Passengers on the train may have taken the train to experience the views but would be travelling at speed and would gain transient views of the landscape. <u>Assessment: proposed development</u> ZTV coverage is patchy along the route within 15km. Passengers would experience views of all of the proposed turbines to the west (mostly hubs) (subject to screening from rail-side vegetation) between Phopachy and Balcarse (Low magnitude for approximately 3.5km). Between Balcarse and Balblair House, the turbines become increasingly screened by landform such that a few hubs and some partial blades would be theoretically visible by Balblair (Low-Very Low magnitude for 3.5km) At Balblair, visibility would be screened by woodland and theoretical visibility would reduce to partial blades before becoming completely screened by landform as it passes to the west of Beaully (Very Low to Zero magnitude). Theoretical visibility is again indicated as the route approaches Muir of Ord with the number of potential turbines visible increasing between Muir of Ord and Conon Bridge. The route travels through several cuttings and wooded areas along this section. Views from Muir of Ord would be of blade tips (Viewpoint 7, Figure 6.24) and would mostly be screened by the surrounding built environment and vegetation (Very Low to Zero magnitude). Between Balvaird and Bishop Kinkell, there would be potential views west from the rail line and the proposed turbines would be increasingly visible as blades and hubs (Low magnitude) as the route approaches Conon Bridge from Bishop Kinkell, views would be mostly screened by woodland and a small cutting. Where views exist above the woodland, in glimpsed views and in open views from rail embankment north of Riverford, there would be filtered views of the proposed turbines along Gleann Goibhre with some turbines screened by the glen sides (Medium-Low magnitude in glimpsed views and open views north of Riverford for approximately 1km). Views would be screened by landform and the built environment as the route travels through Maryburgh. Between Maryburgh and Pitglassie there would be open views of the turbines along the rail line to the southwest where they would be visible on the skyline at approximately 14.5km distance (subject to middle distance screening) (Low magnitude for 1km). There would be limited views from the Inverness to Kyle of Lochalsh branch. ZTV coverage is indicated as the route passes Inchvannie where there would be filtered views of the proposed turbines to the south for a short 0.8km distance as the route travels between cuttings and woodland. The turbines would be visible as hubs and blades on the skyline at 12.8km distance (Low magnitude). ZTV coverage is also indicated as the route passes through Rogie. Views from this section of the route are likely to be screened by forestry. Up to five hubs would be visible if forestry were felled (Low magnitude for 1km if forest felled. Zero magnitude if not felled). The magnitude of change for passengers on the route would vary from Medium-Low to Zero resulting in a Major to Moderate and Significant effect (for 1km) to Moderate and Not Significant (for 4.5km, plus 1km at Inchvannie) to No View. The Moderate level of effect would be not significant due to potential views along the rail line (which would be harder to see than perpendicular or 'offset' views from the carriages), intervening vegetation, and the transitory nature of the view. The nature of these effects would be long-term (reversible), indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Fairburn and Auchmore would be partially visible on the skyline in the same views as the proposed development (Low-Very Low to Zero magnitude). Other existing and consented wind farms may be visible at greater distances from parts of the route but would not result in effects greater than Very Low magnitude. The additional effect of the proposed development would be Major to Moderate and Significant (for 1km), Moderate and Not Significant (for 5.5km) to No View. The combined effect would also be Major to Moderate and Significant (due to the proposed development) to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and negative. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> Fairburn Extension (scoping) would be partly visible adjacent to the proposed development from various locations along the route (Low to Zero magnitude). Other application wind farms would be theoretically visible in different parts of the view and a greater distances

Transport Route	Description of Effects
	including Loch Liath and Abhainn Dubh (Very Low to Zero magnitude). The additional effect of the proposed development would be Major to Moderate and Significant (for 1km), Moderate and Not Significant (for 5.5km) to No View . The combined effect would also be Major to Moderate and Significant (due to the proposed development) to No View . The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
A9	The A9 overlaps with the NC500 Tourist Route between Inverness and Tain and is assessed as part of this route in Table 6.16 below. The section of the A9 south of Inverness is assessed here. From south to north, ZTV coverage indicates patchy theoretical visibility to the south of Inverness for approximately 2km as the route travels to the west of Meall Mor and for approximately 9.5km as it travels between Daviot Wood and Kessock Bridge where the proposed turbines would be theoretically visible at between approximately 20-31km. Views from west of Meall Mor and between Daviot wood and Kessock Brodge would be screened by roadside vegetation, occasional cuttings, and urban buildings and vegetation (Zero magnitude) with the exception of a glimpsed view as the road passes the B9177 and at Inshes where views open for approximately 0.6km and partial blades would be theoretically visible in oblique views to the west (Very Low magnitude). The magnitude of change on users of the A9 south of Inverness would be Very Low to Zero and the level of effect would be Minor to Negligible, to No View and Not Significant. The nature of these effects would be long-term (reversible) indirect, and neutral.
A96	The A96 connects Inverness and Aberdeen and is approximately 162km in length. Within the 45km Study Area, it travels northeast from Inverness at Raigmore (A9), roughly following the southern coastline of Moray Firth until it reaches Nairn. The route passes through coastal farmlands in very gently undulating landform. Views from the western parts of the route are long distance to middle distance across farmland and the Moray Firth. As the route progresses inland, views remain long to middle distance across open fields, often contained by gently rising landform, roadside vegetation or middle distance vegetation. Views are screened as the route passes through occasional areas of forestry and by the built environment at Nairn. Although not a promoted tourist route, the A96 is one of the main arterial routes in the area and serves Inverness Airport. There are no national or local landscape planning designations overlapping the route indicating a Medium value. The views from the route would be experienced by road users who would be focused on the route ahead (Medium susceptibility). The sensitivity would therefore be <i>Medium</i>. <u>Assessment: proposed development</u> ZTV coverage indicates theoretical visibility along the entire route within the study area. The turbines would be theoretically visible at distances between 24km and 45km for westbound road users along the route. Travelling east from the A9, views (westbound) between the A9 and Allenfearn would be mostly screened or heavily filtered in winter views with occasional intermittent views towards the proposed turbines as illustrated in Viewpoint 23, Figure 6.40 (Very Low to Zero magnitude). There would be views of the turbines in the direction of travel (westbound) between Allenfearn and Morayhill (approximately 4km) subject to occasional screening from vegetation. From this section of the route the turbines would be visible at distances of between 26.5km and 30km on distant facing hills (Very Low magnitude). Between Morayhill and Nairn, views towards the proposed turbines would be mostly screened by successive layers of vegetation. Where potential views do exist e.g. at Brackley, the turbines would be visible in very clear conditions at between 30 and 45km distance (Very Low to Zero magnitude). The magnitude of change would vary from Very to Low to Zero and the level of effect would be Minor to No View and Not Significant. The nature of these effects would be long-term (reversible) indirect, and neutral. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Fairburn and Auchmore would be partially visible on the skyline in the same views as the proposed development (Very Low to Zero magnitude). Novar would be visible from open views along the route to the northwest in clear conditions (Very Low to Zero magnitude). The additional effect of the proposed development would be Minor and Not Significant to

Transport Route	Description of Effects
	No View. The combined effect would also be Minor and Not Significant to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and neutral. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> Fairburn Extension (scoping) would be partly visible adjacent to the proposed development from various locations along the route (Very Low to Zero magnitude). Abhainn Dubh would be visible to the northwest in clear conditions (Very Low to Zero magnitude). The additional effect of the proposed development would be Minor and Not Significant to No View. The combined effect would also be Minor and Not Significant to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and neutral.

Visual Effects on Views from Recreational Routes

- 6.307 The visual assessment has considered the potential visual effects likely to be experienced by people (walkers / cyclists / horse riders / and others) on recreational routes overlapped by the blade tip ZTV. The recreational routes include Core Paths, heritage paths and Scottish hill tracks which have been assessed within 15km of the proposed development. These routes are illustrated in Figure 6.11.
- 6.308 Each of these routes were walked and / or visited and walked in sections according to the ZTV coverage and the assessment has been assisted on-site with the use of sequential wirelines and True View Visuals 3D software.
- 6.309 All of the routes have been assessed as of *High* sensitivity on account of their High-Medium value as recreational routes, some routed through designated landscapes and the High susceptibility of the people using these routes, mostly walkers and cyclists, whose attention would be focused on the landscape around them. Some exceptions include sections of routes that partly follow existing roads.
- 6.310 In summary, there would significant visual effects from parts of the following recreational routes:
- Core Path RC30.01 Orrin Dam track (overlapped with Scottish Hill Track 283) - intermittently for 4.7km (Core Path RC30.01), and for an additional 5.5km above Loch Orrin (Scottish Hill Track 283);
 - Core Paths south of Balblair – 0.5km on IN03.04: Lovat Bridge to Black Bridge and 0.5km on IN20.05 – East Lodge to West Lodge, Beaufort Castle;
 - Core Paths around Kiltarlity – 1.1km on IN20.02: Belladrum Kennels to Belladrum Farm and 0.4km on IN20.09: Farm Walk to School;
 - Core Paths around Conon Bridge and Maryburgh – the majority of RC09.02: Burnside Lane to Station Road and 0.3km on RC31.04 – Braham North Lodge to Balnain;
 - Core Paths around Contin – part of RC10.01: View Rock through open scrub and young forestry between Cul Mor and Tor Atchitty, reducing to non-significant levels as forestry matures over time. There would be no significant effects from the promoted viewpoint of View Rock;
 - Core Paths around Strathpeffer – gaps in vegetation and Knock Ardaging from RC45.01: Loch Kinellan circuit, and eastern end of route from RC45.02: Knockfarrel;
 - Scottish Hill Track 279: Muir of Ord to Struy (Strathglass);

- Heritage Path A: Old Road to Milton of Redcastle – 1.7km from Balvaird towards Spittal Woods;
- Moray Firth Tourist Route / NC 500 Tourist Route (also A862 / A832) – 0.6km along the A862 section between Achnagairn Bridge and West Croft and between north of Muir of Ord and approach to Marybank along the A832 section for 1.5km (eastbound views), and 0.5km (westbound views)) in intermittent open sections of the route between Clash Wood and Arcanside;
- Sustrans Cycle Route 1 (also A835) – 3.3km between west of Tore and approach to Conon Bridge; and
- Great Glen Way / Loch Ness 360 – 1km around Ladycairn.

6.311 There would be no significant visual effects on the views from any other recreational routes within the Study Area.

Table 6.16: Visual Effects on Views from Recreational Routes

Recreational Route	Description of Effects
Local Recreational Routes within 15km	
Core Path RC30.01 Orrin Dam track (overlapped with Scottish Hill Track 283)	Core Path RC30.01 passes between the Fairburn Activity Centre complex and Loch Orrin Dam. Scottish Hill Track 283 continues east from Fairburn towards Muir of Ord and continues west from Orrin Dam to Inverchoran. The overlapped section of the route passes along Orrin Glen on an elevated paved road to the north of the River Orrin. Scottish Hill Track 283 continues west on a track north of Loch Orrin, heading northwest at Luipmaldrig along a tributary glen. <u>Assessment: proposed development</u> The route would pass within 2.6km of the nearest turbine. Travelling from Fairburn towards Orrin Dam (Core Path RC30.01) and Inverchoran (Scottish Hill Track 283), ZTV coverage indicates theoretical visibility along most of this section (west of the Fairburn Estate Forest), ranging from 1-5 turbines visible to up to 15-20. Wireline analysis indicates screening of turbines / partial turbines by intervening landform south of the River Orrin (Airigh na Lite, Carn Doire Mhurchaidh, Creag a'Bhainne, and Creag Bhainne). This would result in visibility of varying numbers of turbines along the route, with most views featuring a mixture of hubs, partial towers, blades and tips as illustrated in Viewpoint 1, Figure 6.18 (Medium magnitude). The magnitude of change between Fairburn and Orrin Dam would range from High-Medium to Medium (for 4.7km of the route). As the route continues west, ZTV coverage is indicated north of Orrin Reservoir until south of Meall Riabacch, where theoretical visibility stops. West of this point very sparse ZTV coverage is indicated along the route for up to five turbines. Wireline analysis shows continued partial visibility of the turbines beyond intervening hills although the majority of the turbines would be visible as hubs and upper towers on the skyline for this section of the route (High-Medium to Medium magnitude for 5.5km – mostly in eastbound views). Blade tips are indicated in patches of theoretical visibility southwest of Meall Riabacch (Very Low to Zero magnitude). No further theoretical visibility is indicated to the west. Although patches of theoretical visibility are indicated to the east of Scottish Hill Track 283, views towards the proposed development at Faebait and near the distillery at Muir of Ord would be screened by successive layers of intervening vegetation (at most Very Low magnitude at Faebait). The magnitude of change would range between High-Medium (intermittently for 4.7km (Core Path RC30.01), and for 5.5km above Loch Orrin (Scottish Hill Track 283)), reducing to Very Low to Zero for the remainder of the route (Scottish Hill Track 283). The level of effect would range from Substantial to Major and Significant (intermittently for 4.7km (Core Path RC30.01), and for an additional 5.5km above Loch Orrin (Scottish Hill Track 283)) reducing to Minor to No View and Not Significant (remainder of the route). The nature of these effects would be long-term (reversible), indirect and negative.

Recreational Route	Description of Effects
	<u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Fairburn would be visible to the north / northwest above landform as up to three hubs and blades / tips at a minimum ~0.9km distance (Medium to Zero magnitude). The additional effect of the proposed development would range from Substantial to Major and Significant to No View and Not Significant. The combined effect would be Substantial to Major and Significant (due to Fairburn and the proposed development) to No View and Not Significant. Fairburn would be decommissioned ~30 years prior to the end of the operational period of the proposed development, thereby reducing the cumulative effect. The nature of these effects would be long-term (reversible) indirect, cumulative and negative. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> Fairburn Extension (scoping) would be visible to the fore of the proposed turbines in views along Glen Orrin (High to Zero magnitude). The additional effect of the proposed development would range from Substantial to Major and Significant to No View and Not Significant. The combined effect would be Substantial and Significant (due to Fairburn Extension, Fairburn and the proposed development) to No View and Not Significant. Fairburn would be decommissioned ~30 years prior to the end of the operational period of the proposed development. However, cumulative effects would continue as a result of Fairburn Extension and the proposed development which would be largely decommissioned during the same time period. The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
Core Paths within and around Muir of Ord (RC32.04-05, 08-09)	• RC32.04 and RC32.02- Spittal Wood paths (4.37km in length) and Old rail line/Spittal Wood (3.79km). • RC32.05– Distillery to Highfield (0.81km in length). • RC32.08– Gilchrist to Tarradale (4.20km in length). • RC32.09- Lily Loch (0.89km in length). Visibility along these routes vary with many of the routes passing through scrub or woodland as well as open areas. Each of the routes are assessed in detail as follows with routes paired where they connect to or are in the same location: <u>Assessment: proposed development</u> <i>RC32.04 - Spittal Wood paths and RC32.02 - Old rail line/Spittal Wood</i> ZTV coverage along these routes indicates theoretical visibility of between 11 and 20 turbines, with up to five turbines indicated along a western section of RC32.02 as the landform falls towards the Muir of Ord. Site visit and wireline analysis indicates that up to five hubs and ten blades / tips would be visible at 10.8km distance on the western Spittal Wood paths (RC32.04) as the route passes along the Spittalwood / Fiddlefield access track, and in filtered views on the track from the B9169 to the northwest of the woodland tracks, and the tracks from the old rail line (totalling approximately 1.7km of the route) (Low-Very Low magnitude). There would be intermittent visibility in the direction of travel (westbound) along RC32.02 Old Rail Line as it passes south of Fiddlefield towards Spital Wood as detailed above (Low-Very Low magnitude for 04.km). In addition, there would be visibility of up to 10 hubs and 10 blades in intermittent views as the old rail line route heads south to the A832 at Blairdhu (Low for 0.9km), and filtered intermittent views of blades and up to one hub on the Old rail Line to the west of the A9169 (Very Low to Zero magnitude). There would be no further theoretical visibility along the routes. The level of effect on RC32.02/04 would be Moderate and Not Significant due to the intermittent nature of the views as a result of intervening screening to No View. The nature of these effects would be long-term (reversible), indirect and negative. Views from RC32.05/08 and 09 would be very limited due to screening from mature intervening vegetation / forestry in heavily filtered winter views. The magnitude of change on these routes would be Very Low to Zero and the level of effect would be Minor to Negligible and Not Significant to No View. The nature of these effects would be long-term (reversible), indirect and neutral. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u>

Recreational Route	Description of Effects
	Fairburn and Auchmore would be visible in the same view as the proposed turbines – mostly hubs and blades (both Very Low to Zero magnitude). Moy would be theoretically visible to the southeast (Very Low to Zero magnitude). The combined effect would be Moderate and Not Significant to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and neutral. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> Fairburn Extension (scoping) would be visible adjacent to the proposed turbines as a hub and blades (Low to Very Low magnitude). Loch Liath would be theoretically visible to the south (Very Low to Zero magnitude). The additional effect of the proposed development would range from Moderate and Not Significant to No View. The combined effect would be Moderate and Not Significant to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and negative to neutral.
Core Paths within Beaully (IN03.01)	Core Path IN03.01 passes through a large open field to the southeast of Beaully. The route roughly follows River Beaully as it meanders south and east of the settlement. Views along the route are contained by riparian woodland that surrounds the field and the urban edge to the north of the route, although there are views east and northeast across the river in some locations and views of hills above the settlement to the northwest. <u>Assessment: proposed development</u> ZTV coverage indicates theoretical visibility of between six and 15 turbines along the route, with theoretical visibility increasing to the south of the route. Site visit and wireline analysis indicates that although up to four hubs and seven blade tips would be theoretically visible in views towards the hills to the northwest, most of the views of the turbines would be screened by dense, mature vegetation. There would be some visibility towards the north of the route where the view opens between vegetation and up to 10 turbines would be visible as two hubs and eight blade tips – although the hubs and some blade tips would be screened by vegetation on the hillside (Very Low magnitude). The turbines would be visible for approximately 0.2km of the route at a distance of 7.8km. The level of effect would be Minor and Not Significant to No View. The nature of these effects would be long-term (reversible), indirect and neutral. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> There would be no existing or consented wind farms visible from the route. Therefore, there would be no cumulative effects. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> There would be no application or other wind farms visible from the route. Therefore, there would be no cumulative effects.
Core Paths south of Balblair (IN03.04, IN20.05)	• IN03.04- Lovat Bridge to Black Bridge (5.03km in length). • IN20.05– East Lodge to West Lodge, Beaufort Castle (3.08km in length). These two routes are located within or partially within forestry and views would be heavily screened where this is the case. Each of the routes are assessed in detail as follows with routes paired where they connect or are in the same location: <u>Assessment: proposed development</u> <i>IN03.04- Lovat Bridge to Black Bridge</i> ZTV coverage indicates theoretical visibility of between six and 10 turbines in the northern section of the route (north of the pylons), and up to 20 turbines from the remainder of the route. Site visit and wireline analysis indicates that although there would be theoretical visibility of up to 18 turbines on the skyline to the northwest, views would be screened by dense vegetation for the majority of the route. However, there would be potential filtered views of hubs above intervening forestry from a section of the route as it passes to the north and west of Groam Poultry Farm. The turbines would be visible at a distance of approximately 6.4km for 0.5km of the route (Medium magnitude)

Recreational Route	Description of Effects
	for 0.5km). Views would be screened for the remainder of the route with potential glimpsed views in gaps in the woodland. The level of effect would be Major and Significant (for 0.5km) to No View. The nature of these effects would be long-term (reversible), indirect and negative. <i>IN20.05– East Lodge to West Lodge, Beaufort Castle</i> ZTV coverage indicates theoretical visibility of 16- 20 turbines to the east of the route between East Lodge and Beaufort Castle, and patchy visibility of 0-15 turbines to the west of the route where visibility reducing gradually as the route progresses west from the castle. Site visits and wireline analysis indicates that there would be intermittent views for approximately 0.5km of up to 15 turbines visible above middle-distance trees (mostly blades visible) between East Lodge and Beaufort Castle (Low magnitude). There would also be views of up to six hubs and eight blades above middle distance trees on an open section of the route to the southwest of the castle for approximately 0.5km with visibility of hubs reducing as this open section progresses west. The turbines would be visible at between 7.8km to 6.7km distances (Medium-Low to Zero magnitude). The level of effect would be Major to Moderate and Significant for 0.5km southwest of the castle, Moderate and Not Significant in intermittent views to the east, to No View. The nature of these effects would be long-term (reversible), indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> There would be no existing or consented wind farms visible from the route. Therefore, there would be no cumulative effects. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> There would be no application or other wind farms visible from the route. There would be some visibility of the Fanellan Substation in a section of IN20.05 to the southwest of Beaufort Castle resulting in a Very Low magnitude of change (reducing over time as their mitigation planting matures). The additional effect of the proposed development would be Major to Moderate and Significant to No View. The combined effect would be Major to Moderate and Significant (due to the proposed development). The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
Core Paths around Kiltarlity (IN20.02, IN20.06, IN20.09)	• IN20.02- Belladrum Kennels to Belladrum Farm (1.10km in length). • IN20.06– Bruaich Burn to Dounie Burn (1.26km in length). • IN20.09– Farm Walk to school (0.53km in length). These three routes are located adjacent to forestry or avenues of trees and hedgerows and views would be screened where this is the case. Each of the routes are assessed in detail as follows with routes paired where they connect or are in the same location: <u>Assessment: proposed development</u> <i>IN20.02- Belladrum Kennels to Belladrum Farm</i> ZTV coverage indicates theoretical visibility of up to 20 turbines for the length of the route. Site visit and wireline analysis indicates that visibility of up to 20 turbines on the skyline to the northwest would be intermittent between mature trees that form an avenue along the route. Views between the trees would be secondary as the eye is lead along the avenue in the direction of travel. The turbines would be visible at a distance of approximately 9.2km for 1.1km of the route (Low magnitude for 1.1km). The level of effect would be Moderate and Significant to No View and Not Significant. The nature of these effects would be long-term (reversible), indirect and negative to neutral. <i>IN20.06– Bruaich Burn to Dounie Burn</i> ZTV coverage indicates theoretical visibility of 16- 20 turbines for the length of the route. Site visits and wireline analysis indicates that there would be views for approximately 0.4km of up to 12 turbine blades/tips visible above middle to near distance trees on an open section of the route north of Kiltarlity hall. The turbines would be visible at approximately 7.4km distance (Very Low to Zero magnitude). The level of effect would be Minor to No View and Not Significant. The nature of these effects would be long-term (reversible), indirect and neutral.

Recreational Route	Description of Effects
	<i>IN20.09– Farm Walk to school</i> ZTV coverage indicates theoretical visibility of 16- 20 turbines for the length of the route. Site visits and wireline analysis indicates that there would be views for approximately 0.4km of all 20 turbines in the direction of travel (north) until the route nears residential property at The Glebe which would screen the view at the northern end of the route (for 0.1km). The turbines would be visible at approximately 8.2km distance and would appear similar to the view in Viewpoint 8, Figure 6.25 (Medium magnitude). The level of effect would be Major and Significant, to No View. The nature of these effects would be long-term (reversible), indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Novar, Novar Extension, and Coire na Cloiche would be theoretically visible to the north at distances over 30km subject to screening from vegetation (all Very Low to Zero magnitude). The additional effect of the proposed development would be Major and Significant to No View. The combined effect would be Major and Significant (due to the proposed development). The nature of these effects would be long-term (reversible) indirect, cumulative and negative. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> The blades of the scoping Fairburn Extension would be theoretically visible behind the proposed development (Very Low to Zero magnitude). Abhainn Dubh would be partially visible to the north subject to screening from intervening vegetation (Very Low to Zero magnitude). Fanellan substation would be theoretically visible in an elevated location to the northwest at approximately 3km and would appear in the same view as the proposed development (Medium to Zero magnitude). The additional effect of the proposed development would be Major and Significant to No View. The combined effect would be Major and Significant (due to Fanellan substation and the proposed development). The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
Core Paths around Kirkhill (IN21.01-08)	• IN21.01- Kirkhill Smiddy to Inchmore (1.94km in length). • IN21.02- Inchmore to Easter Moniac junction (2.14km in length). • IN21.03- Mains of Fingask loop (0.81km in length) • IN21.04- Drumchardine – Craggach loop (1.59km in length). • IN21.05- Newton Burn path (1.08km in length). • IN21.06- Achnagairn track (1.74km in length) • IN21.07- West Lodge to Lower Achnagairn (1.24km in length) • IN21.08- Newton Burn path (1.08km in length) Each of the routes are assessed in detail as follows with routes paired where they connect or are in the same location: <u>Assessment: proposed development</u> <i>IN21.01- Kirkhill Smiddy to Inchmore</i> ZTV coverage indicates theoretical visibility of up to 15 turbines for the length of the route. Site visit and wireline analysis indicates that there would be no visibility of the proposed turbines for the majority of the route due to screening from successive layers of intervening vegetation and buildings. There would be visibility to the west of the route for 0.2km of the route where up to 15 turbines (mostly hubs) would be visible in filtered views beyond near distance pylons to the northwest (Very Low magnitude). The level of effect would be Minor to No View and Not Significant. The nature of these effects would be long-term (reversible), indirect and neutral. <i>IN21.02- Inchmore to Easter Moniac junction</i> ZTV coverage indicates theoretical visibility of 16- 20 turbines for the majority of the route. Site visits and wireline analysis indicates that intervening near and middle-distance vegetation would screen views for the majority of the route. There would be some potential views above intervening trees on some short sections of the route as it passes

Recreational Route	Description of Effects
	Drumreach and as it approaches Moniac. Where the proposed turbines would be partially visible as hubs and blades in glimpsed views for approximately 0.5km. The turbines would be visible at approximately 11.5km distance (Very Low to Zero magnitude). The level of effect would be Minor to No View and Not Significant. The nature of these effects would be long-term (reversible), indirect and neutral. <i>IN21.03- Mains of Fingask loop</i> Views towards the proposed development along this route would be screened by hedgerow and trees and heavily filtered in areas to the west of the route which would not result in significant effects, and the route is not considered further. <i>IN21.04– Drumchardine – Craggach loop</i> ZTV coverage indicates theoretical visibility of 16- 20 turbines for the length of the route. Site visits and wireline analysis indicates that there would be views from the open northern section of the route for approximately 0.4km where up to 18 turbines would be potentially visible. The turbines would be visible at approximately 12.4km distance on the skyline to the northwest mostly as hubs and upper towers in a small part of an expansive long-distance vista (Low magnitude). The level of effect would be Moderate and Not Significant due to the expansive nature of the view, narrow FoV and the presence of other human development in the foreground of the views including pylons and settlement. The nature of these effects would be long-term (reversible), indirect and negative. <i>IN21.05- Newton Burn path</i> Views towards the proposed development along this route would be screened by woodland to the north and views from the east of the route would be screened by successive layers of vegetation which would not result in significant effects, and the route is not considered further. <i>IN21.06- Achnagairn track</i> Views towards the proposed development along this route would be screened by woodland, buildings and successive layers of woodland belts which would not result in significant effects, and the route is not considered further. <i>IN21.07- West Lodge to Lower Achnagairn</i> Views towards the proposed development along this route would be screened by dense vegetation which would not result in significant effects, and the route is not considered further. <i>IN21.08- Lentrane House Drive</i> Views towards the proposed development along this route would be screened by woodland, buildings and successive layers of vegetation which would not result in significant effects, and the route is not considered further. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Auchmore would be visible in the same view as the proposed turbines from some locations – mostly hubs and blades (Very Low to Zero magnitude). Lochluichart cluster would be theoretically visible to the northwest from IN21.04 (Very Low to Zero magnitude). The combined effect would be Moderate and Not Significant to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and negative. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> There would be no application or other wind farms visible from the route. Therefore, there would be no cumulative effects.
Core Paths around Canon Bridge and Maryburgh (RC09.01-05,	• RC09.01 - Riverside (2.29km in length). • RC09.02 - Burnside Lane to Station Rd (0.46km in length). • RC09.03 - Riverside- Old Fish Factory track (0.33km in length). • RC09.04 - Schoolhouse Belt (0.37km in length).

Recreational Route	Description of Effects
RC31.01-05, RC13.08)	• RC09.05 - Nursery Path (0.36km in length). • RC31.01- Tallysow wood (3.07km in length). • RC31.02- Brahan east drive (1.49km in length). • RC31.03- Brahan -Loch Ussie track (1.69km in length). • RC31.04- Brahan North Lodge to Balnain (1.38km in length). • RC31.08- Dingwall- Maryburgh cycleway (157km in length). Each of the routes are assessed in detail as follows with routes paired where they connect or are in the same location: <u>Assessment: proposed development</u> <i>RC09.02 - Burnside Lane to Station Rd</i> ZTV coverage indicates theoretical visibility of 16- 20 turbines for the length of the route. Site visit and wireline analysis indicates that there would be visibility of up to 17 proposed turbines for the majority of the route in the direction of travel (southwest) with some intermittent filtered views from intervening vegetation. The proposed turbines would be visible at approximately 12.1km to the southwest along Gleann Goibhre with a variety of hubs, blades and turbine towers visible across the glen (Low magnitude). The level of effect would be Moderate and Significant. The nature of these effects would be long-term (reversible), indirect and negative. <i>RC09.03 - Riverside- Old Fish Factory track</i> Views towards the proposed development along this route would be screened by embankment, buildings and vegetation and the route is not considered further. <i>RC09.04 - Schoolhouse Belt</i> Views towards the proposed development along this route would be screened by dense forest and heavily filtered in open areas to the west of the route and the route is not considered further. <i>RC09.05 - Nursery Path</i> Views towards the proposed development along this route would be screened by buildings and vegetation and the route is not considered further. <i>RC31.01- Tallysow wood</i> Views towards the proposed development along this route would be screened by dense forest and the route is not considered further. <i>RC31.02- Brahan east drive</i> Views towards the proposed development along this route would be screened by dense forest and the route is not considered further. <i>RC31.03- Brahan -Loch Ussie track</i> Views towards the proposed development along this route would be screened by dense forest and the route is not considered further. <i>RC31.04- Brahan North Lodge to Balnain</i> ZTV coverage indicates theoretical visibility of 11- 20 turbines for the length of the route. Site visit and wireline analysis indicates that there would be visibility of up to 15 proposed turbines for approximately 0.3km at the southern end of the route as it emerges from dense forest and woodland. The proposed turbines would be visible to the southwest across Strath Conon at approximately 9.6km where they would be seen along Gleann Goibhre with a variety of hubs, blades and turbine towers visible (Medium-Low to Zero magnitude). The level of effect would be Major to Moderate and Significant to No View and Not Significant. The nature of these effects would be long-term (reversible), indirect and negative. <i>RC31.05- Birch Drive to Ussie Road</i> Views towards the proposed development along this route would be screened by vegetation, local landform and buildings and the route is not considered further. <i>RC31.08- Dingwall- Maryburgh cycleway</i>

Recreational Route	Description of Effects
	Views towards the proposed development along this route would be heavily filtered by vegetation with further middle distance vegetation screening views along the track towards the proposed turbines. Any filtered views of the turbines would not be greater than Minor and Not Significant. The nature of these effects would be long-term (reversible), indirect and neutral. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Auchmore and Fairburn would be visible in the same view as the proposed turbines from some locations – mostly hubs and blades (Very Low to Zero magnitude). The additional effect of the proposed development would range from Major to Moderate and Significant to No View. The combined effect would be Major to Moderate and Significant to No View (due to the proposed development). The nature of these effects would be long-term (reversible) indirect, cumulative and negative. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> The blades of the scoping Fairburn Extension would be theoretically visible behind the proposed development (Very Low to Zero magnitude). Abhainn Dubh would be partially visible to the north subject to screening from intervening vegetation (Very Low to Zero magnitude). The additional effect of the proposed development would range from Major to Moderate and Significant to No View. The combined effect would be Major to Moderate and Significant to No View (due to the proposed development). The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
Core Paths around Contin (RC10.01, RC10.03, RC10.05)	• RC10.01 - View Rock (2.41km in length). • RC10.03 - Mains of Coul (3.37km in length). • RC10.05 - Contin Island (0.80km in length). Each of the routes are assessed in detail as follows with routes paired where they connect or are in the same location: <u>Assessment: proposed development</u> <i>RC10.01 - View Rock</i> This route passes through hillside forestry. ZTV coverage increases as the route gains elevation between 1-5 turbines at the south of the route and 16-20 at the north of the route. Most of the route is through forest and there would be no views. Part of the route is through scrub and young forestry and there would be potential filtered views towards the turbines in this section of the route between Cul Mor and Tor Atchitty (up to 13 turbines – six hubs and seven blades/tips at 9.2km distance) (Low magnitude). Whilst there is ZTV coverage from the promoted viewpoint of View Rock along the route, much of the surrounding forestry is mature limiting outward views to the west rather than to the south / southwest (Low-Very Low to Zero magnitude) – see image below with open views available only to the west.  The level of effect would be Moderate and Significant (open scrub section of route between Cul Mor and Tor Atchitty – reducing to not significant as forest matures overtime) to Moderate to Minor, to No View and Not Significant from the remainder of

Recreational Route	Description of Effects
	the route. The nature of these effects would be long-term (reversible), indirect and negative. <i>RC10.03 - Mains of Coul</i> ZTV coverage indicates between 1-15 turbines theoretically visible along the route. Site visit and wireline analysis indicates that views from the majority of the route would be screened by woodland and buildings. However, there would be visibility of up to 10 proposed turbines along an open section of the route (0.7km) as it passes to the south of Mains of Coul House. The proposed turbines would be visible at approximately 8.5km to the southwest as up to six hubs and four blades / tips between Cul Mor and Tor Atchitty (Low magnitude). The level of effect would be Moderate and Not Significant, to No View due to the presence of human development in the foreground, wide views, and the limited extent of visibility of the turbines visible in combination with intervening distance. The nature of these effects would be long-term (reversible), indirect and negative. <i>RC10.05 - Contin Island</i> ZTV coverage indicates between 1-5 turbines theoretically visible along the route. Site visit and wireline analysis indicates that views from the majority of the route would be screened by woodland resulting in filtered views of up to one hub and five blades/tips, particularly from the west of the route where there are views through gaps in the vegetation. The proposed turbines would be visible at approximately 8.2km to the southwest (Low-Very Low magnitude). The level of effect would be Moderate to Minor and Not Significant, to No View. The nature of these effects would be long-term (reversible), indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Hubs of Fairburn would be partially visible from View Rock (Low-Very Low magnitude). Auchmore is visible to the south (Very Low to Zero magnitude). The additional effect of the proposed development would range from Moderate and Significant to No View. The combined effect would be Moderate and Significant (due to the proposed development) to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and negative. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> Up to four hubs and blades of the scoping Fairburn Extension would be visible to the fore of the proposed development (RC10.03) (Low to Zero magnitude). The additional effect of the proposed development would range from Moderate and Significant to No View. The combined effect would be Moderate and Significant (due to Fairburn Extension and the proposed development) to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
Core Paths around Strathpeffer (RC45.01-10)	• RC45.01- Loch Kinellan circuit (3.43km in length). • RC45.02 - Knockfarrel (maze to hill) (2.03km in length). • RC45.03 - Ord Wood west - Kinellan (1.75km in length). • RC45.04 - Blackmuir Woods - maze circular (2.55km in length). • RC45.05 - Strathpeffer - Jamestown (Blackmuir Woods) (0.96km in length). • RC45.06 - Ord Terrace – Hall (0.41km in length). • RC45.07 - Golf course - Ord Wood east (1.38km in length). • RC45.08- Kinnettas vennel - No ZTV coverage • RC45.09 - Ardival - Catsback - Loch Ussie (1.71km in length). • RC45.10 - Eagle Stone Path - No ZTV coverage Each of the routes are assessed in detail as follows with routes paired where they connect or are in the same location: <u>Assessment: proposed development</u> <i>RC45.01- Loch Kinellan circuit</i>

Recreational Route	Description of Effects
	ZTV coverage indicates theoretically visibility of 16-20 turbines for the majority of the route with the exception of some areas south of the loch where there would be less or no turbines theoretically visible. Site visit and wireline analysis indicates that views would be filtered along the route which passes through forestry and woodland. In gaps in vegetation and from elevated views from Knock Ardaging, there would be views of up to 18 turbines to the south. The turbines would be partially screened by intervening landform and would be visible as a mixture of up to 12 hubs, three full turbines and three blades / tips. The proposed turbines would be visible at approximately 10.2km (Low to Zero magnitude). The level of effect would be Moderate and Significant (intermittent / glimpsed views) to No View and Not Significant. The nature of these effects would be long-term (reversible), indirect and negative. <i>RC45.02 - Knockfarrel (maze to hill)</i> ZTV coverage indicates very limited theoretical visibility of between 1-5 turbines on the west end of the route and between 16-20 turbines at Knock Farrel fort on the east of the route. Site visit and wireline analysis indicates that views from the west of the route would be screened by landform and vegetation. There would be No View of the turbines from the maze itself. There would be views from the eastern part of the route at Knock Farrel Fort of all 20 turbines to the southwest at 12.3km. The turbines would be visible as part of a vast panoramic view on the skyline of the view with some of the turbines partially screened by intervening landform (Medium-Low magnitude). The level of effect would be Major to Moderate and Significant, to No View. The nature of these effects would be long-term (reversible), indirect and negative. <i>RC45.03 - Ord Wood west - Kinellan</i> ZTV coverage indicates between 16-20 turbines theoretically visible along the route. Site visit and wireline analysis indicates that views from the majority of the route would be screened by woodland or forestry. There would be potential views of the turbines beyond middle distance woodland from an open section of the route as it passes southwest of the golf course (approximately 0.2km of the route). The proposed turbines would be visible in filtered views, partially screened by middle distance trees and by landform (mostly hubs and blades) at approximately 10.7km to the south (Low magnitude). The level of effect would be Moderate and Not Significant, to No View due to the partially filtered nature of the view. The nature of these effects would be long-term (reversible), indirect and negative. <i>RC45.04 - Blackmuir Woods - maze circular</i> Views towards the proposed development along this route would be screened by forest and woodland and the route is not considered further. <i>RC45.05 - Strathpeffer - Jamestown (Blackmuir Woods)</i> Views towards the proposed development along this route would be screened by forest and successive layers of vegetation and the route is not considered further. <i>RC45.06 - Ord Terrace - Hall</i> Views towards the proposed development along this route would be screened by buildings and landform and the route is not considered further. <i>RC45.07 - Golf course - Ord Wood east</i> Views towards the proposed development along this route would be screened by forest and woodland and the route is not considered further. <i>RC45.09 - Ardival - Catsback - Loch Ussie</i> ZTV coverage indicates between 1-20 turbines theoretically visible along the route. Site visit and wireline analysis indicates that hubs and blades would be theoretically visible beyond middle distance landform. Most of these views would be screened by middle distance vegetation, however there may be some views of blades above the intervening vegetation (Very Low magnitude). The level of effect would be Minor to No View and Not Significant. The nature of these effects would be long-term (reversible), indirect and neutral. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u>

Recreational Route	Description of Effects
	Fairburn would be visible from several locations including Knock Ardaging (RC45.01), and Knockfarrel (RC45.02) (Medium-Low magnitude). Auchmore is visible to the south (Low-Very Low magnitude). There are several more distant clusters of wind farm development visible from both of these summits (Knock Ardaging and Knockfarrel), although they would be visible in clear conditions and subject to screening from intervening vegetation (Very Low to Zero magnitude). The additional effect of the proposed development would range from Major to Moderate and Significant to No View. The combined effect would be Major to Moderate and Significant to No View (due to Fairburn and the proposed development). Fairburn would be decommissioned ~30 years prior to the end of the operational period of the proposed development, thereby reducing the cumulative effect. The nature of these effects would be long-term (reversible) indirect, cumulative and negative. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> The scoping Fairburn Extension would be partially visible to the fore of the proposed development (Medium- Low magnitude). The additional effect of the proposed development would range from Major to Moderate and Significant to No View. The combined effect would be Major to Moderate and Significant to No View (due to Fairburn, Fairburn Extension and the proposed development). Fairburn would be decommissioned ~30 years prior to the end of the operational period of the proposed development. The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
Scottish Hill Track 279: Muir of Ord to Struy (Strathglass)	Scottish Hill Track 279 overlaps with Scottish Hill Track 283 between Muir of Ord and Aultgowrie Bridge at which point it follows a track southwest along the upper northern slopes of Gleann Goibhre, crossing the glen at Tighachrochadair and picking up a further estate track that heads southwest following shallow valleys formed by Allt an Locha Bhallaich, and Allt an Lochan Fada until the route reaches the A831 near Erchless Castle. The route mostly traverses open moorland and crosses through forestry to the south (south of Lochan Fada), and northeast (Aultgowrie). As a result, views along the route are generally open across upland moorland with long range views and contained as the route passes through forestry. <u>Assessment: proposed development</u> ZTV coverage indicates theoretical visibility of between 1-20 proposed turbines across the majority of the route. The route would pass through the Site of the proposed development and the access route would be routed along Scottish Hill Track 279 between the A831 and the turbine locations, immediately south of Gleann Goibhre. The magnitude of change would be High along these sections of the route and as the route passes along the upper northern slopes of Gleann Goibhre where the proposed turbines would be seen in close proximity (southbound) within approximately 3km of the turbines after which the turbines would become partly screened by intervening landform as the route descends towards Auchederson. the turbines would be mostly screened by landform and vegetation between Auchederson and Altgowrie Bridge. Effects on the route between Altgowrie Bridge and Muir of Ord is assessed above as part of Scottish Hill Track 283 (at most Very Low magnitude at Faebait). The level of effect would be Substantial and Significant for the majority of the route, reducing to Minor and No View east of Auchederson and Altgowrie Bridge. The nature of these effects would be long-term (reversible), direct to indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Fairburn would be visible from several locations particularly north and south of Gleann Goibhre, (Medium to Zero magnitude). Auchmore is visible from some locations (Low to Zero magnitude). There are several more distant clusters of wind farm development to the southeast from the undulating moorland plateau, visible in clear conditions and subject to screening from intervening vegetation (Very Low to Zero magnitude). The additional effect of the proposed development would range from Substantial and Significant to No View. The combined effect would be Substantial and Not Significant to No View (due to Fairburn and the proposed development). Fairburn would be decommissioned ~30 years prior to the end of the operational period of the proposed

Recreational Route	Description of Effects
	development. The nature of these effects would be long-term (reversible) direct to indirect, cumulative and negative. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> The scoping Fairburn Extension would be visible immediately adjacent to the proposed development (High to Zero magnitude). Loch Liath would be visible in clear conditions to the southwest (Very Low to Zero magnitude). The additional effect of the proposed development would range from Substantial and Significant to No View. The combined effect would be Substantial and Not Significant to No View (due to Fairburn, Fairburn Extension and the proposed development). Fairburn would be decommissioned ~30 years prior to the end of the operational period of the proposed development. However, cumulative effects would continue as a result of Fairburn Extension and the proposed development which would be largely decommissioned during the same time period. The nature of these effects would be long-term (reversible) direct to indirect, cumulative and negative.
Heritage Path A: Old Road to Milton of Redcastle	Heritage Path A follows a route to the south of Canon Bridge between Bishop Kinkell and Milton via Balvaird. Part of the route overlaps with RC32.02 and RC32.04 at Spittal Wood. The route traverses a mixture of Forest, field tracks, scattered settlement and minor roads and generally loses elevation as it progresses south. As a result, views along the route are varied with long distance views available in open parts of the route and near distance views as the route passes through forestry. <u>Assessment: proposed development</u> ZTV coverage indicates theoretical visibility of 16- 20 proposed turbines across the majority of the route and 11-15 turbines as it passes through Balvaird. Site visit and wireline analysis indicates that up to 19 of the turbines would be theoretically visible in views to the southwest and west across the falling landscape and Strath Canon where the turbines would be partially screened by intervening landform to varying degrees as the route progresses south. A proportion of the route would be routed through forest and there would be no view of the surrounding landscape. Sections of the route where there would be potential views include intermittent and glimpsed views as the route progresses through Balvaird towards Spittal Woods (approximately 1.7km) where the turbines would be visible at approximately 10km distance (Medium-Low magnitude). Some views would be in the direction of travel (northbound) where the route travels west and northwest between Ord Muir and Balvaird. (see RC32.02 and RC32.04 for visibility between Yorklea and Blairdhu). Between Blairdhu and Milton, the route follows a minor road with open views across the Beaully Firth to the south and towards Strath Canon to the west with increased screening from vegetation as the route progresses south. The proposed turbines would be visible mostly at hub height partially on the skyline from this section of the route at 13km distance (Low to Zero magnitude). The level of effect would range from Major to Moderate and Significant (1.7km from Balvaird towards Spittal Woods) to Moderate and No View and Not Significant. The nature of these effects would be long-term (reversible), indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Fairburn and Auchmore would be visible in the same view as the proposed turbines – mostly hubs and blades (both Very Low to Zero magnitude). Moy would be theoretically visible to the southeast (Very Low to Zero magnitude). The additional effect of the proposed development would remain Major to Moderate and Significant to No View. The combined effect would be Major to Moderate and Significant (due to the proposed development) to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and negative. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> Fairburn Extension (scoping) would be visible adjacent to the proposed turbines as a hub and blades (Medium-Low to Zero magnitude). Loch Liath would be theoretically visible to the south (Very Low to Zero magnitude). The additional effect of the proposed development would remain Major to Moderate and Significant to No View. The

Recreational Route	Description of Effects
	combined effect would be Major to Moderate and Significant (due to Fairburn Extension and the proposed development) to No View . The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
National Recreational Routes within 45km	
Moray Firth Tourist Route (overlapped with parts of A862 and A9, and NC500)	Overlapped with North Coast 500 Tourist Route between Inverness and Alness, then outwith ZTV – see assessment of North Coast 500 Tourist Route further below.
Sustrans National Cycle Route 1 – Inverness to Tain (some sections overlapped with the A862, A9 and A835, and John o'Groats Trail)	The Sustrans Cycle Route 1 is a long-distance cycle route of approximately 2,034km between Dover in England and Inverness. Within 45km the route passes between Nairn and Ardgay via Inverness. From Inverness, the route splits just north of the Kessock Bridge – the first section ('summer route') passes through the Black Isle via Cromarty and Nigg to Tain on the Nigg ferry, whilst the second section ('winter route') passes through Dingwall and Alness before re-joining the first section at Tain. At its closest point in Maryburgh, the route would pass approximately 13km distance to the northeast of the proposed development. <u>Assessment: proposed development:</u> ZTV coverage is indicated across the majority of the route with patchy visibility indicated to the southeast of the route and parts of the Black Isle. Travelling south to north along the route, theoretical visibility between Nairn and Inverness would range between 45km and 21km respectively. Views along this section of the route would be mostly screened by roadside vegetation and successive layers of vegetation. Where views are available, for example at Cantraydoune, the proposed turbines would be visible in clear conditions in the direction of travel (northbound) (Very Low to Zero magnitude). Through Inverness, the proposed development would not be visible due to the surrounding built environment until Kessock Bridge where there would be views between the bridge structure (Low-Very Low magnitude). Between Kessock Bridge and Tore, the route follows minor roads through North Kessock and east of the A9 to Tore. Views from this section would be mostly screened by landform, forestry, and other intervening vegetation (Very Low to Zero magnitude). At Tore the route follows the A835 to Maryburgh (departing the A835 to travel through Leanaig). Views from this section are assessed above in Table 6.15 (Intermittent Medium and Low magnitude for 3.3km). At Maryburgh the route follows the A862 through Dingwall (Very Low to Zero magnitude). Beyond Dingwall the route follows parallel to the A862 and A9 on a slightly more elevated route to Alness. Views from this section of the route would be intermittently screened with some open views in the direction of travel (southbound) between Mountgerald and Dingwall (Low-Very Low to Zero magnitude for 1.5km), and views becoming increasingly distant and screened by layers of vegetation as the route progresses towards Alness (Very Low to Zero magnitude). Between Alness and Tain, the route turns inland and passes through extensive forestry. Views from this section would be very limited in clear conditions (at most Very Low to Zero). The magnitude of change on users of Sustrans Cycle Route 1 would range between Medium and Low (for 3.3km between west of Tore and approach to Conon Bridge), Low to Very Low, to Very Low and Zero resulting in a Major and Major to Moderate and Significant effect (for approximately 3.3km of the route between west of Tore and approach to Conon Bridge). Elsewhere along the route views would not be significant and the proposed turbines would result in a Moderate to Minor or Minor level of effect or No View for the remainder of the route. The nature of these effects would be long-term (reversible) indirect, and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Fairburn and Auchmore would be partially visible on the skyline in the same views as the proposed development (Low-Very Low to Zero magnitude). Other existing and consented wind farms may be visible at greater distances from parts of the route but would not result in effects greater than Very Low magnitude. The additional effect of the

Recreational Route	Description of Effects
	proposed development would range from Major and Significant to Minor and Not Significant to No View. The combined effect would also be Major and Significant (due to the proposed development) to Minor and Not Significant to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and negative. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> Fairburn Extension (scoping) would be partly visible adjacent to the proposed development from various locations along the route (Medium to Zero magnitude). Abhainn Dubh would be visible in the direction of travel (northbound) from the Black Isle (Low-Very Low magnitude) Other application wind farms would be theoretically visible in different parts of the view and a greater distance including Loch Liath (Very Low to Zero magnitude). The additional effect of the proposed development would range from Major and Significant to Minor and Not Significant to No View. The combined effect would also be Major and Significant (due to the proposed development and Fairburn Extension) to Minor and Not Significant to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
North Coast 500 Tourist Route (overlapped with A9, A832, and A862)	The North Coast 500 is an 830km long promoted tourist route that follows Scotland's mainland coastline starting from and ending back in Inverness. Within the 45km Study Area, it travels on the A862 / A9 north from Inverness to Tain. The route would pass approximately 12.8km distance to the southeast of the proposed development at its closest point. Viewpoint 6 (Figure 6.23), and Viewpoint 19 (Figure 9.36) are located along this route. <u>Assessment: proposed development:</u> ZTV coverage is intermittent along the route. Travelling from Inverness to Adullie, coverage is indicated between Clachnaharry and Bunchrew where the proposed turbines would be visible across the Beaulie Firth. Views from this section of the route are illustrated in Viewpoint 19, Figure 6.36 and would be experienced by westbound (northbound) road users for approximately 2km before vegetation screens views at Bunchrew (Low magnitude of 2km). ZTV coverage is also indicated between Phopachy where the route departs the edge of Beaulie Firth, and Lovat Bridge. This section of the route passes scattered settlement, areas of forestry and woodland and through flat agricultural land. There would be views in the direction of travel (west/northbound) at Phopachy (Low magnitude for 0.3km), there would be intermittent and filtered views in the direction of travel for approximately 1.3km until the route reaches Rhinduie House (Low to Zero magnitude for 1.3km) (west/northbound). Between Rhinduie and Inchmore (approximately 1.1km) (Low magnitude). Following intermittent views (Very Low magnitude), the proposed development would be visible in the direction of travel (northbound) between Achnagairn Bridge and West Croft (Medium-Low magnitude for 0.6km). Views would be screened by dense vegetation until the B9164, where there would be intermittent views (northbound) until Lovat Bridge (Low - Very Low magnitude for approximately 1.1km). Between Lovat Bridge and the northern edge of Muir of Ord, ZTV coverage is patchy and theoretical visibility of partial blades and hubs in oblique views would be barely discernible (as illustrated in Viewpoints 6 and 7, Figures 6.23 and 6.24 adjacent to the road) (Very Low to Zero magnitude). As the route progresses to Conon Bridge, theoretical visibility increases and there would be occasional filtered views (southbound) in short breaks in the dense roadside vegetation where the proposed turbines would be visible on the skyline at distances between approximately 9km and 12km (Low to Zero magnitude). Although ZTV coverage is indicated between Maryburgh and Dingwall, the proposed turbines would be mostly screened in this section of the route and at most, partial blades may be visible above intervening vegetation in the direction of travel southbound (Very Low to Zero magnitude). Between Dingwall and Ardullie views towards the proposed turbines (southbound) would be heavily filtered by roadside vegetation, with occasional glimpsed views (Very Low to Zero magnitude). As the route travels north of Cromarty Firth there would be intermittent open views across the firth for approximately 10km until the route turns inland after Alness and views are increasingly screened by successive layers of vegetation. Views would be southbound where the proposed turbines would be visible in clear conditions

Recreational Route	Description of Effects
	between 20km and 30km (Very Low to Zero magnitude). Views from this section would be similar to Viewpoint 25, Figure 6.42. Beyond Alness, there would be some potential views above the vegetation where the route gains elevation at distances of up to 45km in very clear or exceptional conditions (Very Low to Zero magnitude). The magnitude of change on users of the North Coast 500 (A862 / A9) would range between Medium-Low (for 0.6km), to Low (for approximately 4.7km), and Very Low to Zero resulting in a Major to Moderate and Significant effect (for approximately 0.6km of the route between Achnagairn Bridge and West Croft on the A862), Moderate and Not Significant (Intermittently between Inverness and Inchmore, and between Muir of Ord and Conon Bridge, totalling 4.7 km of the route), and Minor to No View for the remainder of the route. As reported in Table 6.15, the level of effect on users travelling from Muir of Ord to Marybank (as it overlaps with the A832) would be Major and Significant (for a total of 1.5km (eastbound views), and 0.5km (westbound views)) in intermittent open sections of the route between Clash Wood and Arcanside. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Fairburn and Auchmore would be partially visible on the skyline in the same views as the proposed development (Low-Very Low to Zero magnitude). Other existing and consented wind farms may be visible at greater distances from parts of the route but would not result in effects greater than Very Low magnitude. The additional effect of the proposed development would be Major / Major to Moderate and Significant to No View. The combined effect would also be Major / Major to Moderate and Significant (due to the proposed development) to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and negative. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> Fairburn Extension (scoping) would be partly visible adjacent to the proposed development from various locations along the route (Low to Zero magnitude). Other application wind farms would be theoretically visible in different parts of the view and a greater distance including Loch Liath and Abhainn Dubh (Very Low to Zero magnitude). The additional effect of the proposed development would be Major / Major to Moderate and Significant (for 0.6km), Moderate and Not Significant (for 4.7km) to No View. The combined effect would also be Major / Major to Moderate and Significant (for 0.6km) Moderate and Not Significant (for 4.7km) (due to the proposed development) to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
John o'Groats Trail (some sections overlapped with the A9 and Sustrans Cycle Route 1)	The John o'Groats Trail travels 233km between Inverness and John o'Groats. Within the 45km study area, the route passes between Inverness and Tain via the Black Isle (Kessock Bridge and Cromarty Bridge. The northern section of the route follows the Sustrans Cycle Route 1 and A9. <u>Assessment: proposed development:</u> ZTV coverage is indicated across the majority of the route with patchy visibility indicated to the southeast of the route and parts of the Black Isle. Travelling south to north along the route, there would be visibility at Kessock Bridge (Low-Very Low magnitude). At Kessock Bridge the route follows forest tracks to Munloch, and minor roads through forestry and further forest tracks to Culbokie. Views would be mostly screened by forestry for this section of the route (Very Low to Zero magnitude). North of Culbokie, the route follows a minor road to Cromarty Bridge and there would be open views across Comarty Firth and oblique views west and northeast along the Firth. The proposed turbines would be visible to the west from this section of the route and the views would remain open as the route crosses Cromarty Bridge (3.6km of the route) at a minimum distance of 19.3km. Views from this section are illustrated in Viewpoint 20, Figure 6.37 (Low magnitude for 3.6km). After this the route joins Sustrans Cycle Route 1 (assessed above). The magnitude of change on users of the John o'Groats Trail would range between Low (for 3.6km between Culbokie and Ardullie), Low to Very Low, to Very Low and Zero resulting in a Moderate and Not Significant effect (for approximately 3.6km of the route)

Recreational Route	Description of Effects
	to Minor and Not Significant, to No View (remainder of the route). The effect would be not significant due to the long intervening distance and the proposed development would not be visible in the direction of travel but would be seen in oblique views to the southwest. The nature of these effects would be long-term (reversible) indirect, and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Fairburn and Auchmore would be partially visible on the skyline in the same views as the proposed development (Very Low to Zero magnitude). Other existing and consented wind farms may be visible at greater distances from parts of the route but would not result in effects greater than Very Low magnitude. The additional effect of the proposed development would be Moderate and Not Significant to No View. The combined effect would also be Moderate and Not Significant to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and negative. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> Fairburn Extension (scoping) would be partly visible adjacent to the proposed development from various locations along the route (Very Low to Zero magnitude). Abhainn Dubh would be visible in the direction of travel (northbound) from the Black Isle (Low-Very Low magnitude) Other application wind farms would be theoretically visible in different parts of the view and a greater distance including Loch Liath (Very Low to Zero magnitude). The additional effect of the proposed development would be Moderate and Not Significant to No View. The combined effect would also be Moderate and Not Significant to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
Great Glen Way (overlapped with Loch Ness 360)	The Great Glen Way travels 127km between Fort William and Inverness and follows the Highland fault line of the Great Glen, a series of lochs and rivers connected by the Caledonian Canal. Within the 45km study area, the route passes between Invergarry, along the west side of Loch Ness to Inverness following forest tracks and minor roads roughly parallel to the A82. <u>Assessment: proposed development:</u> ZTV coverage is patchy across the route with theoretical visibility indicated to the north of Drumnadrochit as the route climbs inland and joins an elevated minor road and forest tracks. Travelling south to north along the route, visibility is indicated at Achpopuli Farm and along the route for approximately 6km until west of Altourie. Views along this section of the route would be screened by forestry, (with some open views where young forestry is establishing following felling and at Woodend where blades would be visible above landform and vegetation) until Ladycairn where views open to the northwest for approximately 1km before ZTV coverage ends. All of the turbines would be visible at approximately 13.6km as part of an extensive wide view as illustrated in Viewpoint 13, Figure 6.30 (Medium magnitude for 1km). Theoretical visibility is again indicated as the route passes through forest at Dunain Hill near Ladystone. Views from this section would be screened by surrounding forest (Zero magnitude – Medium-Low magnitude if forestry felled). There is no further visibility indicated along the route. The magnitude of change on users of the Great Glen Way would range between Medium (for 1km north of Ladycairn), to Very Low and Zero resulting in a Major and Significant effect (for approximately 1km of the route) to Minor and not significant and No View for the remainder (majority) of the route (The effect as the route passes through forest at Dunain Hill near Ladystone would be Major to Moderate and significant if the forestry to the north of the route were felled). The nature of these effects would be long-term (reversible) indirect, and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Fairburn would be visible on the skyline in the same view as the proposed development as hubs and upper towers (Low-Very Low magnitude). Auchmore would be visible further to the right (Very Low magnitude). Lochluichart and Lochluichart Extension would be partially visible in clear conditions (Very Low magnitude). To the north Novar, Novar Extension and Coire na Cloiche would be theoretically visible in clear conditions (Very

Recreational Route	Description of Effects
	Low magnitude). Bhlaraidh would be partially visible to the southwest in clear conditions (Very Low to Zero magnitude). The additional effect of the proposed development would be Major and Significant (for approximately 1km) to No View. The combined effect would be Major and Significant (due to the proposed development) to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and negative. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> The scoping Fairburn Extension would be visible behind to the proposed development (Low magnitude). Loch Liath would be partially visible to the southwest, and Abhainn Dubh would be visible to the north in clear conditions (both Very Low to Zero magnitude). Carn Coire na Muic would be barely perceptible in the view (Very Low to Zero magnitude). Fanellan substation would be theoretically visible to the northwest at approximately 7km but would be partially screened by intervening vegetation (Very Low magnitude). Lynemore would be visible to the southeast (Low magnitude). The additional effect of the proposed development would be Major and Significant (for approximately 1km) to No View. The combined effect would be Major and Significant (due to the proposed development and Lynemore) to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
Highland Tourist Route	The Highland Tourist Route travels 186km between Aberdeen to Inverness encompassing the Cairngorms National Park, Speyside and Culloden. Within the 45km study area, the route passes between Nairn and Inverness following minor roads roughly parallel to the A96. <u>Assessment: proposed development:</u> ZTV coverage is patchy across the route with theoretical visibility absent where the route follows the River Nairn valley. From east to west, ZTV coverage is indicated as the route passes to the south of Nairn on the B9101/B9090 to Cawdor at over 40km distance, and again between Clephanton and Brackley and Croy at between approximately 35-36km distance. Views of the proposed turbines from open areas along these sections of the route would be available in very clear conditions (Very Low to Zero magnitude). Theoretical views are also indicated between Newlands and Inverness as the route passes Culloden on the B9006 and passes through increasing urban development until Raigmore. Views along this section of the route would be mostly screened by intervening vegetation until Blackpark where there would be views of the proposed turbines in the direction of travel westbound until Westhill (approximately 1.1km) at a distance of 27-28km (Very Low to Zero magnitude). Between Westhill and the western end of the route there would be screening due to buildings and vegetation (at most glimpsed views) (Very Low to Zero magnitude). The magnitude of change on users of the Highland Tourist Route would be Very Low to Zero resulting in a Minor and Not Significant effect to No View. The nature of these effects would be long-term (reversible) indirect, and neutral. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Fairburn and Auchmore would be partially visible on the skyline in the same views as the proposed development (Very Low to Zero magnitude). Novar would be visible from open views along the route to the northwest in clear conditions (Very Low to Zero magnitude). The additional effect of the proposed development would be Minor and Not Significant to No View. The combined effect would also be Minor and Not Significant to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and neutral. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> Fairburn Extension (scoping) would be partly visible adjacent to the proposed development from various locations along the route (Very Low to Zero magnitude). Abhainn Dubh would be visible to the northwest in clear conditions (Very Low to Zero magnitude). The additional effect of the proposed development would be Minor and Not Significant to No View. The combined effect would also be Minor and Not

Recreational Route	Description of Effects
	Significant to No View . The nature of these effects would be long-term (reversible) indirect, cumulative and neutral.

Visual Effects on Views from Recreational and Tourist Destinations

- 6.312 The visual assessment has considered the potential visual effects likely to be experienced by people at recreational / visitor or tourist destinations or attractions, which are overlapped by the ZTV, within the LVIA Study Area. Each of these locations were visited and / or assessed with the use of ZTVs and wirelines. All of the destinations have been assessed as of *High* sensitivity on account of their High - Medium value as recreational and tourist destinations, some located within designated landscapes and the High susceptibility of the people visiting these destinations, whose attention would be focused on the landscape around them.
- 6.313 In summary, there would be a significant effect on the following recreational and tourist destinations:
- The summit of Ord Hill (Cnoc Croit na Maoile);
 - Heights of Brae Monument;
 - Parts of three GDLs – Beaufort Castle, Belladrum Estate and Brahan; and
 - Corbett summit of Beinn a'Bhathaich Ard.
- 6.314 None of the remaining tourist / visitor destinations would be significantly affected by the proposed development.

Table 6.17: Visual Effects on Views from Recreational and Tourist Destinations within 15km

Recreational and Tourist Destinations	Assessment
Ord Hill (Cnoc Croit na Maoile)	Ord Hill (Cnoc Croit na Maoile) (319m AOD) is a minor hill to the southwest of Muir of Ord. It has a waymarked route through forestry and moorland. Views from the summit are panoramic with the main focus to the east towards the Black Isle, Beaully and Cromarty Firths. Views south include views of the Affric Mountains. <u>Assessment: proposed development</u> All 20 proposed turbines would be visible from the summit in views southwest at approximately 4.6km distance. The turbines would appear slowly rotating against the sky and some partially backclothed by landform, although visible partly beyond landform which provides some partial mitigation. The wind farm presents a simple row of well-spaced turbines (with some limited overlapping), visible along the skyline, and appearing reasonably well accommodated in the view. Ground-based infrastructure would not be visible. The magnitude of change would be High-Medium and the level of effect would be Substantial to Major and Significant. The main focus out towards the Black Isle, Cromarty and Beaully Firths to the northeast and the Affric mountains to the south would be unaffected by the proposed development. The nature of these effects would be long-term (reversible) indirect, and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> The existing Auchmore Wind Farm would be visible to the fore of the proposed development (High-Medium magnitude). Other existing and consented wind farms

Recreational and Tourist Destinations	Assessment
	would be of Very Low to Zero magnitude. The additional effect of the proposed development would be Substantial to Major and Significant. The combined effect would be Substantial to Major and Significant (due to Auchmore and the proposed development). Auchmore would be decommissioned 32 years prior to the end of the operational period of the proposed development, thereby reducing the cumulative effect. The nature of these effects would be long-term (reversible) indirect, cumulative and negative. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> The scoping Fairburn Extension would be visible to the right of the proposed development (Medium magnitude). The additional effect of the proposed development would be Substantial to Major and Significant. The combined effect would be Substantial to Major and Significant (due to Auchmore, Fairburn Extension and the proposed development). Auchmore would be decommissioned 32 years prior to the end of the operational period of the proposed development, thereby reducing the cumulative effect. The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
Heights of Brae Monument	Views from the Heights of Brae Monument are assessed as part of Viewpoint 17 within Technical Appendix 6.2 and illustrated in Figure 6.34. To summarise, the magnitude of change would be Low and the level of effect would be Moderate and Significant.
GDLs within 15km	
Fairburn	Fairburn GDL is located to the north of the River Orrin and southeast of Loch Achonachie. The landform within the GDL falls to the south to the River Orrin which forms the boundary of the designated area. There is extensive coniferous woodland and forest planting to the west, south and east of the GDL as well as open agricultural fields mostly located on the upper slopes of the area. A minor road provides access and the northeastern boundary and there are several tracks across the area providing access to visitors. <u>Assessment: proposed development</u> The southern boundary of the GDL is located approximately 4.5km distance northeast of the Proposed Development. The majority of the GDL is outwith the ZTV including Fairburn Tower. However, there would be theoretical visibility to the southwest of the GDL on the rising landform from the footbridge across the River Orrin to Fairburn House, and further theoretical visibility and to the east of the GDL between Tower Mains and the Muir of Fairburn road (eastern boundary). Fairburn House is a private care home and is excluded from the assessment. The area to the southwest of the GDL is forested and there would be no view of the proposed turbines in this area of the GDL. Between Tower Mains and the Muir of Fairburn there are several open agricultural fields contained by forestry to the east and shelterbelt to the west. Wireline analysis indicates that there would be theoretical visibility of two blade tips in the open fields (as illustrated in Cultural Heritage Viewpoint 2: Visualisation 12.2) increasing to two hubs and five blades/tips towards the eastern boundary of the fields. Views from the fields would be heavily filtered by a shelterbelt however there may be some views through gaps, particularly at the farm buildings to the south (Low-Very Low to Zero magnitude). Viewpoint 3 (Figure 6.20) is located on a minor road at the southeastern edge of the GDL and looks south beyond the GDL and is therefore not representative of views from the GDL itself. The level of effect on views from the GDL would be Moderate to Minor and Not Significant to No View. The nature of these effects would be long-term (reversible), indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Fairburn would be partly visible to the west from open areas to the east of the GDL as up to five turbines subject to screening from intervening vegetation (Low to Zero magnitude). Auchmore would also be visible to the south (Low-Very Low magnitude).

Recreational and Tourist Destinations	Assessment
	The additional effect of the proposed development would range from Moderate to Minor and Not Significant to No View. The combined effect would be Moderate and Not Significant (due to Fairburn) to No View and Not Significant. The nature of these effects would be long-term (reversible) indirect, cumulative and negative. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> Fairburn Extension (scoping) would be theoretically visible as blade tips (Very Low to Zero magnitude). The additional effect of the proposed development would range from Moderate to Minor and Not Significant to No View. The combined effect would be Moderate and Not Significant (due to Fairburn) to No View and Not Significant. The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
Beaufort Castle	Beaufort Castle is a private residence, however, the wider grounds are publicly accessible which is assessed below. Beaufort Castle GDL is located to the south of the meandering River Beaully (which forms its northern boundary) and extends south to a point approximately 0.2km north of Kiltarlity as the GDL boundary extends along the course of Bruiach Burn. Much of the estate is characterised by extensive woodland along the River Beaully to the north, Bruiach Burn to the east, southeast and south, with areas of open parkland to the southwest of Beaufort Castle and to the northeast of the GDL. The landform is relatively flat in the area, and as a result views from the GDL tend to be near to middle distance across parkland, occasionally with views of the upland landscapes visible above the woodland treelines. Views across the River Beaully are available from the Castle. The GDL is accessed through several access tracks some of which form part of the Core Path network. <u>Assessment: Proposed Development</u> ZTV coverage indicates theoretical visibility of 16- 20 turbines to the east of the GDL between East Lodge and Beaufort Castle, and patchy visibility of 1-15 turbines to the west of the route with visibility reducing gradually to the west and southwest of the castle. Views from the grounds of the GDL are assessed in Table 6.16 as part of Core Path IN20.05– East Lodge to West Lodge, Beaufort Castle. In summary, there would be potential intermittent views of up to 15 turbines visible above middle distance trees (mostly blades visible) above parkland to the east of Beaufort Castle (Low magnitude) and views of up to six hubs and eight blades above middle distance parkland to the southwest of the castle reducing towards the west. The turbines would be visible at between 7.8km to 6.7km distances (Medium-Low to Zero magnitude). The level of effect on views from the grounds of the GDL would range from Major to Moderate and Significant (southwest of the Castle) to Moderate and Not Significant, to No View. The nature of these effects would be long-term (reversible), indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> There would be no existing or consented wind farms visible from the GDL. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> There would be no application or other wind farms visible from the GDL. There would be some visibility of the Fanellan Substation in a section of IN20.05 to the southwest of Beaufort Castle resulting in a Very Low magnitude of change (reducing over time as mitigation planting matures). The additional effect of the proposed development would remain Major to Moderate and Significant (southwest of the Castle) to Moderate and Not Significant, to No View. The combined effect would be Major to Moderate and Significant (due to the proposed development) to Moderate and Not Significant, to No View. The nature of these effects would be long-term (reversible) indirect, cumulative and negative.

Recreational and Tourist Destinations	Assessment
Belladrum Estate	Belladrum Estate is located on west facing slopes to the east of Kiltarlity, with the main views orientated to the west and northwest across the settlement of Kiltarlity towards low middle distance hills and upland plateau forming the skyline beyond. There is commercial and mixed forestry on steeper slopes to the east of the GDL which screens views from this area. The majority of available views are across the gentler slopes to the centre and west of the GDL where there are open agricultural fields, scattered settlement and minor access road and tracks. Riparian woodland along Belladrum Burn and scattered woodland copses screen some views from these lower areas. <u>Assessment: proposed development</u> All 20 turbines would be theoretically visible on the skyline to the northwest from the lower slopes and open agricultural fields. affecting approximately 15° of the horizontal FoV. The lower parts of some of the turbines would be screened by intervening landform with up to five turbines appearing as blades from lower parts of the GDL (as illustrated in Cultural Heritage Viewpoint 14: Visualisation 12.14). Many of the views from the GDL would be filtered by the extensive woodland and forest planting which screens views from the upper slopes to the east of the GDL and presents as successive layers of near and middle-distance vegetation from the minor roads and agricultural fields to the centre and west of the GDL. There would be open views from Phoinneas House to the northwest of the GDL, however this is a private house which is excluded from the assessment. Where views are available between vegetation, the wind farm presents as a simple row of well-spaced turbines, visible along the skyline and appearing beyond foreground hills. The turbines would be associated with a more distant upland landscape beyond the expansive low-lying landscape that includes the River Beaully strath at distances of over 8.1km from the boundary of the GDL. Core Path IN20.02- <i>Belladrum Kennels to Belladrum Farm</i> passes through this landscape and is assessed in Table 6.16. The magnitude of change would be Low to Zero and the level of effect would be Moderate and Significant (intermittent views from the centre and west of the GDL) to No View (remainder of the GDL). The nature of these effects would be long-term (reversible), indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Novar, Novar Extension, and Coire na Cloiche would be theoretically visible to the north at distances over 30km subject to screening from vegetation (all Very Low to Zero magnitude). The additional effect of the proposed development would be Moderate and Significant to No View. The combined effect would be Moderate and Significant (due to the proposed development). The nature of these effects would be long-term (reversible) indirect, cumulative and negative. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> The blades of the scoping Fairburn Extension would be theoretically visible behind the proposed development (Very Low to Zero magnitude). Abhainn Dubh would be partially visible to the north subject to screening from intervening vegetation (Very Low to Zero magnitude). Fanellan substation would be theoretically visible in an elevated location to the northwest at a minimum of approximately 3.3km and would appear in the same view as the proposed development (Low to Zero magnitude). The additional effect of the proposed development would be Moderate and Significant to No View. The combined effect would be Moderate and Significant (due to Fanellan substation and the proposed development). The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
Reelig (Easter Moniack) – proposed GDL	The proposed GDL at Reelig (Easter Moniack) is located to the south of Kirkhill and the A862 along the Moniack Burn. The boundary incorporates an area to the east of Moniack Burn in a relatively flat area to the north of the GDL and widens to include steeply sided glen slopes either side of Moniack Burn to the south and centre of the GDL. Most of the designated area is characterised by dense mixed woodland

Recreational and Tourist Destinations	Assessment
	although there are open fields along the eastern edges of the GDL and views are mostly near to middle distance. <u>Assessment: proposed development</u> ZTV coverage indicates theoretical visibility of between 16-20 turbines from the north of the GDL and along the eastern edge towards the centre of the GDL. Views from these areas would be screened (or heavily filtered in winter views) from the majority of the GDL and potentially visible as blades or tips above the woodland from an elevated point at Easter Moniac. As a result, the level of effect would be no more than Minor and Not Significant and the GDL is not considered further.
Brahan	Brahan GDL is located on south and southeast facing slopes to the north of the River Conon on wooded, sloping agricultural land. The main views within the GDL are orientated across Strath Conon to the south and east. A belt of mixed forestry (Broad Wood, Oak Dell and Ashwood) spans the centre of the GDL roughly following the course of the River Conon with further small, wooded areas scattered across the designated area. As a result, views from within the GDL are often near to middle distance, particularly from the centre of the area. To the south of the GDL (south of Broad Wood) and along the northern edge, views open out across Strath Conon where facing hills form the skyline. Pylons cut through the GDL and span the southeast edge of the designated area. <u>Assessment: proposed development</u> Up to 18 turbines would be theoretically visible on the skyline to the southwest from the northern edge and open fields below Broad Wood affecting approximately 19° of the horizontal FoV. The lower parts of some of the turbines would be screened by intervening landform with up to four turbines appearing as blades as illustrated in Cultural Heritage Viewpoint 1: Visualisation 12.1. Many of the views from the centre of the GDL would be screened by the extensive woodland and forest. Where views are available, the wind farm presents as a simple row of turbines, visible along the skyline and appearing between and beyond intervening hills to the south of Strath Conon. The turbines would be associated with a more distant upland landscape beyond the expansive low-lying strath at distances of over 8.5km. The magnitude of change would be Medium-Low from open views to the north and south of the GDL and Very Low to Zero across the rest of the GDL. The level of effect would be Major to Moderate and Significant (open areas to the north and south of the GDL), and Minor to No View from the rest of the GDL. The nature of these effects would be long-term (reversible), indirect and negative. <u>Cumulative Assessment: Existing + Consented Sites + proposed development</u> Fairburn and Auchmore would be partially visible on the skyline in the same views as the proposed development (Low-Very Low to Zero magnitude). Other clusters of wind farm development would be theoretically visible at greater distances in clear conditions to the south and southwest but would be mostly screened by layers of intervening vegetation (Very Low to Zero magnitude). The additional effect of the proposed development would be Major to Moderate and Significant (open areas to the north and south of the GDL) to Minor and No View and Not Significant. The combined effect would also be Major to Moderate and Significant (due to the proposed development) to Minor and No View and Not Significant. The nature of these effects would be long-term (reversible) indirect, cumulative and negative. <u>Cumulative Assessment: Existing + Consented Sites + Applications + proposed development</u> Fairburn Extension (scoping) would be partly visible adjacent to the proposed development from open areas in the western half of the GDL (Medium-Low magnitude). The additional effect of the proposed development would be Major to Moderate and Significant (open areas to the north and south of the GDL) to Minor and No View and Not Significant. The combined effect would also be Major to Moderate and Significant to Minor and No View and Not Significant (due to Fairburn

Recreational and Tourist Destinations	Assessment
	Extension and the proposed development). The nature of these effects would be long-term (reversible) indirect, cumulative and negative.
Munros within 15km	
Strathfarrar Munros	Views from the Strathfarrar Munros include Sgurr a'Choire Ghlais which is assessed as part of Viewpoint 16 within Technical Appendix 6.2 and illustrated in Figure 6.33. To summarise the magnitude of change would be Low-Very Low and the level of effect would be Moderate to Minor and Not Significant.
Corbetts within 15km	
Beinn a'Bhathaich Ard	Views from Beinn a'Bhathaich Ard are assessed as part of Viewpoint 4 within Technical Appendix 6.2 and illustrated in Figure 6.21. To summarise the magnitude of change would be High-Medium and the level of effect would be Substantial to Major and Significant.

Summary of Residual Landscape and Visual Effects

6.315 A summary of the landscape and visual and cumulative effects are provided in Tables 6.16-17 and the information set out in these tables is explained as follows:

- Receptor Name.
- Sensitivity: The sensitivity of the receptor is recorded (ranging from 'High', 'Medium', 'Low', and 'Very Low') in accordance with the methodology in Appendix 6.1.
- LVIA Assessment ('Stand-alone' or Primary Effect):
 - Magnitude: The magnitude of change, taking account of the proposed development only, is recorded (ranging from 'High', 'Medium', 'Low', 'Very Low' and 'Zero') in accordance with the methodology.
 - Level of Effect: The level of effect for the proposed development only, is recorded and takes account of the sensitivity and magnitude in accordance with the methodology. Those levels of effect shown in bold relate to significant effects in accordance with the relevant EIA Regulations.
- Cumulative Assessment (CLVIA):
 - Magnitude (Existing and Consented Wind Farms): The magnitude of change, taking account of other existing and consented wind farms is recorded (ranging from high, medium, low, very low, and zero) in accordance with the methodology;
 - Additional Level of Effect: Adding the proposed development to the baseline of existing and consented wind farms;
 - Scenario 1 / Cumulative Level of Effect 1: The level of effect, taking account of the other existing, consented / under construction wind farms and the proposed development, is recorded (taking account of the sensitivity and magnitude in accordance with the methodology). Those levels of effect shown in bold relate to significant effects in accordance with the relevant EIA Regulations and the wind farm contributing most to the cumulative effects is recorded in brackets;
 - Magnitude (Other Application Wind Farms): The magnitude of change, taking account of other wind applications is recorded (ranging from high, medium, low, very low, and zero) in accordance with the methodology;

- Additional Level of Effect: Adding the proposed development to the baseline of existing and consented wind farms and other wind farm applications; and
- Scenario 2 / Cumulative Level of Effect 2: The level of effect, taking account of the other existing, consented / under construction, application wind farms and the proposed development, is recorded (taking account of the sensitivity and magnitude in accordance with the methodology). Those levels of effect shown in bold relate to significant effects in accordance with the relevant EIA Regulations and the wind farm contributing most to the cumulative effects is recorded in brackets.

Table 6.18: Summary and Evaluation of the Predicted Landscape and Cumulative Landscape Effects

Receptor	Sensitivity	Primary Assessment: LVIA: proposed development only		Assessment: CLVIA: proposed development (PD) and other wind farms					
		Magnitude (Standalone)	Level of Effect (Standalone)	Magnitude (Existing and Consented)	Additional Level of Effect	Scenario 1: Combined Level of Effect:	Magnitude (Applications)	Additional Level of Effect	Scenario 2: Combined Level of Effect:
Direct Landscape Effects on the 'Host' Landscape Character Type: (220) Rugged Massif LCT: North Rugged Massif LCA									
Construction Effects: Rugged Massif LCT: North Rugged Massif LCA	High - Medium	Zero to High (0.5-4km)	None to Substantial to Major (0.5-4km)	Cumulative effects would increase from None at the start of construction to the operational levels of Substantial to Major (due to PD and Aultmore) (not Fairburn due to the intervening distance of over 3.5km from the LCA).					
Operational Effects: Rugged Massif LCT: North Rugged Massif LCA	High - Medium	High (up to 0.5-4km) to Zero	Substantial to Major (up to 0.5-4km) to None	High-Medium to Zero	Substantial to Major (up to 0.5-4km) to None	Substantial to Major (PD, Aultmore) to None	High to Zero	Substantial to Major (up to 0.5-4km) to None	Substantial to Major (PD, Aultmore, Fairburn Ext) to None
Decommissioning Effects: Rugged Massif LCT	High - Medium	Very Low	Minor to Negligible	The residual cumulative effects post decommissioning would be Minor to Negligible.					
Direct Landscape Effects on Landscape Character Type: (227) Farmed Strath - Inverness LCT (Strathglass LCA) – <i>as a result of part of the Site Infrastructure (Site entrance and short section of the access track)</i>									
Construction Effects	Medium	Zero to High (up to 200-300m)	None to Major (up to 200-300m)	N/A					
Operational Effects	Medium	Low to Very Low	Minor to Negligible	N/A					

Receptor	Sensitivity	Primary Assessment: LVIA: proposed development only		Assessment: CLVIA: proposed development (PD) and other wind farms					
		Magnitude (Standalone)	Level of Effect (Standalone)	Magnitude (Existing and Consented)	Additional Level of Effect	Scenario 1: Combined Level of Effect:	Magnitude (Applications)	Additional Level of Effect	Scenario 2: Combined Level of Effect:
Decommissioning Effects	There would be no decommissioning effects as the proposed access track would remain in-situ at the end of the operation of the proposed development.								
Indirect Landscape Effects on the Surrounding Landscape Character within 15km									
220 Rugged Massif – Inverness LCT: South Rugged Massif LCA	High - Medium	Low-Very Low to Zero	Minor to None	Very Low to Zero	Minor to None	Minor to None	Low-Very Low to Zero	Minor to None	Minor to None
222 Rocky Moorland Plateau – Inverness LCT: North of Glen Urquhart LCA	Medium / High - Medium	Low-Very Low to Zero	Minor to None	Very Low to Zero	Minor to None	Minor to None	Very Low to Zero	Minor to None	Minor to None
226 Wooden Glen – Inverness LCT: Glen Strathfarrar LCA	High	Low to Zero	Moderate to None	Zero	No cumulative effect		Very Low to Zero	Moderate to None	Moderate to None
227 Farmed Strath – Inverness LCT: Strathglass LCA	High-Medium	Low to Zero	Moderate to None	Very Low to Zero	Moderate to None	Moderate to None	Very Low to Zero	Moderate to None	Moderate to None
229 Enclosed Farmland LCT	Medium	Low to Zero	Moderate to Minor, to None	Very Low to Zero	Moderate to Minor, to None	Moderate to Minor, to None	Very Low to Zero	Moderate to Minor, to None	Moderate to Minor, to None
331 – Rounded Rocky Hills – Ross & Cromarty LCT: South of Strathconon LCA	High – Medium / Medium	High to Zero	Substantial to Major (2.5-3km southeastern	High to Zero	Major (2.5-3km southeastern part) to None	Substantial to Major (PD, Fairburn, Auchmore) to None	High to Zero	Major to Moderate (2.5-3km southeastern	Substantial to Major (PD, Fairburn, Auchmore,

Receptor	Sensitivity	Primary Assessment: LVIA: proposed development only		Assessment: CLVIA: proposed development (PD) and other wind farms					
		Magnitude (Standalone)	Level of Effect (Standalone)	Magnitude (Existing and Consented)	Additional Level of Effect	Scenario 1: Combined Level of Effect:	Magnitude (Applications)	Additional Level of Effect	Scenario 2: Combined Level of Effect:
			part) to None					part) to None	Fairburn Ext) to None
328 – Rugged Mountain Massif – Ross and Cromarty LCT: Orrin LCA	High-Medium	High to Zero	Substantial to Major (eastern fringe) to None	High-Medium to Zero	Substantial to Major (eastern fringe) to None	Substantial to Major (PD, Fairburn) to None	High to Zero	Major (eastern fringe) to None	Substantial to Major (PD, Fairburn, Fairburn Ext) to None
341 Forest Edge Farming LCT: Auchmore and Ulladale LCAs	Medium	Medium to Zero	Moderate to None	High-Medium to Zero	Moderate to Minor, to None	Major to Moderate (Fairburn, Auchmore, PD) to None	Medium to Zero	Moderate to Minor, to None	Major to Moderate (Fairburn, Auchmore, Fairburn Ext, PD) to None
345 Farmed and Forested Slopes – Ross & Cromarty LCT: Altvaich LCA, Strathpeffer LCA, and Black Isle LCA	High-Medium	Low to Zero	Moderate to Minor, to None	Low-Very Low to Zero	Moderate to Minor, to None	Moderate to Minor, to None	Low-Very Low to Zero	Moderate to Minor, to None	Moderate to Minor, to None
Indirect Effects on Landscape Planning Designations									
Glen Strathfarrar NSA	High	Low to Zero	Moderate to None	Very Low to Zero	Moderate to None	Moderate to None	Low-Very Low to Zero	Moderate to None	Moderate to None
Strathconnon, Monar and Mullardoch SLA	High-Medium increasing to High	Low to Zero	Moderate to None	Low-Very Low to Zero	Moderate to None	Moderate to None	Low to Zero	Moderate to Minor, to None	Moderate to None

Receptor	Sensitivity	Primary Assessment: LVIA: proposed development only		Assessment: CLVIA: proposed development (PD) and other wind farms					
		Magnitude (Standalone)	Level of Effect (Standalone)	Magnitude (Existing and Consented)	Additional Level of Effect	Scenario 1: Combined Level of Effect:	Magnitude (Applications)	Additional Level of Effect	Scenario 2: Combined Level of Effect:
Ben Wyvis SLA	High-Medium increasing to High	Low-Very Low to Zero	Moderate to Minor, to None	High-Medium to Zero	Moderate to Minor, to None	Substantial to Major (Novar, Lochluichart cluster) to None	High-Medium to Zero	Moderate to Minor, to None	Substantial to Major (Novar, Lochluichart cluster, Abhainn Dubh) to None

Note: Significant effects resulting from the proposed development are indicated in bold text and shaded dark grey.

Table 6.19: Summary and Evaluation of the Predicted Visual and Cumulative Visual Effects

Receptor	Sensitivity	Primary Assessment: LVIA: proposed development only		Assessment: CLVIA: proposed development (PD) and other wind farms					
		Magnitude (Standalone)	Level of Effect (Standalone)	Magnitude (Existing and Consented)	Additional Level of Effect	Scenario 1: Combined Level of Effect:	Magnitude (Applications)	Additional Level of Effect	Scenario 2: Combined Level of Effect:
Visual Effects on Settlements									
Muir of Ord	High	Very Low to Zero	Negligible to No View	Very Low to Zero	Negligible to No View	Negligible to No View	Low to Zero	Negligible to No View	Moderate to Minor, to No View
Beaully	High	Very Low to Zero	Negligible to No View	Very Low to Zero	Negligible to No View	Negligible to No View	Very Low to Zero	Negligible to No View	Negligible to No View
Kiltarlity	High	Medium to Zero	Major to No View	Very Low to Zero	Major to No View	Major (PD) to No View	Medium to Zero	Major to No View	Major (PD, Fanellan substation) to No View
Contin (Growing Settlement)	High	Low-Very Low to Zero	Moderate to Minor, to No View	Low-Very Low to Zero	Moderate to Minor, to No View	Moderate to Minor, to No View	Low-Very Low to Zero	Moderate to Minor, to No View	Moderate to Minor, to No View
Kirkhill	High	Low to Zero	Moderate to No View	Low to Zero	Moderate to No View	Moderate to No View	Very Low to Zero	Moderate to No View	Moderate to No View
Strathpeffer	High	Very Low to Zero	Minor to No View	Very Low to Zero	Minor to No View	Minor to No View	Very Low to Zero	Minor to No View	Minor to No View
Conon Bridge	High	Low to Zero	Moderate to No View	Very Low to Zero	Moderate to No View	Moderate (PD) to No View	Very Low to Zero	Moderate to No View	Moderate (PD) to No View
Dispersed settlement / communities between 2-4km southeast	High	Medium to Zero	Major (Farley, Breakachy on western fringes) to No View	Very Low to Zero	Major to No View	Major (PD) to No View	Very Low to Zero	Major to No View	Major (PD) to No View

Receptor	Sensitivity	Primary Assessment: LVIA: proposed development only		Assessment: CLVIA: proposed development (PD) and other wind farms					
		Magnitude (Standalone)	Level of Effect (Standalone)	Magnitude (Existing and Consented)	Additional Level of Effect	Scenario 1: Combined Level of Effect:	Magnitude (Applications)	Additional Level of Effect	Scenario 2: Combined Level of Effect:
Visual Effects on Transport Routes									
A831	Medium (High in south)	Medium to Zero	Moderate (3.8km) to Zero	Very Low to Zero	Moderate (3.8km) to Zero	Moderate (PD) to Zero	Zero	No cumulative effect	
A832	High to Medium	Medium-Low to Zero	Major (2km) to No View	Low-Very Low to Zero	Major (2km) to No View	Major (PD) to No View	Low to Zero	Major (2km) to No View	Major (PD) to No View
A833	Medium	Medium to Zero	Moderate (1.6km) to No View	Very Low to Zero	Moderate (1.6km) to No View	Moderate (PD) to No View	Medium to Zero	Moderate (1.6km) to No View	Moderate (PD, Fanellan substation) to No View
A834	Medium	Low to Zero	Minor to No View	Low-Very Low to Zero	Minor to No View	Minor to No View	Medium-Low to Zero	Minor to No View	Moderate to Minor, to No View
A835	High to Medium	Medium to Zero	Major / Moderate (3.3km) to No View	Low-Very Low to Zero	Major / Moderate (3.3km) to No View	Major / Moderate (PD) to No View	Medium to Zero	Major / Moderate (3.3km) to No View	Major / Moderate (PD, Fairburn Ext) to No View
A862	See assessment of NC500								
B9163	Medium	Low to Zero	Minor to No View	Low-Very Low to Zero	Minor to No View	Minor to No View	Very Low to Zero	Minor to No View	Minor to No View
B9164	Medium	Low to Zero	Minor to No View	Low to Zero	Minor to No View	Minor to No View	Zero	No cumulative effect	
B9169	Medium	Medium to Zero	Moderate (2km) to No View	Low-Very Low to Zero	Moderate (2km) to No View	Moderate (PD) to No View	Medium to Zero	Moderate (2km) to No View	Moderate (PD, Fairburn Ext) to No View

Receptor	Sensitivity	Primary Assessment: LVIA: proposed development only		Assessment: CLVIA: proposed development (PD) and other wind farms					
		Magnitude (Standalone)	Level of Effect (Standalone)	Magnitude (Existing and Consented)	Additional Level of Effect	Scenario 1: Combined Level of Effect:	Magnitude (Applications)	Additional Level of Effect	Scenario 2: Combined Level of Effect:
The Far North (Inverness to Wick) Railway Line / Inverness to Kyle of Lochalsh Railway Line	High-Medium	Medium-Low to Zero	Major to Moderate (1km) to No View	Low-Very Low to Zero	Major to Moderate (1km) to No View	Major to Moderate (PD) to No View	Low to Zero	Major to Moderate (1km) to No View	Major to Moderate (PD) to No View
A9 (south of Inverness)	Medium	Very Low to Zero	Minor to Negligible, to No View	See assessment of NC500					
A96	Medium	Very Low to Zero	Minor to No View	Very Low to Zero	Minor to No View	Minor to No View	Very Low to Zero	Minor to No View	Minor to No View
Visual Effects on Local Recreational Routes									
Core Path RC30.01 Orrin Dam track (overlapped with Scottish Hill Track 283)	High	High-Medium to Zero	Substantial to Major (4.7km (RC30.01), 5.5km above Loch Orrin (SHT 283), to Minor to No View	Medium to Zero	Substantial to Major (4.7km (RC30.01), 5.5km above Loch Orrin (SHT 283), to Minor to No View	Substantial to Major (Fairburn, PD), to Minor to No View	High to Zero	Substantial to Major (4.7km (RC30.01), 5.5km above Loch Orrin (SHT 283), to Minor to No View	Substantial (Fairburn, Fairburn Ext, PD), to Minor to No View
Core Paths within and around Muir of Ord	High	Low to Zero	Moderate to No View	Very Low to Zero	Moderate to No View	Moderate to No View	Low to Zero	Moderate to No View	Moderate to No View
Core Paths within Beaulieu	High	Very Low to Zero	Minor to No View	Zero	No cumulative effect		Zero	No cumulative effect	

Receptor	Sensitivity	Primary Assessment: LVIA: proposed development only		Assessment: CLVIA: proposed development (PD) and other wind farms					
		Magnitude (Standalone)	Level of Effect (Standalone)	Magnitude (Existing and Consented)	Additional Level of Effect	Scenario 1: Combined Level of Effect:	Magnitude (Applications)	Additional Level of Effect	Scenario 2: Combined Level of Effect:
Core Paths south of Balblair	High	Medium to Zero	Major (0.5km – IN03.04), Major to Moderate (0.5km – IN20.05) to No View	Zero	No cumulative effect		Very Low to Zero	Major to Moderate (0.5km – IN20.05) to No View	Major to Moderate (PD - IN20.05) to No View
Core Paths around Kiltarlity	High	Medium to Zero	Major (0.4km - IN20.09), Moderate (1.1km – IN20.02) to No View	Very Low to Zero	Major (0.4km - IN20.09), Moderate (1.1km – IN20.02) to No View	Major (PD) to No View	Medium to Zero	Major (0.4km - IN20.09), Moderate (1.1km – IN20.02) to No View	Major (PD, Fanellan substation) to No View
Core Paths around Kirkhill	High	Low to Zero	Moderate to No View	Very Low to Zero	Moderate to No View	Moderate to No View	Zero	No cumulative effect	
Core Paths around Conon Bridge and Maryburgh	High	Medium-Low to Zero	Major to Moderate (0.3km – RC31.04), Moderate (RC09.02) to No View	Very Low to Zero	Major to Moderate to No View	Major to Moderate (PD) to No View	Very Low to Zero	Major to Moderate to No View	Major to Moderate (PD) to No View
Core Paths around Contin	High	Low to Zero	Moderate (RC10.01) to No View	Low-Very Low to Zero	Moderate (RC10.01) to No View	Moderate (PD) to No View	Low to Zero	Moderate (RC10.01) to No View	Moderate (PD, Fairburn Ext) to No View

Receptor	Sensitivity	Primary Assessment: LVIA: proposed development only		Assessment: CLVIA: proposed development (PD) and other wind farms					
		Magnitude (Standalone)	Level of Effect (Standalone)	Magnitude (Existing and Consented)	Additional Level of Effect	Scenario 1: Combined Level of Effect:	Magnitude (Applications)	Additional Level of Effect	Scenario 2: Combined Level of Effect:
Core Paths around Strathpeffer	High	Medium-Low to Zero	Major to Moderate (RC45.02), Moderate (RC45.01) to No View	Medium-Low to Zero	Major to Moderate (RC45.02), Moderate (RC45.01) to No View	Major to Moderate (PD, Fairburn) to No View	Medium-Low to Zero	Major to Moderate (RC45.02), Moderate (RC45.01) to No View	Major to Moderate (PD, Fairburn, Fairburn Ext) to No View
Scottish Hill Track 279: Muir of Ord to Struy (Strathglass)	High	High to Zero	Substantial to No View	Medium to Zero	Substantial to No View	Substantial (PD, Fairburn) to No View	High to Zero	Substantial to No View	Substantial (PD, Fairburn, Fairburn Ext) to No View
Heritage Path A: Old Road to Milton of Redcastle	High	Medium-Low to Zero	Major to Moderate (1.7km) to No View	Very Low to Zero	Major to Moderate (1.7km) to No View	Major to Moderate (PD) to No View	Medium-Low to Zero	Major to Moderate (1.7km) to No View	Major to Moderate (PD, Fairburn Ext) to No View
Moray Firth Tourist Route (overlapped with North Coast 500 Tourist Route) – Assessed as part of the North Coast 500 Tourist Route – see below									
Sustrans Cycle Route 1 – Inverness to Tain	High	Medium to Zero	Major / Major to Moderate (3.3km – overlap with A835) to No View	Low-Very Low to Zero	Major / Major to Moderate (3.3km – overlapped with A835) to No View	Major / Major to Moderate (PD) to No View	Medium to Zero	Major / Major to Moderate (3.3km – overlapped with A835) to No View	Major / Major to Moderate (PD, Fairburn Ext) to No View
North Coast 500 Tourist Route	High	Medium to Zero	Major (2km – overlap with A832), Major to Moderate (0.6km – overlap	Low-Very Low to Zero	Major (2km – overlap with A832), Major to Moderate (0.6km – overlap with	Major / Major to Moderate (PD) to No View	Low to Zero	Major (2km – overlap with A832), Major to Moderate (0.6km – overlap with	Major / Major to Moderate (PD) to No View

Receptor	Sensitivity	Primary Assessment: LVIA: proposed development only		Assessment: CLVIA: proposed development (PD) and other wind farms					
		Magnitude (Standalone)	Level of Effect (Standalone)	Magnitude (Existing and Consented)	Additional Level of Effect	Scenario 1: Combined Level of Effect:	Magnitude (Applications)	Additional Level of Effect	Scenario 2: Combined Level of Effect:
			with A862) to No View		A862) to No View			A862) to No View	
John o’Groats Trail	High	Low to Zero	Moderate to No View	Very Low to Zero	Moderate to No View	Moderate to No View	Low-Very Low to Zero	Moderate to No View	Moderate to No View
Great Glen Way / Loch Ness 360	High	Medium to Zero	Major (1km) to No View	Low-Very Low to Zero	Major (1km) to No View	Major (PD) to No View	Low to Zero	Major (1km) to No View	Major (PD, Lynemore) to No View
Highland Tourist Route	High	Very Low to Zero	Minor to No View	Very Low to Zero	Minor to No View	Minor to No View	Very Low to Zero	Minor to No View	Minor to No View
Visual Effects on Recreational and Tourist Destinations									
Ord Hill (Cnoc Croit na Maoile)	High	High-Medium	Substantial to Major	High-Medium	Substantial to Major	Substantial to Major (Auchmore, PD)	Medium	Substantial to Major	Substantial to Major (Auchmore, Fairburn Ext, PD)
Heights of Brae Monument	Views from Heights of Brae are assessed as part of Viewpoint 17 within Technical Appendix 6.2 and illustrated in Figure 6.34.								
GDLs									
Fairburn	High	Low-Very Low to Zero	Moderate to Minor, to No View	Low to Zero	Moderate to Minor, to No View	Moderate to No View	Very Low to Zero	Moderate to Minor, to No View	Moderate to No View
Beaufort Castle	High	Medium-Low to Zero	Major to Moderate, to No View	Zero	No cumulative effect		Very Low to Zero	Major to Moderate, to No View	Major to Moderate (PD), to No View
Belladrum Estate	High	Low to Zero	Moderate to No View	Very Low to Zero	Moderate to No View	Moderate (PD) to No View	Low to Zero	Moderate to No View	Moderate (PD, Fanellann

Receptor	Sensitivity	Primary Assessment: LVIA: proposed development only		Assessment: CLVIA: proposed development (PD) and other wind farms					
		Magnitude (Standalone)	Level of Effect (Standalone)	Magnitude (Existing and Consented)	Additional Level of Effect	Scenario 1: Combined Level of Effect:	Magnitude (Applications)	Additional Level of Effect	Scenario 2: Combined Level of Effect:
									substation) to No View
Brahan	High	Medium-Low to Zero	Major to Moderate, to No View	Low-Very Low to Zero	Major to Moderate, to No View	Major to Moderate (PD), to No View	Medium-Low to Zero	Major to Moderate, to No View	Major to Moderate (PD, Fairburn Ext), to No View
Munros									
Strathfarrar Munros (4No.)	Views from the Strathfarrar Munros are assessed as part of Viewpoint 16 within Technical Appendix 6.2 and illustrated in Figure 6.33.								
Corbetts									
Beinn a'Bhathaich Ard	Views from Beinn a'Bhathaich Ard are assessed as part of Viewpoint 4 within Technical Appendix 6.2 and illustrated in Figure 6.21.								

Note: Significant effects resulting from the proposed development are indicated in bold text and shaded dark grey.

Summary and Conclusions

- 6.316 The proposed development comprises up to 20 wind turbines with nine turbines (T1, T2, T4, T5, T6, T8, T11, T13 and T14) up to a maximum blade tip height of 200m and the remaining 11 turbines (T3, T7, T9, T10, T12 and T15-20) up to a maximum blade tip height of 230m, and associated infrastructure including visible aviation warning lighting on T2, T3, T7, T14, T17 and T20. It is located approximately 4km northwest of Kilmorack and 7.5km east of Beaully in the Highlands within an undesignated area of the *Rugged Massif - Inverness* landscape character. Infrastructure associated with the proposed development includes one site entrance via the A831, internal access tracks and hardstanding areas, crane pads, up to three borrow pits, one temporary construction compound, energy storage compound and grid connection infrastructure (including one on-site substation and underground cables linking the turbines to the substation).
- 6.317 The LVIA has been undertaken in accordance with GLVIA 3 by chartered landscape architects at WSP. The assessment process has encompassed periods for the construction, operation, and decommissioning of the proposed development, the latter of which entails the reversal of most of the landscape and visual effects.

Landscape Planning Policy and Guidance

- 6.318 The LVIA has taken account of national and local planning requirements in relation to wind farm development, as described in Chapter 5: Renewable Energy and Planning Policy, and the Planning Statement which accompanies this Section 36 Application. This includes NPF4, the Highland-wide Local Development Plan (2012) and the Inner Moray Firth Local Development Plan 2 (2024) including the Onshore Wind Energy Supplementary Guidance.

Consultation

- 6.319 Consultation has been undertaken with THC and NS who commented on aspects of methodology, sources of information, viewpoint selection, scope of assessment and cumulative development. Post-scoping consultation was also undertaken with THC and NS to further agree the LVIA viewpoints and several aspects of the assessment, which was agreed through subsequent email correspondence.

Mitigation Inherent in the proposed development

- 6.320 The design of the proposed development has evolved from an iterative design and assessment process that has been guided by NS's *Siting and Designing Windfarms in the Landscape*, NS's Landscape Character Assessment and THC's OWESG. The advice in the OWESG, NS's Landscape Character Assessment and the scoping opinion has led to design refinements that have responded to the local landscape character, scale and form, to provide an improved 'landscape fit'. The proposed development has evolved from the scoping stage, through the design process which has involved a number of iterations. This has led to a reduction in the horizontal and vertical scale of the proposed development and a reduction in turbine numbers from 36 to 20 and reducing the horizontal and vertical extent of the proposed development.

- 6.321 All of the mitigation related to landscape, visual and cumulative effects is 'built-in' or embedded into the design of the proposed development and no additional mitigation or enhancement is proposed. This includes the Lighting Strategy for the aviation warning lights and works related to the site infrastructure and the proposed access road to integrate these features into their landscape setting, post construction.
- 6.322 A key consideration for the proposed development was the landscape character and expansive scale and simplicity of the host *Rugged Massif - Inverness LCT* which has a reduced susceptibility to large turbines in comparison to other smaller scale and complex landscape character types. The visual composition and layout design was guided by the following general design principles:
- The avoidance of overlapping or 'stacked' turbines through careful placement, where possible in order to form a well-spaced group or array when viewed from the receiving landscape including key design viewpoints;
 - The avoidance of outlying turbines which appear separate or stand apart within the landscape in order to reduce the lateral spread of the proposed development;
 - The selection of an appropriate turbine height which respect the scale of the receiving landscape and achieves a balanced composition when viewed from the surrounding landscape whilst recognising that current wind turbine technology has progressed with larger turbines required for greater energy efficiency; and
 - The development of a layout which relates well to other existing and proposed wind farms within the local area, as well as being coherent in isolation.
- 6.323 Whilst it may not be possible for the general design principles to be fully achieved (for example it is not possible to avoid all turbine overlap), the establishment of these general principles as part of the design process is important in order to demonstrate appropriate mitigation. Notably, the design process evolved through a number of stages or interim layouts and collectively the following landscape mitigation was achieved:
- The initial 36 turbine layout was established by taking account of the maximum developable area within the Site boundary;
 - 12 turbines were removed from the original layout where they would be more visible from dispersed settlement to the southeast and east, those closest to the boundary of the Central Highlands WLA and greater visibility from Glen Strathfarrar NSA;
 - The turbine height was selected in response to the landscape scale and character, with the turbine height of 11 turbines set at 230m and the remaining nine turbines at 200m to blade tip;
 - Special attention was paid to the visual composition of the turbines and the cumulative appearance of the proposed development with the existing Fairburn and Auchmore wind farms, as far as practicable. However, all three wind farms are rarely visible in the same view. This has ensured the turbine composition would appear as a simple, cohesive, and ordered layout when viewed from the surrounding area; and
 - Four further turbines were removed to minimise visibility from nearby settlements including Beauly, Muir of Ord and Contin and other dispersed communities to the southeast. This, along with the surrounding low hills around the Site, has resulted in the limited extent of visibility of the proposed development in shorter range views.

Landscape and Cumulative Landscape Effects

- 6.324 The proposed development is not located within any designated landscapes or WLAs, however, it is located 171m east of the Central Highlands WLA.
- 6.325 None of the landscape planning designations including the SLQs of the Glen Strathfarrar NSA, Strathconon, Monar and Mullardoch SLA and Ben Wyvis SLA would be significantly affected by the proposed development. There would however be significant effects of the proposed development on part of *WLQ1: An extensive and awe-inspiring range of large scale, high and rugged mountains* in the eastern flank of the Central Highlands WLA. However, it is recognised that this part of the WLA has a weak or largely absent WLQ in the east. The proposed development would not significantly affect the remaining three WLQs of the Central Highlands WLA.
- 6.326 Significant effects resulting from large-scale wind farm development are unavoidable and the proposed development would have a significant (and cumulative) effect on part of the 'host' *Rugged Massif - Inverness landscape (North Rugged Massif LCA)*, affecting a local area up to approximately 0.5km north (the limits of this landscape in that direction) and up to approximately 2-2.5km east, west and southeast and 3-4km south / southwest. This level of effect, and geographical extent, is not unusual for wind farm development. Significant effects would also affect a localised area (up to approximately 200 – 300m) of the *Farmed Strath – Inverness LCT (Strathglass LCA)* as a result of the proposed access track and Site entrance during the construction phase only.
- 6.327 In relation to the surrounding LCTs, an area of the *Rounded Rocky Hills – Ross & Cromarty LCT: South of Strathconon LCA* to the south and southeast of the LCA as the landform falls towards the River Orrin and Orrin Reservoir would be significantly affected by the proposed development up to 2.5-3km from the proposed turbines. A small area of the *Rugged Mountain Massif – Ross & Cromarty LCT: Orrin LCA* on its eastern fringes would also be significantly affected. There would also be significant cumulative landscape effects on both LCTs above and a further significant combined cumulative effect on the *Forest Edge Farming LCT: Auchmore LCA* as a result of the existing Fairburn and Auchmore turbines with the proposed development.
- 6.328 None of the other surrounding LCTs would be significantly affected in terms of their landscape character, although there would be significant visual effects on the views from some of these areas.

Visual and Cumulative Visual Effects

- 6.329 The ZTV (calculated to blade tip) for the proposed development is limited, accounting for 24.15% of the total Study Area, reducing to 20.89% when considering hub height visibility. The viewpoint analysis indicates that significant visual effects are likely to affect limited locations within approximately 15km distance from the proposed development (subject to a clear view of the proposed turbines, landform and vegetation screening), as indicated by Viewpoints 1, 3, 4, 5, 8, 11, 12, 13, 15 and 17. Significant visual effects would be limited to views from the southwest, southeast, east and northeast of the proposed development. The greatest magnitude of change is visible at Viewpoint 4 (High-Medium magnitude) (all other viewpoints are assessed as Medium magnitude or less). There is no

High magnitude of change assessed at any viewpoint which is as a result of the surrounding low hills around the Site of the proposed development. The effects on all ten viewpoints (and an additional viewpoint 10) would also be cumulative. There would be no significant visual effects from the remaining 17 viewpoints as a result of the proposed development.

Effects on Views from Settlements and Residential Properties

- 6.330 There would be significant visual effects on two settlements within 15km including parts of Kiltarlity and Canon Bridge. There would also be significant visual effects from the western fringes of the dispersed communities between 2-4km to the southeast, mainly around Breakachy and Farley. There would be no significant effects from any other defined settlements within the Study Area.
- 6.331 There are no residential properties within 2km of the proposed turbines.

Effects on Views from Transport Routes

- 6.332 Significant effects would be limited to sections of the following transport routes:
- Up to approximately 3.8km of the 45km route of the A831 between Crelevan and Struy Bridge for northbound users;
 - Up to approximately 1.5km of the 203km route of the A832 (eastbound users) and 0.5km (westbound users) in intermittent open sections between Clash Wood and Arcanside – this section of the route is overlapped by the NC500 Tourist Route;
 - Up to approximately 1.6km of the 15km route of the A833 (northbound views) between Culmill and the Balgate junction to Kiltarlity;
 - Up to approximately 3.3km of the 107km route of the A835 (westbound users) intermittently between Brahan and Wester Moy;
 - Up to approximately 2km of the 16.7km route of the B9169 (westbound users) between Knocknafanaig and Highfield Park; and
 - Up to approximately 1km of the Far North (Inverness to Wick) Railway Line / Inverness to Kyle of Lochalsh Railway Line in glimpsed views and open views north of Riverford.
- 6.333 The A862 would also be significantly affected for approximately 0.6km of the route, however, this route overlaps with the NC500 Tourist Route.
- 6.334 None of the remaining transport routes would be significantly affected by the proposed development.

Receptors on Views from Recreational Routes

- 6.335 There would be significant visual effects from parts of the following recreational routes:
- Core Path RC30.01 Orrin Dam track (overlapped with Scottish Hill Track 283) - intermittently for 4.7km (Core Path RC30.01), and for an additional 5.5km above Loch Orrin (Scottish Hill Track 283);

- Core Paths south of Balblair – 0.5km on IN03.04: Lovat Bridge to Black Bridge and 0.5km on IN20.05 – East Lodge to West Lodge, Beaufort Castle;
- Core Paths around Kiltarlity – 1.1km on IN20.02: Belladrum Kennels to Belladrum Farm and 0.4km on IN20.09: Farm Walk to School;
- Core Paths around Conon Bridge and Maryburgh – the majority of RC09.02: Burnside Lane to Station Road and 0.3km on RC31.04 – Brahan North Lodge to Balnain;
- Core Paths around Contin – part of RC10.01: View Rock through open scrub and young forestry between Cul Mor and Tor Atchitty, reducing to non-significant levels as forestry matures over time. There would be no significant effects from the promoted viewpoint of View Rock;
- Core Paths around Strathpeffer – gaps in vegetation and Knock Ardaging from RC45.01: Loch Kinellan circuit, and eastern end of route from RC45.02: Knockfarrel;
- Scottish Hill Track 279: Muir of Ord to Struy (Strathglass);
- Heritage Path A: Old Road to Milton of Redcastle – 1.7km from Balvaird towards Spittal Woods;
- Moray Firth Tourist Route / NC 500 Tourist Route (also A862 / A832) – 0.6km along the A862 section between Achnagairn Bridge and West Croft and between north of Muir of Ord and approach to Marybank along the A832 section for 1.5km (eastbound views), and 0.5km (westbound views)) in intermittent open sections of the route between Clash Wood and Arcanside;
- Sustrans Cycle Route 1 (also A835) – 3.3km between west of Tore and approach to Conon Bridge; and
- Great Glen Way / Loch Ness 360 – 1km around Ladycairn.

6.336 There would be no significant visual effects on the views from any other recreational routes within the Study Area.

Effects on Views from Recreational and Tourist Destinations

6.337 There would be a significant effect on the following recreational and tourist destinations:

- The summit of Ord Hill (Cnoc Croit na Maoile);
- Heights of Brae Monument;
- Parts of three GDLs – Beaufort Castle, Belladrum Estate and Brahan; and
- Corbett summit of Beinn a'Bhathaich Ard.

6.338 None of the remaining tourist / visitor destinations would be significantly affected by the proposed development.

Night-time Assessment on Aviation Warning Lights

6.339 The Lighting Strategy for the proposed development requires six of the turbines to be lit (T2, T3, T7, T14, T17 and T20) all of which would be dimmed to 10% for approximately 94% of the time and represents the greatest level of mitigation currently available and approved by the CAA. In addition, angle intensity mitigation will be provided. This would benefit most

those receptors within low lying areas relative to the elevation of the lights, reducing the intensity to a low as <4-39 cd in some cases.

- 6.340 The night-time assessment concluded that there would be significant night-time effects on three LCTs including the 'host' Rugged Massif – Inverness LCT (220): North Rugged Massif LCA, Rounded Rocky Hills – Ross & Cromarty LCT (331): South of Strathconon LCA and Rugged Mountain Massif – Ross & Cromarty LCT (328): Orrin LCA. However, this will be dependent on weather conditions, distance and viewing angle, and if the key characteristics of the landscape would still be appreciated during periods of dusk and dawn and into darkness. There would be no significant night-time effects including cumulative effects on the remaining surrounding LCTs including those within the Glen Strathfarrar NSA and SLAs due to the intervening distance and the existence of other existing light sources. For similar reasons there would be no significant night-time effects on the Glen Strathfarrar NSA, Strathconnon, Monar and Mullardoch SLA and Ben Wyvis SLA (including their special qualities).
- 6.341 There would be no significant night-time effects on the views from any visual receptors. This is due to the levels of artificial light present in most of these locations and / or associated with the activity of travelling through the landscape, and the mitigating factors of viewing angle and distance on perceived light intensity such that the visual effects are unlikely to be significant. The existing light sources include the majority that are located in large parts of the settled landscape in the east / northeast / southeast including numerous settlements such as the City of Inverness (including Kessock Bridge), Muir of Ord, Beauly, Dingwall, Strathpeffer, Conon Bridge, Kiltarlity, Contin, Kirkhill and Drumnadrochit, and the telecommunication mast at Mount Eagle on the Black Isle. Other lights are also visible across scattered residential properties, lights from traffic along roads, particularly some of the major routes and occasional lights in the Moray Firth. Allowing for the additional mitigating effects of angle intensity mitigation, the visibility of the lights would reduce further when viewed from low lying receptors although this would not provide mitigation for elevated receptors for example hill walkers camping on summits.
- 6.342 Notably those low-lying receptors closest to the proposed development are likely to see limited views of the aviation warning lights as they tend to benefit from higher levels of landform and vegetation screening, reducing the number of visible lights at the proposed development. This includes receptors located to the east, north, northeast and southeast such as the closest settlements and dispersed communities, transport routes and recreational routes within approximately 10km. They are also most likely to receive further reduced effects due to angle intensity mitigation.
- 6.343 Receptors located slightly further afield to the northeast and east beyond 10km would be most influenced by higher levels of artificial light from settlement and the screening effects of buildings, landform and vegetation to varying degrees. These receptors are more distant from the proposed development beyond 10km including settlements, transport routes and recreational routes. Angle intensity mitigation would also play a part in reducing the magnitude of effects.
- 6.344 A final group of receptors include views from hill summits to the west, southwest, northwest, and north. Whilst hill walkers are unlikely to be present on the hills at night for practical and safety reasons, small, occasional numbers may camp on the hill slopes and summits and

view the night sky. They have been afforded high value (due to their locations within designated landscapes) and high-medium susceptibility balanced against the likelihood that people would camp in low numbers or may otherwise avoid the area due to the presence of peat hags for example. These receptors are least influenced by existing artificial lights in the vicinity but would view lights in the distance when viewed to the northeast and east in the direction of the proposed development. Additionally, some would not benefit from angle intensity mitigation or landform / vegetation screening and consequently are most likely to experience the greatest levels of effect as a result of the proposed development however these would be not significant.

- 6.345 During the summer months, most people, including hill walkers are unlikely to experience the aviation warning lights. For example, during the summer solstice 2025 the aviation warning lights would switch on at 22.50 and switch off at 03.48 in the morning. Local residents and local road users are more likely to experience the aviation warning lights during the winter months. For example, during the winter solstice 2025 the lights would come on at 16.04 and switch off at 08.28 in the morning. It is also reasonable to expect that most people would be commuting or indoors during these periods of colder weather, during the twilight and night, and would experience the aviation warning lights incidentally to their main activity.
- 6.346 Operation of the aviation warning lights would have no adverse effect on periods of sunrise (when the sun disk passes above the horizon and the period just after this) and sunset (the period just before the sun disk passes below the horizon) as the operation is programmed to switch off 30 mins before sunrise and switch on 30 mins after sunset, respectively.

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Ballach Wind Farm

Environmental Impact Assessment Report Volume 1 Chapter 7: Cultural Heritage

July 2025

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7 CULTURAL HERITAGE

Introduction

- 7.1 This chapter considers the potential effects of Ballach Wind Farm on Cultural Heritage. It should be read with reference to the Project Description in EIA Volume 1, Chapter 3.
- 7.2 Cultural heritage comprises a diverse range of elements that are referred to throughout the chapter as heritage assets. Heritage assets are features created or that have undergone modification from human activity. This includes a wide range of visible and buried archaeological sites and monuments, as well as other historical features or places. Heritage assets comprise World Heritage Sites, Scheduled Monuments, Listed Buildings, Gardens and Designed Landscapes (GDL), Inventory Battlefields, Conservation Areas, buried archaeological remains, other historical buildings, and earthworks.
- 7.3 This chapter is supported by the following figures as contained within Volume 2: Figures:
- Figure 7.1: Designated Heritage Assets and the Zone of Theoretical Visibility (ZTV)
 - Figure 7.2: Non-designated Heritage Assets
- 7.4 The chapter is supported by the following visualisations as contained within Volume 3: Visualisations:
- Visualisation 7.1 CHVP1 Wireline views from Brahan GDL (GDL00068; A12)
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- Visualisation 7.14 CHVP14 Wireline view from the highest point within Belladrum GDL (GDL00415; A59)

7.5 The chapter is supported by the following Technical Appendices (as set out within Volume 4: Technical Appendices):

- Appendix 7.1 Cultural Heritage Background and Gazetteer
- Appendix 7.2 Cultural Heritage Assessment

7.6 Other relevant chapters include Chapter 3: Project Description, Chapter 4: Design Evolution, and Chapter 6: Landscape and Visual.

7.7 The author of this chapter, Kristian Evans BA (Hons) MSc, is an experienced Cultural Heritage and Archaeology Consultant with over six years of relevant experience in the preparation of EIA reports for a range of developments.

Legislation, Policy and Guidance

Legislation

7.8 The following national legislation and guidance forms the background against which the assessment has been made:

- Scotland's National Planning Framework 4 (NPF4) (2023);
- Planning Advice Note (PAN) 2/2011: Planning and Archaeology;
- The Electricity Act 1989 – Section 36;
- The Historic Environment Scotland (HES) Act 2014;
- The Historic Environment Policy for Scotland (2019);
- Ancient Monuments and Archaeological Areas Act 1979; and
- Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997.

Policy

7.9 Chapter 5: Renewable Energy and Planning Policy of the EIA Report sets out the planning policy framework that is relevant to the EIA process and the proposed development. The policies set out include those from the Highland Council Highland-wide Local Development Plan (LDP) relevant aspects of NPF4 (National Planning Framework 4)(2023), Planning Advice Notes and other relevant guidance.

- Highland Council Highland-wide LDP (2012) – Policy 57 – Natural, Built and Cultural Heritage. This policy sets out the council's policy towards assessing development proposals based on their impact on heritage features.
- Highland Historic Environment Strategy (2013) – The purpose of the strategy is to define the Highland Council's approach to the protection of the historic environment through the planning process.
- Inner Moray Firth Local Development Plan 2 (2024) – sets out the council's view on how the plan area should develop over the next ten years and beyond.

Guidance

7.10 The following guidance has been applied to the assessment process:

- Environmental Impact Assessment Handbook (HES 2018);
- Designation Policy and Selection Guidance (HES 2020);
- Our Past, Our Future: The Strategy for Scotland's Historic Environment (HES 2023);
- Managing Change in the Historic Environment: Setting (HES 2016);
- Standard and guidance for historic environment desk-based assessment (ClfA 2020); and,
- Standards and guidance for commissioning work or providing consultancy advice on archaeology and the historic environment (ClfA 2020).

Consultation

7.11 As part of the Scoping Report, a consultation exercise was undertaken to inform the design of the proposed development and to seek agreement on potential significant environmental effects that result from the proposed development, as well as the scope of any assessment work required as part of this EIA.

7.12 The Scoping Opinion was received from the Highland Council on 12th November 2024.

7.13 Consultation relevant to the Cultural Heritage assessment was undertaken with the Highland Council and HES who commented on aspects of methodology, sources of information, scope of assessment and cumulative development. A summary of these consultation responses is provided in Table 7.1.

Table 7.1: Consultation Responses

Consultee	Date Received	Consultation Response	Where and how is this addressed?
HES	31 st October 2024	HES stated within their scoping response that the proposed development may have significant adverse impacts on Scheduled Monuments and GDLs due to the visibility of the proposed development from key views. HES also stated that based on the information provided the impact of the proposed development on five Scheduled Monuments may be significant enough to warrant objection. HES recommended that additional designated assets outside of the proposed 10km study area be included within the assessment due to the potential for them to experience significant	Consultation with HES was agreed with regards to the visualisations being produced to support the assessment. Currently photomontages and wirelines are being produced for nine designated heritage assets within the study area which may experience significant effects as a result of the proposed development. Additional assets outside of the 10km study area have been included within the assessment in line with the guidance from HES.

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		effects. HES recommended that visualisations be produced to aid the assessment and recommended that further consultation with HES be undertaken.	
The Highland Council	12 th November 2024	The Highland Council stated within their scoping response that the Environmental Impact Assessment Report (EIAR) needs to identify all designated sites which may be affected by the proposed development. The assessment should contain a full appreciation of the setting of historic environment assets and likely impact on their settings, which should be informed by appropriate visualisations.	The assessment has considered all designated heritage assets which may be impacted through desk-based study and the use of the ZTV. Appropriate visualisations will be produced to help inform on the likelihood for significant effects to occur on designated heritage assets potentially impacted.
The Highland Council	25 th March 2025	Within the PREMAJ the Highland Council reiterated the advice given by HES in their scoping response. The Highland Council also recommended a walkover survey be carried out to inform on the archaeological potential of the proposed development. The Highland Council advised that a Written Scheme of Investigation (WSI) may also be required alongside a Post Excavation Research Design (PERD) if any archaeological works reveal the need for post excavation analysis.	A walkover survey of easily accessible areas within the proposed development has been carried out in order to inform this assessment. Mitigation has also been recommended within the relevant section which includes a walkover of all turbine locations, a Written Scheme of Investigation (WSI) for archaeological monitoring, and inclusion of archaeological constraints within the Construction Environmental Management Plan (CEMP).
HES Historic Environment Scotland	2 nd July 2025	HES stated that after a site visit they were able to confirm that views from Dun Garbhlaich (SM2422) to the west are not a key part of the monument's setting. As such, visualisations from the monument towards the proposed development are no longer required. A wireline was requested from the approach to the monument from the southeast, taken as the monument becomes visible	A wireline has been produced from NH 48451 45470 just to the southeast of Dun Chliabhain looking towards Dun Garbhlaich. As requested, a wireline will be produced from the approach to Dun Garbhlaich looking towards the monument as it becomes visible.

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		when walking up the line of the An Leth-alt. HES also requested that the visibility of the development from Dun a Chliabhain looking towards Dun Garbhlaich is assessed by bare-earth wireline.	

Assessment Methodology and Significance

Scope of Assessment

7.14 The scope of the assessment is to:

- describe the assessment methodology and significance criteria used in the assessment;
- describe the cultural heritage baseline and identify heritage assets that have the potential to be impacted upon;
- assess the potential effects during construction and operation, including direct and cumulative effects;
- describe the mitigation and, where appropriate, monitoring measures proposed to address likely significant effects; and
- describe the residual effects remaining following the implementation of mitigation.

Effects Assessed in Full

7.15 The following effects were considered to be potentially significant in relation to Cultural Heritage at the scoping stage and have been assessed in full within this chapter:

- Potential significant effects via change within the setting of designated heritage assets during operation will be scoped in to the assessment.
- The direct physical impacts on non-designated heritage assets within the proposed development boundary discussed above, will be scoped in to the assessment.

Effects Scoped Out

7.16 As there are no designated heritage assets within the proposed development, and due to the temporary nature of construction impacts on changes within the setting of heritage assets, construction phase impacts on designated heritage assets will be scoped out of the assessment.

7.17 It is not anticipated that significant effects through change to setting on non-designated heritage assets will arise as a result of the proposed development during construction or operation.

- 7.18 It is not anticipated that there would be any indirect or secondary impacts from the construction or operation of the proposed development, therefore the assessment of indirect impacts on all heritage assets has been scoped out. All physical impacts and changes within the setting of heritage assets are assessed as direct impacts.
- 7.19 It is not anticipated that there would be any impacts during decommissioning of the proposed development as physical impacts to heritage assets within the proposed development boundary would already have been realised during construction.

Cumulative Effects

- 7.20 The following assessment has been undertaken in line with the methodology in Chapter 2: Cumulative Effects. Figure 6.12: Cumulative Wind Farms within 45km displays the locations of existing and proposed windfarms in relation to the proposed development. Those windfarms located beyond 10km from the proposed development have been scoped out of the cumulative assessment, as they will not share any receptors with the proposed development. Cumulative assessment has also been scoped out for heritage assets for whom the significance of effect as a result of the proposed development has been assessed as **Negligible Adverse** or less, as the cumulative effect would remain not significant. The assessment of developments scoped in to the assessment is provided in the cumulative effects section below.

Study Area

- 7.21 The proposed development boundary, as described within Chapter 3: Project Description, forms the basis for the identification of heritage assets that could receive direct physical impacts arising from the proposed development. The proposed development boundary and study area are depicted in Figure 7.1.
- 7.22 A study area of 10km for Scheduled Monuments, Category A Listed Buildings and Gardens and Designed Landscapes was applied to the proposed development to allow for consideration of potential impacts arising through changes within the setting of designated assets. This study area has been informed by HES responses to the Scoping Report and includes selected designated heritage assets that are outside of this defined 10 km study area, due to far-reaching views forming an important part of their cultural significance. Category B and C Listed Buildings were also considered within a 5km study area of the proposed development.
- 7.23 Known heritage assets within the proposed development and study area have informed the local archaeological and historical baseline context, with this information used to assess the potential for unknown archaeological remains to exist within the proposed development boundary.

Desk Based Study and Data Sources

- 7.24 This assessment has been informed by a review of all available archaeological records, historical documentary evidence, and photographic material. This has involved a consultation of the following sources:

- data on World Heritage Sites, Scheduled Monuments, Listed Buildings, Gardens and Designed Landscapes (GDL), Battlefields, Conservation Areas, and Marine Protected Areas obtained from HES;
- data on other heritage assets was obtained from the National Record of the Historic Environment (NRHE) which is maintained by HES;
- information from The Highland Council's Historic Environment Records (HER);
- readily accessible primary and secondary historical sources for information relating to the area's historical past, including past land use;
- pre-Ordnance Survey (OS) maps of the proposed development area, available online from the National Library of Scotland (NLS);
- first and subsequent editions of OS maps of the proposed development area, examined via the NLS; and
- LIDAR datasets of the general area through NLS.

Field Walkover Survey

7.25 A field survey, comprising visual inspection only, was conducted from the 2nd to 6th June 2025. The purpose of the field survey was to:

- Conduct a walkover of the proposed development in order to confirm the presence of known heritage assets and identify any previously unrecorded heritage assets;
- Visit designated heritage assets within the study area in order to complete a setting assessment.

The key findings from the walkover were as follows:

7.26 The Scheduled Monument Urchany Barrow (SM13523, A38) and surrounding settlement remains were assessed as part of the field walkover survey. These heritage assets are separated from the proposed development by tributaries of the Breakachy Burn. Views from the Scheduled Monument into the eastern part of the proposed development are unrestricted, with no intervening topography or vegetation. The steep topography within the proposed development, blocks views towards the western part of the site. The remains of post-medieval buildings and enclosures were noted surrounding the barrow.

7.27 From Fairburn House (LB14031), Fairburn Tower (LB14030, A19) within the Fairburn GDL (GDL00174, A15) there were no views to the south towards the proposed development as a result of intervening topography.

7.28 No previously unrecorded heritage assets were identified via visual inspection during the field walkover survey, although the western half of the proposed development could not be accessed due to safety concerns.

Assessment of Significance

Sensitivity

7.29 The determination of the cultural significance or value of heritage assets is based on statutory designation and / or professional judgement against the characteristics and

criteria expressed in HES Designation Policy and Selection Guidance and the Historic Environment Policy for Scotland (HES 2020). The criteria used for the determination are presented in Table 7.2.

Table 7.2: Value Criteria

Sensitivity	Definition and Examples
<i>Very High</i>	World Heritage Sites
<i>High</i>	Scheduled Monuments (including proposed sites). Listed Buildings (Category A and B). Battlefields included within the inventory. Inventory Gardens and Designed Landscapes. Conservation Areas containing nationally important buildings (Category A and B). Non-designated heritage assets of scheduled quality and importance, as specified within the local authority HER. Heritage assets of national importance
<i>Medium</i>	Listed Buildings (Category C). Conservation Areas containing buildings that contribute significantly to its historical character. Non-designated heritage assets of regional importance.
<i>Low</i>	Non-designated heritage assets of local importance. Heritage assets compromised by poor preservation and/or poor survival of contextual associations. Buildings of modest quality in their fabric or historical association.
<i>Negligible</i>	Heritage assets with very little or no surviving archaeological interest. Artefact find spots (where the artefacts are no longer in situ and where their provenance is uncertain). Poorly preserved examples of particular types of minor historic landscape features (e.g., quarries and gravel pits, dilapidated sheepfolds, etc).

Magnitude

- 7.30 The criteria for assessing the magnitude of impact from the proposed development is shown in Table 7.3.

Table 7.3: Criteria for assessing the magnitude of impact on heritage assets

Magnitude	Adverse Criteria	Beneficial Criteria
<i>Major</i>	Loss of most or all key archaeological materials or key historic building elements such that the cultural significance of the heritage asset is totally altered. Comprehensive changes within the setting of a heritage asset such as extreme visual effects, gross change of noise or change to sound quality, or fundamental changes to use or access.	Preservation of a heritage asset in situ where it would otherwise be completely or almost lost. Changes that appreciably enhance the cultural significance of a heritage asset and how it is understood, appreciated, and experienced.

Magnitude	Adverse Criteria	Beneficial Criteria
<i>Moderate</i>	Changes to many key archaeological materials or key historic building elements, such that the cultural significance of the heritage asset is clearly modified. Considerable changes within the setting that affect the character of the heritage asset such as visual change to many key aspects or views, noticeable differences in noise or sound quality, or considerable changes to use or access.	Changes to important elements of a heritage asset's fabric or setting, resulting in its cultural significance being preserved (where this would otherwise be lost) or restored. Changes that improve the way in which the heritage asset is understood, appreciated, and experienced.
<i>Minor</i>	Changes to key archaeological materials or key historic building elements, such that the cultural significance of the heritage asset is slightly altered. Slight changes within the setting such as slight visual changes to few key aspects or views, limited changes to noise levels or sound quality, or slight changes to use or access.	Changes that result in elements of a heritage asset's fabric or setting detracting from its cultural significance being removed. Changes that result in a slight improvement in the way a heritage asset is understood, appreciated, and experienced.
<i>Negligible</i>	Changes to archaeological materials or historic building elements such that alterations to the cultural significance of the heritage asset are very minor. Very minor changes within the setting such as virtually unchanged visual effects, very slight changes in noise levels or sound quality, or very slight changes to use or access.	Very minor changes that result in elements of a heritage asset's fabric or setting detracting from its cultural significance being removed. Very minor changes that result in a slight improvement in the way a heritage asset is understood, appreciated, and experienced.
<i>No change</i>	Changes to fabric or within the setting that leave cultural significance unchanged.	

Significance of Effect

- 7.31 The significance of effect is determined as a combination of the cultural significance of the heritage assets and the magnitude of impact from the proposed development. The terms shown in Table 7.4 Significance of Effect Matrix have been used to define the significance of the effects identified and apply to both beneficial and adverse effects. Where two options are provided, the assessment will indicate justification for choosing one level of effect over another.
- 7.32 For the purpose of this assessment, significance of effects of Moderate or greater are potentially significant in the context of the EIA Regulations and are highlighted in bold in Table 7.4.

Table 7.4: Significance of Effect Matrix

Magnitude	Sensitivity				
	Very High	High	Medium	Low	Negligible

Major	Very Large	Large or Very Large	Moderate or Large	Moderate or slight	Slight
Moderate	Large or Very Large	Moderate or Large	Moderate	Slight	Neutral or Slight
Minor	Moderate or Large	Moderate or Slight	Slight	Neutral or Slight	Neutral or Slight
Negligible	Slight	Slight	Neutral or Slight	Neutral or Slight	Neutral
No change	Neutral	Neutral	Neutral	Neutral	Neutral

Assumptions and Limitations

- 7.33 The desk-based data on which this assessment has been based was extensive but not exhaustive, thus there remains the possibility that there may be heritage assets that have not been identified. The information obtained from data sources listed above were checked in June 2025 and are accurate and up to date at the time of assessment.
- 7.34 Due to the extensive areas covered by the proposed development, walkover surveys (visual inspections) conducted in June 2025 were targeted to areas of higher potential for visible archaeological remains that may not have been previously recorded. Areas that were not covered by the walkover surveys may contain previously undiscovered heritage assets, which may be visible as above ground archaeological remains, or may be sub-surface.
- 7.35 Throughout the assessment, the term “woodland” is used to describe areas of mature woodland that form part of the natural landscape and are not part of a commercial plantation for use as timber. The term forestry is used where there is a commercial interest, and the trees could be removed as part of this commercial operation. The assessment has been undertaken with the assumption that trees within forestry will be removed throughout the lifetime of the proposed development and would not provide screening of any visual impacts arising from it.

Baseline Conditions

- 7.36 The detailed archaeological and historical background related to the proposed development and study area, along with descriptions of the heritage assets that form the baseline for the cultural heritage assessment is provided in Appendix 7.1: Cultural Heritage Background and Gazetteer. The locations referred to are shown in Figure 7.1 Designated Heritage Assets and ZTV, and Figure 7.2 Non-designated Heritage Assets within the proposed development.
- 7.37 Each entry in the gazetteer has a heritage asset (A) reference number which is used to identify it within the assessment and on the figures. The heritage assets also have a unique identifying number provided by HES and / or The Highland Council HER.

Baseline Summary

Designated heritage assets within the study area and wider landscape

- 7.38 There are 59 designated heritage assets included within the baseline of this assessment. (See appendix 12.1: Background and Gazetteer for full list). Scheduled Monuments, Category A Listed Buildings and Gardens and Designed Landscapes have been considered within a 10km Study Area of the turbine locations. In Consultation with HES additional assets were also considered that lie outside of the 10km study area. These consist of 42 Scheduled Monuments, five Gardens and Designed Landscapes (GDLs) and five Category A Listed Buildings. Category B and C Listed Buildings were considered within a 5km study area around the turbine locations. There are four Category B Listed Buildings and three Category C Listed Buildings within the 5km study area.
- 7.39 None of the designated heritage assets are located within the proposed development.

Heritage assets within the proposed development

- 7.40 There are 12 non-designed heritage assets within the proposed development, primarily cairns and shieling huts or mounds (see Appendix 7.1: Background and Gazetteer for full list). No non-designated heritage assets are located within the construction footprint of the turbine locations and associated infrastructure or within the footprint of access tracks.

Archaeological Potential

- 7.41 The archaeological potential across all periods is low to negligible within the proposed development. Whilst the study area contains notable prehistoric and medieval heritage assets, the proposed development lacks evidence of heritage assets from these periods. The steep, boggy terrain with poor drainage likely meant that the area was unsuitable for permanent settlement or intensive land use. The only known heritage assets within the proposed development are of post-medieval origin, comprising shieling huts, stone field boundaries or simple shelters. Any previously unrecorded archaeological remains that may survive within the proposed development are likely to be of low to negligible archaeological value and related to agricultural use.

Identification and Evaluation of Key Effects

Construction Effects

- 7.42 All ground breaking activities associated within the construction of the proposed development have the potential to directly impact upon heritage assets. Such activities include but are not limited to groundworks, rock breaking, topsoil stripping, ground compaction, access drainage, stockpiling, and storage.
- 7.43 Construction related activities could lead to the following impacts to heritage assets:
- Complete or partial loss of a heritage asset as a result of ground excavation;
 - Damage to a heritage asset as a result of ground excavation;
 - Damage to a heritage asset due to compaction; and,

- Damage to a heritage asset as a result of ground vibration caused by construction.

- 7.44 Impacts arising from changes within the setting of designated or non-designated heritage assets during construction have been scoped out of this assessment as any changes to setting would be temporary.
- 7.45 For the purpose of this assessment, it is assumed that heritage assets outside the construction footprint of the proposed development would not be physically impacted.
- 7.46 The design of the proposed development has considered the locations of known heritage assets, and as such there are no recorded, non-designated heritage assets within the construction footprint of the proposed development. The closest known resource is a possible shieling (A64) which is 75m from the access route. As such the magnitude of impact would be No Change on the 12 non-designated heritage assets within the proposed development boundary (A60, A61, A62, A63, A64, A65, A66, A67, A68, A69, A70, A71), resulting in a **Neutral** significance of effect.
- 7.47 From the assessment of archaeological potential, it has been assumed that any previously unknown buried archaeological remains within the construction footprint and access tracks would probably be of Low to negligible archaeological value. The construction of the Proposed Development would remove all traces of any archaeological remains discovered and would be a magnitude of impact of Major Adverse. The resulting significance of effect on potential archaeological remains has been assessed as **Slight Adverse**, prior to mitigation. A significance of effect of slight has been assessed as the archaeological value has been assessed as low/negligible.

Operational Effects

- 7.48 Any potential impacts to cultural heritage assets during the operation of the proposed development would relate to changes within the setting due to the addition of modern infrastructure within the existing landscape. As part of the assessment of potential impacts, the designated heritage assets are shown alongside a bare earth Zone of Theoretical Visibility (ZTV) on Figure 7.1: Designated Heritage Assets and ZTV. The ZTV displays theoretical visibility from each proposed turbine, and was used in the initial assessment to determine the potential for significant effects.
- 7.49 A full assessment of the designated heritage assets within the baseline, and the resulting significance of effects of the potential impacts, has been detailed within Appendix 7.2: Cultural Heritage Assessment.

Summary of Operational Impacts

- 7.50 Simple assessments have been carried out for 49 heritage assets, consisting of 33 Scheduled Monuments, 12 Listed Buildings, and four GDLs, where there was low potential for significant effects as a lack of impacts are expected due to one of the following reasons:
- No visibility of the proposed development according to the ZTV;

- Wide landscape views from the heritage asset not contributing to the cultural significance of the heritage asset;
- The area containing the proposed development not forming a key element of the setting of the heritage asset; and
- Views of the proposed development not being possible due to intervening screening such as woodland or buildings etc.

7.51 The simple assessments on 25 Scheduled Monuments, five Category A Listed Building, four Category B Listed Buildings, three Category C Listed Buildings and four GDLs resulted in Neutral significance of effects due to No Change to the cultural significance of the heritage assets. Simple assessments of eight Scheduled Monuments resulted in Slight Adverse significance of effects due to Negligible Adverse impacts through very minor changes within the setting of the heritage assets.

7.52 Detailed assessments were undertaken for the remaining heritage assets where there was a medium to high potential for significant effects. These were determined following an initial assessment, or as a recommendation from HES. The detailed assessments are provided within Appendix 7.2: Cultural Heritage Assessment, where the significance of effect was deemed not significant according to the methodology (Slight Adverse or below). However, due to the nuances within the methodology provided, a Minor Adverse magnitude of impact, on a heritage asset of High cultural significance, has the potential to lead to a significant (i.e., Moderate) effect, and so are detailed within the Chapter with justification provided for the effect level.

Detailed Assessment

7.53 The assessments below relate to heritage assets of High cultural significance that are assessed as having a magnitude of impact of Minor Adverse or above. The designated heritage assets subject to detailed assessment are listed in Table 7.5.

Table 7.5: Designated heritage assets subject to detailed assessment

Designated Heritage Asset Name and Reference	
Urchany, barrow 595, SW of (SM13523, A38)	Dun Garbhlaich, fort, Kilmorack (SM2422, A35)
Dun a Chliabhain, fort (SM2424, A37)	Dun Fhamhair, fort (SM5212, A34)
Dun Mor, fort (SM4979, A39)	Brahan (GDL00068, A12)

Urchany, barrow 595, SW of (SM13523, A38)

7.54 This Scheduled Monument comprises a prehistoric burial mound probably dating to the 2nd millennium BCE. The monument appears to be a bowl barrow within an external ditch and bank, a rare form of burial monument in Scotland. The barrow survives as a prominent, circular, grass-covered mound, built mainly of earth but with some stone visible in its sides. The central mound, which probably contains one or more burials, is approximately 9m in diameter and stands 1.5m high. It is surrounded by a ditch, approximately 3m wide, and an external bank approximately 3.5m wide and standing up to 0.9m high. The monument

is situated on a large glacial drumlin at the head of a glen, at around 220m above sea level, with extensive views to the southwest, southeast, and northeast.

- 7.55 The monument is of national importance due to its potential to make a significant addition to our understanding of the design and construction of burial monuments, the nature of burial practices, and their significance in Bronze Age and later society. The Urchany barrow is of particular importance as it appears to be a well preserved, rare type of burial monument more commonly associated with the ritual and funerary landscapes in Wessex. The setting of the barrow is an important element in its cultural significance, and the key aspects relate to its close association to nearby stones containing Neolithic rock art, as well as its relationship with the post-medieval township that surrounded it, but respected the barrows footprint. Local, key views would be down the valley, and following the small burn to the southwest, as well as views towards the other non-designated heritage assets in close proximity. The views towards the barrow from the other prehistoric heritage assets would be a potential key element. Wider landscape views would be possible to the east, and there may be intervisibility between the barrow and Dun Mor, fort (SM4979, A40) in this direction as well, suggesting reciprocal views may also be important.
- 7.56 The proposed development boundary would be c.150m to the northwest of the barrow, with the closest turbine being located 600m to the northwest. The ZTV indicates that 11 to 15 turbines would, theoretically, have partial visibility from the monument. The nearest turbine would be partly screened by the rise in topography between the monument and the turbine. Views towards the monument from the south would include the proposed development in the background (rather than any foreground obstruction or alteration). The extensive views from the monument looking southwest, southeast and northeast, would therefore, not be obstructed by the proposed development.
- 7.57 A photomontage has been produced (Visualisation 7.8) from the barrow showing views looking towards the proposed development. The visualisations show that eleven turbines would be visible from the barrow, with visibility restricted to the blade tips of four turbines and views towards four other turbines partially blocked by intervening topography. From the barrow looking towards the proposed development, the turbines are dominant in these views to the north and northwest. A photomontage has also been produced from the nearby stones featuring Neolithic rock art (Visualisation 7.9). This photomontage shows that views looking towards Urchany Barrow include ten turbines in the background, though the intervisibility between these two assets is not interrupted.
- 7.58 The magnitude of impact during operation has been assessed as Minor Adverse. The cultural significance of the monument is primarily derived from its intrinsic characteristics, contributing to our understanding of burial monuments. The proposed development would not impact on this intrinsic characteristic. There would be changes to the setting of the monument as a result of the proposed development, but this is primarily in the periphery of a few key views on approach from the south and in the background of views from nearby stones featuring Neolithic rock art. These changes would not impact on the key views looking southwest southeast and northeast from the asset. As a heritage asset of High cultural significance, the resulting significance of effect would be **Slight Adverse** (not significant). The significance of effect has been determined as not significant as the proposed development would not impact on how the barrow is understood, experienced and appreciated, with the proposed development only visible in the periphery when

looking towards the barrow from the south, and in the background when looking at views from nearby stones featuring Neolithic rock art.

Dun Garbhlaich, fort, Kilmorack (SM2422, A35)

- 7.59 This Scheduled Monument comprises a D-shaped fort, probably dating to the Iron Age. It is situated on the rocky summit overlooking the east end of Strathglass. The interior of the fort features a jagged rock outcrop and a large, but ruinous, stone-lined well. It is one of a group of four duns (Dun Mor, fort (SM4979, A39); Dun Garbhlaich, fort (SM2422, A35); Dun a Chliabhain, fort (SM2424, A37); Dun Fhamhair, fort (SM5212, A34) which appear to be placed to dominate the passage from the south into the northern Straths.
- 7.60 No description of the fort, or statement of significance is provided within the listing, but the monument is of national importance due to its potential to make a significant contribution to our understanding of the design and construction of prehistoric defensive monuments. The setting of the fort is an important element of its cultural significance, and in particular the potential views the fort has with other forts in the area that may be contemporary. The monument's position on rising ground to the north and west with commanding views to the south and east suggests that the key visual relationship for the monument is with the coast. The presence of an entrance in the southern arc of the substantial drystone wall, suggest that approaches to the site were from this direction. Reciprocal views between this and other forts, as well as contemporary settlement, are also likely to have been equally important in demonstrating the status and control of the fort's occupants.
- 7.61 The proposed development would be c.600m to the west of the Scheduled Monument, with the closest turbine located 1.6km to the west of the Scheduled Monument. The ZTV indicates that 11 to 15 turbines would be visible from the monument. Views towards the monument from the east, would include views of the proposed development in the background of the monument. The photomontage and wireline (Visualisation 7.6) indicates that Dun Garbhlaich is not visible from Dun Chliabhain (SM2424, A37), due to a crest of land that sits between the two forts.
- 7.62 The magnitude of impact during operation has been assessed as Minor Adverse due to slight changes within the setting of the fort. The introduction of the proposed development into the landscape would introduce modern structures into the setting of the monument. However, the proposed development would not interrupt or change any key views the monument has looking south or eastwards towards the coast. The presence of the entrance in the south suggests that the key approach to the monument was from this direction, and the proposed development would only be in peripheral views to the west from this approach. There would be slight changes to key views with closely associated monuments Dun Mor, fort (SM4979, A39); and Dun Fhamhair, fort (SM5212, A34) with the proposed development appearing in peripheral views rather than directly behind. As a heritage asset of High cultural significance, the resulting significance of effect would be **Slight Adverse** (not significant). The significance of effect has been determined as not significant as the proposed development would not impact on how the fort is understood, experienced, and appreciated.

Dun a Chliabhain, fort (SM2424, A37)

- 7.63 This Scheduled Monument comprises a sub-oval fort, probably dating to the Iron Age, situated on the southwest extremity of a rocky ridge with steep flanks on the northwest, southeast and southwest sides, but with a gradual approach from the northeast. An entrance is discernible in the east arc of the thick stone wall. The monument is one of a group of four duns (Dun Mor, fort (SM4979, A39); Dun Garbhlaich, fort (SM2422, A35); Dun a Chliabhain, fort (SM2424, A37); Dun Fhamhair, fort (SM5212, A34)) which appear to be placed to dominate the passage from the south into the northern Straths.
- 7.64 An extensive area of broadly contemporary settlement is located to the southeast of the fort comprising a cairnfield, field systems, at least one hut circle and a burial cairn (NRHE ID: 12359). It is likely that the fort has a direct relationship with this asset grouping. A relatively flat area lies to the northwest of the monument until the ground slopes steeply forming a rise on which Dun Garbhlaich (SM2422, A35) is situated. This slope forms a narrow pass with Torr Breac leading northeast toward Gleann Goibhre. The fort was likely situated partly to dominate and control movement from south to north through this natural routeway.
- 7.65 No description of the fort, or statement of significance is provided within the listing, but the monument is of national importance due to its potential to make a significant contribution to our understanding of the design and construction of prehistoric defensive monuments. The setting of the fort is an important element of its cultural significance, and in particular the potential views the fort has with other forts in the area that may be contemporary. The monument has views over the sloping grounds to the south, and it is likely that these key views relate to the function of the fort. The presence of the nearby settlement is key to the setting of the monument, and the interrelating views are important to our understanding of the relationship between these potential contemporary heritage assets.
- 7.66 The proposed development sits approximately 1.9km to the west of the Scheduled Monument, with the closest turbine located 2.7km to the west of the Scheduled Monument. The ZTV indicates that 11-15 turbines would be visible from the monument, but due to a rise in elevation between the monument and the proposed development, views of the turbine bases are partially obstructed. The wireline (Visualisation 7.6) produced from the fort that has shown that fourteen turbines are visible from the monument. Only the blade tips of 5 turbines are visible from the monument, and six turbines are partially obstructed by intervening topography. A photomontage has also been produced, which shows that currently much of the development is obstructed by commercial forestry. Views towards Dun Garbhlaich in the direction of the proposed development are obstructed due to a rise in elevation between the two forts, such that there is no intervisibility between the two.
- 7.67 A photomontage (Visualisation 7.7) has also been produced from the Cnoc na Moine burial Cairn (NHRE ID: 12359) looking towards Dun Chliabhain. From the burial cairn, the proposed development sits to the rear of Dun Chliabhain, with the blade tips of seven turbines visible and one turbine being partially visible. Views between these assets are not interrupted. The photomontage shows that currently views of the development are screened by commercial forestry.

- 7.68 The existing Fairburn and Auchmore windfarms are visible from the fort, in the same direction as the proposed development, that would increase the angle of view from the fort where turbines are visible. Views towards the fort from the settlement would include the proposed development in the background, and to the west, with the fort itself obstructing views from the prehistoric settlement and cairn (NHRE ID: 12359).
- 7.69 The magnitude of impact during operation has been assessed as Minor Adverse due to slight changes within the setting of the fort. The introduction of the proposed development in the landscape would introduce modern structures into the setting of the monument, but this would be in the directions that are not key aspects. It would not impact on any key views that the monument has looking south, looking towards other forts in the area to the east and southwest, or with the nearby prehistoric settlement. The proposed development would sit in views to the rear of the key view from Cnoc Na Moine burial cairn towards the monument but is partially obscured due to the topography and is in the distant background. As a heritage asset of high cultural significance, the significance of effect would be **Slight Adverse** (not significant). The significance of effect has been determined as not significant as the proposed development would not impact on how the fort is understood, experienced, and appreciated.

Dun Mor, fort (SM4979, A39)

- 7.70 The monument is a large sub-oval fort, probably dating to the Iron Age (c. 800BC-AD400), comprising an inner wall and two outer walls. It is situated in a commanding position with a steep ascent on the west, south and east sides and a precipitous drop on the north to the Breakachy Burn. It is one of a group of four duns (Dun Mor, fort (SM4979, A39); Dun Garbhlaich, fort (SM2422, A35); Dun a Chliabhain, fort (SM2424, A37); Dun Fhamhair, fort (SM5212, A35)) which appear to be placed to dominate the passage from the south into the northern Straths. While enjoying extensive views of, and being highly visible from, the fertile lands around Kiltarlity and Strathglass to the south, the fort appears to have been positioned to dominate and control north-south movement through the valley of the Breakachy burn. Directly to the north there is a non-designated extensive settlement likely to be contemporary with the fort.
- 7.71 The fort is of national importance as a well-preserved example of a prehistoric fort and is of particular interest because of the existence of additional outer defences on the most accessible sides. It has the potential to enhance considerably our understanding of prehistoric settlement and defensive structures. The setting of the fort is an important element of its cultural significance. The key views that the monument has with other forts in close proximity are key aspects to our understanding of the relationship between these forts and how they exerted control over the local landscape. The key views are southwards and to the north where the fort has extensive views along the valley of the Breakachy Burn. The fort's entrance is in the southeast, and it is likely that the historical approach to the monument would be from the east or southeast. Views towards the monument from this approach would be a key aspect of the monument. Key views across the nearby settlement are also an important aspect of the fort's setting. Reciprocal views between this and other forts, as well as contemporary settlement, are also likely to have been equally important in demonstrating the status and control of the fort's occupants.

7.72 The proposed development sits approximately 1.5km to the northwest of the fort, with the closest turbine being approximately 1.8km to the northwest. The ZTV indicates that between 6 to 15 turbines would be theoretically visible from the monument. The existing Fairburn and Auchmore windfarms are already visible from the fort looking in the direction of the proposed development, but it would increase the angle of view from the fort, where turbines are visible. The visualisations show that fifteen turbines would be visible from the fort. Three turbines only have visibility towards their blade tips, and eight are partially obscured by intervening topography.

7.73 The magnitude of impact has been assessed as Minor Adverse due to slight changes within the setting of the fort. The operation of the proposed development in the landscape would introduce modern structures into the setting of the monument. However, the proposed development would not interrupt any key views the monument has with the nearby settlement, other forts in close vicinity, or reduce our ability to understand the position the monument held in the landscape. Key views also extend primarily south and north and would not be changed by the proposed development. On the historical approach to the fort from the east, the proposed development would only be present in the background. As a heritage asset of high cultural significance, the significance of effect would be **Slight Adverse** (not significant). The significance of effect has been determined as not significant as the proposed development would not impact on how the monument is understood, experienced and appreciated.

Dun Fhamhair, fort (SM5212, A34)

7.74 The Scheduled Monument comprises an oval fort dating to the Iron Age comprising a thick stone wall, enclosed by a modern dyke. A further rampart and ditch are situated to the northeast. A central causeway through the rampart lends weight to interpretations that the site was approached from the east.

7.75 The monument is of national importance as a well-preserved example of a stone walled Iron Age fortification. It is of particular interest because of the existence of an outer defence work. The monument has the potential to considerably enhance our understanding of prehistoric defensive structures and settlement activity. The setting of the fort is an important element of its cultural significance. The fort is one of a group of four duns (Dun Mor, fort (SM4979, A40); Dun Garbhlaich, fort (SM2422, A36); Dun a Chliabhain, fort (SM2424, A38); Dun Fhamhair, fort (SM5212, A35)) which appear to be placed to dominate the passage from the south into the northern Straths. Any potential views between these forts are a key aspect of its setting. Dun Fhamhair, has by far the most extensive views of the group toward the Beaully Firth, with key aspects related to views in all directions, with the Beaully Firth and Tarradale directly to the east and Gleann Goibhre and Strathglass to the west. Its potential visibility in views from throughout its surroundings would be of equal importance, although it is currently surrounded by commercial forestry. The monument was likely approached from the east and views from this direction looking west towards the monument are a key view.

7.76 The proposed development is located approximately 2.3km to the west of monument, with the closest turbine being 3.3km to the west of the monument. The ZTV indicates that between 16 to 20 turbines would be theoretically visible from the monument, with the wireline confirming that 16 turbines would be visible from the monument, with only the hubs

of eight turbines being visible, and the remaining only having partial visibility of blades beyond the crest of the hill. The Fairburn wind farm is visible in more distant views to the north of the proposed development. The proposed development would not interrupt any key views the monument has with the nearby settlement, other Duns in close vicinity, or reduce our ability to understand the position the monument held in the landscape. Reciprocal views from Dun Mor, fort (SM4979, A39); Dun Garbhlaich, fort (SM2422, A35); and Dun a Chliabhain, fort (SM2424, A37) looking east towards the monument would also not change. Views towards the monument from the east, which may include the historical approach, would include views of the proposed development in the background.

- 7.77 The magnitude of impact has been assessed as Minor Adverse due to slight changes within the setting of the fort, primarily being in the background of key views approaching the monument from the east. As a heritage asset of high cultural significance, the significance of effect would be **Slight Adverse** (not significant). The significance of effect has been determined as not significant as the proposed development would not impact on how the fort is understood, experienced and appreciated.

Brahan (GDL00068, A12)

- 7.78 Brahan is a 17th century designed landscape with 18th and 19th century improvements. The designed landscape hosts a superb collection of specimen trees. The designed landscape has a long association with the Earls of Seaforth and comprises of parkland, woodland and gardens. The designed landscape makes a distinctive contribution to the scenic quality of the locality. Brahan lies on the south-facing slope of Brahan Hill between the small town of Maryburgh and Moy Bridge. The park is bordered to the south by the Conon River and to the north by the A835. The setting of the designed landscape is primarily agricultural, with the surrounding landscape in the valley being mainly farmed. To the east the town of Maryburgh is beginning to encroach into the park. The wider setting of the GDL comprises of upland scenery to the north, west and south. The open landscape allows undisturbed views to the east to the Black Isle, south across to the Aird and west along the Conon River to Strathconon, which form the key views looking outwards from Brahan. There are views towards Fairburn Tower (LB14030, A19) from Brahan and the reciprocal views between these heritage assets are an important element of the setting.
- 7.79 The proposed development sits 7.3km to the southwest of the GDL, with the nearest turbine being 8.3km to the southwest. The ZTV indicates that between 16 to 20 turbines would be theoretically visible from within the GDL, though this varies across the extent of the GDL. A wireline has been produced from the gardens south of the stables (NGR: NH 51 138 54638). The wireline shows 16 turbines would be visible from this location within Brahan, with the hubs of nine being visible and the other seven mainly obscured by the crest of the hill. The existing Fairburn and Auchmore windfarms are also visible in this direction. The proposed development sits in the wider setting of the GDL, beyond the more localised setting of the valley in which it sits. From many locations within the GDL there would be no views of the turbines due to intervening woodland, most notably a long strip of woodland along the southwest edge of the GDL along the river Conon. Key views from Brahan are focused to the east to the Black Isle, south to the Aird and west to Strathconon. The proposed development would only be in the peripheral of these views, and the distance from Brahan also diminishes the impact on the setting, with the turbines only being visible in the longest

ranging of views. Similarly the proposed development would only be in the background of views from Brahan towards Fairburn, and would not block any reciprocal views.

- 7.80 The magnitude of impact has been assessed as Minor Adverse due to slight changes within the setting of the GDL, appearing in background views between Brahan and Fairburn. As a heritage asset of high cultural significance, the significance of effect would be **Slight Adverse** (not significant). The significance of effect has been determined as not significant as the proposed development would not impact on how Brahan is understood, experienced and appreciated.

Mitigation Measures and Monitoring

Construction

- 7.81 Embedded mitigation measures throughout the design process, have been carried out to avoid impacts on heritage assets. This has included consideration of turbine sitings and construction works to avoid areas of known heritage assets, and siting of turbines to avoid impacts through changes within the setting of designated heritage assets. The alignment of the access tracks is restricted by the topography at the proposed development. Avoidance of impacts on heritage assets has been considered as a primary response to potential impacts, in line with the policies contained within NPF4 and the requirements of Highland Council, where preservation in situ is the preferred response, and preservation by record the secondary response where heritage assets cannot be avoided.
- 7.82 No direct impacts on any known heritage assets would occur as a result of the construction of the proposed development. However, it is considered appropriate to recommend measures to mitigate against the potential for impacts on otherwise unknown heritage assets, including subsurface archaeology, that may survive within the proposed development boundary.

Walkover of tower compounds and access tracks

- 7.83 A supplementary archaeological walkover targeted to all turbine locations and access tracks is required prior to construction. This will identify if there are any unrecorded upstanding remains that would have direct physical impacts to them from the construction phase of the proposed development. Should any upstanding remains be identified, they will be preserved by record through an earthwork survey and archaeological investigations where required.

Archaeological monitoring of main access

- 7.84 Construction of the main access track from the A831 until it reaches the higher and steeper ground of Beinn a' Chlaonaidh will be subject to targeted archaeological monitoring and recording during groundworks to preserve any archaeological remains by record. No assets are recorded within the route of this access track, but there is higher potential due to the presence of heritage assets within the lower lying ground around the Urchany Barrow (SM13523, A38), where a post-medieval township (MHG23302, A69) is recorded. The archaeological monitoring and recording methodology will be set out in an Archaeological Project Design to be agreed with Highland Council Historic Environment

Team (HCHET) and will follow the standards and guidance from the Chartered Institute for Archaeologists (CIfA 2023). Should the archaeological remains prove to be more extensive and complex, this may require a programme of open area excavation, to be determined by HCHET. Should this be required, groundworks related to construction will temporarily cease in this area to allow for open area excavation and recording following the methodology of the approved Archaeological Project Design.

Demarcation and avoidance of known heritage assets within the proposed development

- 7.85 There are non-designated heritage assets within the proposed development which are outside of the construction footprint and access tracks. These should not be directly physically impacted during the construction phase of the proposed development. The presence of these heritage assets should be included in the CEMP and communicated to all members of staff on site during the construction phase of the proposed development. If as a result of changes to the proposed design, construction works or access is required within 20m of these heritage assets, then they should be demarcated by an archaeological contractor to make it clear they should be avoided. Demarcation will take the form of visible barriers or fencing placed 5m from the edge of the heritage assets. The methodology and details of demarcation required will be set out within the Archaeological Project Design for the archaeological monitoring, to be agreed with HCHET.

Operation

- 7.86 No significant effects have been reported on designated heritage assets within the study area as a result of the proposed development. Therefore, no mitigation measures are recommended.

Decommissioning

- 7.87 No mitigation for decommissioning is recommended as any impacts to heritage assets would already have been mitigated during construction.

Cumulative Effects

- 7.88 Cumulative effects have been assessed as a result of other proposed windfarms within 10km of the proposed development, as these have the potential for having shared receptors with the proposed development. An assessment of cumulative effects has been carried out on heritage assets for which an impact of minor adverse or worse has been identified in the assessment provided above. Other proposed windfarms that have been assessed for potential cumulative impacts are the proposed Fairburn Extension (ECU00004542), Tarvie extension (ECU00005126) and Carn Coire na Muic (24/05013/FUL).
- 7.89 The impacts from the proposed development on Urchany Barrow (SM13523, A38) have been assessed as Minor Adverse. Any views that the monument might have to the proposed Fairburn Extension would be to the rear of the proposed development, and so in-combination, the impacts would not increase as the impacts would be within the same view. There are no views to the Tarvie extension from this monument. Only one turbine is

proposed for the Carn Coire na Muic, and this is sufficiently distant to not result in any in-combination impacts. The cumulative significance of effect would be **Slight Adverse** (not significant).

- 7.90 The impacts from the proposed development on Dun Garbhlaich fort (SM2422, A35) have been assessed as Minor Adverse. Views towards the Fairburn extension would be in the same direction as the proposed development, so in combination, the impacts would not increase as the same views would be impacted further. There are no cumulative impacts from Tarvie extension or Carn Coire na Muic due to the distance of these developments from the monument. The cumulative significance of effect would be **Slight Adverse** (not significant).
- 7.91 The impacts from the proposed development on Dun a Chliabhain fort (SM2424, A37) have been assessed as Minor Adverse. Views towards the Fairburn extension would be in the same direction as the proposed development, so in combination, the impacts would not increase as the same views would be impacted. There are no cumulative impacts from Tarvie extension or Carn Coire na Muic due to the distance of these developments from the monument. The significance of effect would be **Slight Adverse** (not significant).
- 7.92 The impacts from the proposed development on Dun Mor, fort (SM4979, A39) have been assessed as Minor Adverse. Any views that the monument might have to the proposed Fairburn Extension would be to the rear of the proposed development, and so in combination, the impacts would not increase as the impacts would be within the same view. There are no views to the Tarvie extension from this monument and the Carn Coire na Muic is sufficiently distant for there to be no cumulative impacts. The cumulative significance of effect would be **Slight Adverse** (not significant).
- 7.93 The impacts from the proposed development on Dun Fhamhair (SM5212, A34) have been assessed as Minor Adverse. The wireline shows that the Fairburn Extension would be visible in the same direction as the proposed development, but the turbines are mostly obscured from view, only being visible from blade height. In combination, the level of impact would not increase as the view would be impacted to the same level by either development. There are no views to the Tarvie extension or to Carn Coire na Muic. The significance of effect would be **Slight Adverse** (not significant).
- 7.94 The impacts from the proposed development on Brahan (GDL00068, A12) have been assessed as Minor Adverse. The wireline shows that the Fairburn Extension would only be partially visible in this view, with only three turbines being visible from blade height. In-combination, the level of impact would not increase as the impacts would be in a similar, distant view. There are no views to the Tarvie extension or to Carn Coire na Muic. The cumulative significance of effect would be **Slight Adverse** (not significant).

Residual Effects

- 7.95 No significant effects on Cultural Heritage have been reported as a result of the proposed development. The residual effects would be the same as the effects stated within the main assessment.

- 7.96 There are no known heritage assets within the construction footprint of the proposed development, and as such the magnitude of impact remains No Change, resulting in a **Neutral** significance of effect.
- 7.97 No mitigation has been proposed for the effects on designated heritage assets as a result of the operation of the proposed development, as no significant effects have been identified and due to the nature of the proposed development, screening or otherwise reducing the visual impact is not feasible due to the heights of the turbines. The residual effects on designated heritage assets would be the same as discussed in the main assessment above, **Slight Adverse**.
- 7.98 Residual effects during decommissioning would be similar to those experienced during construction.

Summary

- 7.99 There are no designated heritage assets within the site of the proposed development and as such there would be no physical impacts on any designated heritage assets as a result of the proposed development.
- 7.100 There are 12 non-designated assets within the proposed development. None of the non-designated assets within the proposed development sit within the construction footprint, and as such there would be no physical impacts on these heritage assets. Mitigation in the form of targeted archaeological monitoring, has been recommended based on the potential for unknown archaeological remains to survive within the main access track from the A831. A pre-construction walkover survey of the turbine locations, monitoring of the main access route, and demarcation of known heritage assets are all recommended as mitigation.
- 7.101 There are 59 designated heritage assets located within the study area and beyond, for this assessment which have been considered for potential effects on their significance as a result of changes within their setting. The potential for significant effects was informed by desk-based research, consideration of a ZTV and where appropriate visualisations. No significance of effect above **Slight Adverse** (Not significant) was reported for any designated heritage assets within the baseline. No mitigation measures have been proposed against the setting effects identified as these have been deemed to not be significant in EIA terms and due to the nature of the scheme, mitigation through screening or other methods is not deemed feasible.
- 7.102 Residual effects have been assessed as being the same as those identified within the main assessment, with no residual effect higher than **Slight Adverse** (Not significant) reported.

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Ballach Wind Farm

Environmental Impact Assessment Report Volume 1 Chapter 8: Ecology

July 2025

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8 ECOLOGY

Introduction

- 8.1 This chapter considers the potential effects of Ballach Wind Farm (the proposed development') on Ecology.
- 8.2 This chapter is also supported by the following figures as contained within Volume 2: Figures:
- Figure 8.1: Site and Designated Sites
 - Figure 8.2a-e: Habitat survey results and Infrastructure Layout
 - Figure 8.3: GWDTE Locations and Buffers
 - Figure 8.4: Mesotopes and infrastructure layout
 - Figure 8.5: Proposed Peatland Restoration Areas
 - Figure 8.6: Bat detector locations
 - Figure 8.7: Protected species survey results
 - Figure 8.8: Fish habitat survey
- 8.3 The chapter is supported by a number of Technical Appendices (as set out within Volume 4: Technical Appendices), comprising:
- Technical Appendix 8.1: Habitat Survey Report and Peatland Condition Assessment
 - Technical Appendix 8.2: Fish Habitat Survey Report
 - Technical Appendix 8.3 Bat Survey Report
 - Technical Appendix 8.4: Outline Habitat Management Plan
 - Technical Appendix 8.5 : Biodiversity Net Gain Assessment
 - Technical Appendix 8.6 : Confidential Annex
- 8.4 Protected species survey results are included in full in this chapter.
- 8.5 Other relevant chapters include Chapter 3: Project Description and Chapter 10: Geology, Hydrology and Peat.
- 8.6 The ecology survey and assessment have been undertaken by WildLife Consulting Limited and associates. Specifically, the botanical assessment has been undertaken by Rory Whytock Principal Botanist and Director (Whytock Ecology Ltd). Rory has a BSc in Wildlife Conservation and has been a habitat specialist for 13 years. He has served as vice county bryophyte recorder for Stirling, Ayrshire and Clyde Islands for the British Bryological Society and he is a member of CIEEM. The bat assessment has been undertaken by Lorraine Hamilton MSc, BSc, MCIEEM - Director (Cairn Ecology Ltd). Lorraine specialises in bats and has been an ecological consultant for 16 years. The remainder of the ecology assessment and overall approach and review has been undertaken by Colin Nisbet MSc, BSc, MCIEEM – Director (WildLife Consulting Ltd). Colin has 20 years' experience in ecological consultancy.

8.7 The aims of this assessment are as follows:

- Consider relevant legislation, policy, and guidance;
- Assess baseline data from desk-studies and site surveys to establish existing ecological interests on site, and within its immediate vicinity;
- Assess potential effects from the proposed development and their ecological significance, both directly and indirectly;
- Identification of cumulative effects with other wind developments;
- Identification of appropriate measures for mitigation and avoidance of potentially adverse effects from the proposed development; and
- Identification of residual, significant effects from the proposed development following mitigation.

Legislation, Policy, and Relevant Guidance

8.8 Relevant legislation, policy and guidance has been consulted to inform the assessment of impacts. A list of pertinent documents are provided below; where specific documents have been consulted, these are referenced in the relevant section.

8.9 Scottish Natural Heritage (SNH) has been rebranded as NatureScot as of the 24th of August 2020. As such some guidance documents or consultation may refer to the original name used at the time of publication.

- Directive 2009/147/EC on the Conservation of Wild Birds (the Birds Directive) 1979;
- The Conservation of Natural Habitats and Wild Flora and Fauna (the Habitats Directive) 1992 (92/43/EEC);
- The Wildlife and Natural Environment (Scotland) Act 2011;
- Nature Conservation (Scotland) Act 2004;
- The Conservation (Natural Habitats &c.) Regulations 1994 (as amended);
- The Wildlife and Countryside Act 1981 (as amended);
- The Protection of Badgers Act 1992;
- The Water Environment and Water Services (Scotland) Act 2003 (as amended);
- The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended);
- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017;
- Scottish Planning Policy 2014;
- The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017;
- Environmental Impact Assessment Directive 2014/52/EU4;
- Chartered Institute of Ecology and Environmental Management. (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, and Coastal;
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- Scottish Natural Heritage (2013) A handbook on environmental impact assessment.

Policy

8.10 Chapter 5: Renewable Energy and Planning Policy of the EIA Report sets out the planning policy framework that is relevant to the EIA process and the proposed development. The policies set out include those from the Highland Council Local Development Plan (LDP) relevant aspects of National Planning Framework 4 (NPF4) (Scottish Government, 2023), Planning Advice Notes and other relevant guidance.

- NPF4: Policy 1 - Tackling the climate and nature crises;
- NPF4: Policy 2 - Climate mitigation and adaptation;
- NPF4: Policy 3 - Biodiversity;
- NPF4: Policy 4 - Natural Places;
- NPF4: Policy 5 – Soils;
- NPF4: Policy 11 - Energy;
- The Highland Council LDP: Policy 51: Trees and Woodlands;
- The Highland Council LDP: Policy 58 Protected Species;
- The Highland Council LDP: Policy 59: Other Important Species; and
- The Highland Council LDP: Policy 60: Other Important Habitats.

Methodology

8.11 This section provides detail of the methods employed for the collection and analysis of data and the completion of the impact assessment. For general methodology in relation to the EIA please refer to EIA Report Volume 1, Chapter 2.

Desk Study

8.12 A desk study was undertaken to obtain records of sites designated for nature conservation within 5km of the site boundary and to obtain background records relating to protected species within 2km of the site. The site boundary is illustrated on Figure 8.1. The following sources were consulted as part of the desk study process:

- NBN Atlas (nbnatlas.org);
- Highland Biological Recording Group (HBRG); and
- NatureScot SiteLink (SiteLink@nature.scot).

Baseline survey

Habitats and vegetation

8.13 Habitats and vegetation were surveyed in three stages. The first survey covered broad NVC communities by Atmos Consulting Ltd. in 2022. Two further surveys were then carried

out by Whytock Ecology Ltd. over a total of four days on the 25th and 26th of April 2024 and the 24th and 25th of May 2025 respectively. This involved surveying all communities within a 250m radius of all infrastructure and ground truthing all other areas previously surveyed by Atmos Consulting Ltd.

- 8.14 The National Vegetation Classification (NVC) was undertaken in accordance with *British Plant Communities* (Rodwell, 1991-2000¹) and related guidance (Rodwell, 2006²) to precisely identify the vegetation across the surveyed area. This is necessary to meet the requirements of modern legislation, especially in the identification of Groundwater Dependent Terrestrial Ecosystems (GWDTE). Habitat types (composed of one or more NVC communities) are classified according to the 'Phase 1' system (JNCC, 2010)³ that provides a well-established overview.
- 8.15 Small scale habitat and vegetation variability and zones of transition result in mosaics or gradations of two or more NVC communities. In these areas, an approximate percentage cover for each community is provided.
- 8.16 Botanical nomenclature follows that of the standard sources (Blockeel, 2020⁴; Coppins *et al.*, 1992⁵; and Stace, 2019⁶).
- 8.17 Habitat survey methods are set out in more detail in Technical Appendix 8.1 within Volume 4 of this EIA Report.

Protected Species

- 8.18 Protected species surveys (including detailed bat surveys) were undertaken by WildLife Consulting and Cairn Ecology (bats) in 2024.
- 8.19 Protected species surveys were based on the site boundary. Protected species surveys were undertaken across all accessible land within 250m of the site.
- 8.20 Protected species surveys focussed on searches for the presence of otter *Lutra lutra*, water vole *Arvicola amphibius*, badger *Meles meles*, pine marten *Martes martes*, red squirrel *Sciurus vulgaris* and wildcat *Felis silvestris*. A watching brief was also kept, and signs recorded for other protected species potentially inhabiting the site, i.e. native reptiles such as adder *Vipera berus*, common or viviparous lizard *Zootoca vivipara*, and slow worm *Anguis fragilis*.

¹ Rodwell, J.S. (1991-2000). *British plant communities*. 5 Volumes. Cambridge University Press.

² Rodwell, J.S. (2006). *NVC Users' Handbook*. Download available at <http://jncc.defra.gov.uk/page-3724>.

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⁴ T. L. Blockeel, N. E. Bell, M. O. Hill, N. G. Hodgetts, D. G. Long, S. L. Pilkington & G. P. Rothero (2021): A new checklist of the bryophytes of Britain and Ireland, 2020, *Journal of Bryology*.

⁵ Purvis, O. W., Coppins, B.J., Hawksworth, D. L. H., James, P.W. and Moore, D.M. (1992). *The Lichen Flora of Great Britain and Ireland*. Natural History Museum, London.

⁶ Stace, C.A. (2019). *New Flora of the British Isles*. 4th Edition. Cambridge University Press.

Bats: Automated Static Detector Survey

- 8.21 Automated static detector surveys were undertaken by Cairn Ecology Ltd during 2024 within the spring, summer and autumn periods. In line with best practice guidance⁷ 16 full spectrum static detectors were deployed in association with turbines locations provided as part of a draft layout design. Full details of detector locations, detector specifications and survey dates are provided in Technical Appendix 8.3 within Volume 4 and noted on Figure 8.6 within Volume 2 of this EIA Report.
- 8.22 Analysis of the collected data was undertaken by a suitability qualified ecologist and used Wildlife Acoustics Kaleidoscope v5.4.9 software package. Full details of the identification of bats by sonograms, assumptions and limitations are provided in Technical Appendix 8.3.
- 8.23 Further analysis was undertaken using Ecobat online tool also in line with best practice guidance⁷. Ecobat is a free online tool provided by the Mammal Society which provides a comparative analysis of bat acoustic data for the site using other data held by the Mammal Society at similar latitudes.

Consultation

- 8.24 As part of the Scoping exercise, a consultation exercise was undertaken to inform the design of the proposed development and to seek agreement on potential significant environmental effects that result from the proposed development as well as the scope of any assessment work required as part of this EIA.
- 8.25 The Scoping Opinion was received from Energy Consents Unit (ECU) on 20th of September 2024.
- 8.26 A summary of these consultation responses relating to ecology is provided in Table 8.1 below. Consultee responses relating to ornithology are contained in Chapter 9 of this EIA Report.

Table 8.1: Consultation Responses

Consultee	Date Received	Consultation Response	Where and how is this addressed?
ECU	28/11/24	i) EIAR should note requirements of NPF4 as biodiversity enhancements are to be provided in addition to mitigation. ii) EIAR should provide a	i) Mitigation measures and biodiversity enhancements are set out in the EIA Report and within Technical Appendix 8.4: Outline Habitat Management Plan.

⁷ NatureScot (Scottish Natural Heritage), Natural England, Natural Resources Wales, RenewableUK, Scottish Power Renewables, Ecotricity Ltd, The University of Exeter & Bat Conservation Trust (BCT) (2021). Bats and onshore wind turbines – survey, assessment and Mitigation. [online] Available at: <https://www.nature.scot/doc/bats-and-onshore-wind-turbines-survey-assessment-and-mitigation>

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		baseline of the habitats and protected species present on site. iii) Effects on fish populations should be considered.	ii) This is provided within this chapter and within Technical Appendix 8.1 and 8.2 within Volume 4. iii) Effects on fish fauna are considered in the EIA Report and a Fish Habitat Survey (Technical Appendix 8.2) was undertaken to inform the assessment.
The Highland Council	12/11/24	i) EIA should provide a baseline of the habitats and protected species present on site. ii) Effects on bog, GWDTEs and designated sites to be considered in the assessment. iii) OHMP and SPPs to set out mitigation and ecological enhancement measures.	i) This is provided within this chapter within Technical Appendix 8.1 and 8.2 within Volume 4. ii) These are considered within this Chapter, and within Technical Appendix 8.1, with cross references to groundwater within Chapter 10: Geology, Geohydrology and Hydrology. iii) The OHMP within Technical Appendix 8.4 contains descriptions of mitigation and enhancement measures.
Beaulieu Fishery Board	25/10/24	i) Erchless burn and Breakachy burn supports Atlantic salmon and sea trout, and brown trout likely to be present in some of the upper headwaters.	i) Noted. In addition, a Fish Habitat Survey (Technical Appendix 8.2) was undertaken to inform the assessment within this chapter.

Consultee	Date Received	Consultation Response	Where and how is this addressed?
Fisheries Management Scotland	11/10/24	i) Development lies in Beaulay and Cromarty District Salmon Fishery Board catchments. ii) Water quality and fish monitoring to be undertaken 12 months prior to, during and for 12 months following construction.	i) Noted. ii) A Fish Habitat Survey (Technical Appendix 8.2) was undertaken to inform the assessment. It is anticipated that, following a consent, there would be a condition committing to pre, during and post construction water quality monitoring and fish sampling.
NatureScot	22/11/24	i) Ecological survey results should be used to inform development design. ii) NPF 4 Policy 3b should be considered and the EIA Report must demonstrate enhancement in addition to mitigation. iii) Habitat surveys should cover the whole development site. iv) The area of bog restoration should be in the order of 10 times that lost and enhancement should be in addition to this. v) Protected species surveys should be undertaken and species protection plans produced for any species affected.	i) The design has evolved in tandem with the ecology survey and desk study findings as outlined within Chapter 4: Design Evolution. ii) The OHMP contains descriptions of mitigation and enhancement measures and justifies the quantum required. iii) All land within 250m of the development footprint has been covered by the NVC and GWDTE habitat surveys. iv) 552ha of blanket bog is proposed for restoration. Although this is less than a 1:10 ratio of loss versus restoration, this bog is in poor condition and the results of the restoration of an area of this scale is considered to represent an

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		vi) Effects on deer should be considered.	overall improvement of this habitat within the site following the development. Other measures, such as woodland creation, as detailed in the Technical Appendix 8.4 will serve as biodiversity enhancements at the site. v) Protected species have been undertaken and mitigation measures set out as required in the EIA Report. vi) A outline Deer Management Plan is included within Technical Appendix 8.4.
RSPB	13/11/24	i) Effects on bog should be avoided where possible. ii) The area of bog restoration should be in the order of 10 times that lost and enhancement should be in addition to this. iii) OHMP should include monitoring of habitat restoration, enhancement bird collision monitoring, and a deer management plan.	i) Effects on bog have been minimised via habitat surveys and a subsequent evolution of the development design. ii) 552ha of blanket bog is proposed for restoration. Although this is less than a 1:10 ratio of loss versus restoration, this bog is in poor condition and the results of the restoration of an area of this scale is considered to represent an overall improvement of this habitat within the site following the development. Other measures, such as woodland

Consultee	Date Received	Consultation Response	Where and how is this addressed?
			creation, as detailed in Technical Appendix 8.4 will serve as biodiversity enhancements at the site. iii) These elements are included in Technical Appendix 8.4.
SEPA	11/10/24	i) EIA Report to include details of GWDTE and proximity from watercourses. ii) Peat probing and peat condition assessment required to inform management options. iii) NVC required to provide detail on potentially groundwater dependent (GWDTE) habitats within 250m of the development.	i) Included within this chapter and within Figure 8.3 within Volume 2. Proximity to watercourses is mapped on Figure 10.6 within Volume 2. ii) These data have been used to inform the evolution of the development design and have been included in the EIA Report and in Technical Appendix 8.4. iii) Included within this chapter and within Figure 8.3 within Volume 2.

Assessment Methodology and Significance

Assessment of Effects

8.27 Effects are assessed against the habitat/species baseline in accordance with best practice guidance (CIEEM, 2018)⁸ and professional judgement in a methodology that is evidenced and appropriate to the proposed wind farm. Assessment involves the following stages:

- Identification of the potential development effects;
- Consideration of the likelihood of potential effects;

⁸ CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine v1.1. Available at <https://cieem.net/wp-content/uploads/2018/08/ECIA-Guidelines-2018-Terrestrial-Freshwater-Coastal-and-Marine-V1.1Update.pdf>.

- Defining the conservation importance of ecological features, to determine a level of sensitivity;
- Establishing the spatial and temporal magnitude of effects;
- Identification of significant effects (as defined by the EIA Regulations);
- Identification of mitigation measures to address significant effects;
- Opportunities for enhancement are considered where appropriate; and
- Residual effects are identified, and their cumulative effect is assessed (in combination with neighbouring developments).

Identification of Effects

8.28 Ecological features may be directly or indirectly affected by construction, operation and/or decommissioning in one or more of the following ways⁹:

- Direct and indirect habitat loss;
- Disturbance to/loss of breeding sites, resting places, roosts etc. for protected species;
- Direct/indirect loss of foraging resource for protected species;
- Displacement/disruption to habitat and species population connectivity;
- Direct effects upon protected fauna, i.e. road traffic accidents, etc;
- Environmental effects, i.e. pollution of watercourses, etc; and
- Changes to habitat composition or quality through land-use change, increased human presence, etc.

8.29 The potential for effects is identified from comparison of the Proposed Development characteristics outlined in the Scoping Report and Chapter 3: Project Description, contained within this EIA Report; and the behaviour and/or ecology of the habitats and species.

8.30 In line with the CIEEM EclA guidance⁹, consideration is given to the following characteristics when identifying potential effects of the Development on Important Ecological Features:

- Nature of effect: whether it is positive (beneficial) to any important ecological features (IEF), e.g. by increasing species diversity or extending habitat, or negative (detrimental), e.g. by loss of, or displacement from, suitable habitat;
- Extent: the space over which the effect may occur;
- Magnitude: the size, amount, intensity, and/or volume of the effect;
- Duration: the persistence of an effect in relation to IEF characteristics (such as a crucial stage in a species' life cycle) as well as human time-frames;
- Frequency: the number of times an activity occurs in a given period may influence the resulting effect;
- Timing: this may result in an adverse effect on an IEF if it coincides with critical life stages or seasons (e.g. breeding or summer drought); and
- Reversibility: a reversible effect is one from which spontaneous recovery is possible or which may be counteracted by mitigation (within a reasonable timescale).

Conservation Importance

- 8.31 CIEEM guidance **Error! Bookmark not defined.** requires that nature conservation importance is defined in a geographical context as defined in **Error! Reference source not found.** Table 8.2. Evaluating a designated site is straightforward because the designation(s) indicate the importance. In the case of habitats & species, assigning value is dependent upon contextual information about designations, distribution, extent/abundance, historical records, and national trends. Consequently, even though a habitat or species may be protected through legislation at the national or international level, the importance of the population on a site may be quite different. For example, a single transitory animal or isolated patch of degraded habitat within the context of a thriving metapopulation or wider extent is of less importance than its designation.

Table 8.2: Geographical context for assessing conservation importance

Context	Criteria
International	• An internationally designated site. • Site meeting criteria for international designations or there is qualifying habitat/species connectivity with such a site. • Habitat/species present in internationally important numbers/extents (>1 % of national resource).
National	• A nationally designated site (e.g. SSSI or National Nature Reserve), or there is qualifying habitat/species connectivity with such a site. • Habitat/species present in nationally important extents/numbers (>1 % national resource).
County - Regional	• Habitat/species present in county or regionally important numbers (>1% of county or Biodiversity Action Plan resource, for example). • Areas of habitat falling below criteria for selection as a SSSI (e.g. areas of semi-natural ancient woodland >0.25 ha).
Local	• Local Nature Reserves (LNR). • Areas of semi-natural ancient woodland <0.25 ha. • Areas of habitat or species that contribute to the local ecological resource within the local context, (e.g. species-rich flushes or hedgerows).
Negligible	• Widespread, common and/or reproducible habitats/species. • Negligible features are not normally considered in the assessment process.

Magnitude of Impacts

- 8.32 Impact magnitude relates development-related changes in the extent/abundance and/or the integrity of an ecological feature (habitat or species). 'Integrity' is defined by the European Commission as *"the lasting preservation of the constitutive characteristics of the site that are connected to the presence of a priority natural habitat"*⁹. This definition that is related to the Habitats Directive can be extended more widely to include species and non-designated habitats, and it is reiterated in Scottish planning policy. For example, the Scottish Executive circular 6/1995¹⁰ states that *"The integrity of a site is the coherence*

⁹ European Commission Notices (2019/C 33/01). *Managing Natura 2000 sites. The provisions of Article 6 of the Habitats Directive 92/43/EEC*. Available at: [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52019XC0125\(07\)&id=2](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52019XC0125(07)&id=2).

¹⁰ <https://www.gov.scot/publications/foi-201900008726/>.

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".

- 8.33 Determining the magnitude of likely effects is therefore based on assessment of how inter-related ecological features (habitats or species) and their supporting process (e.g. water supply or prey availability) will respond to the proposed development at its different stages (i.e. construction, operation & decommissioning). Effects can be adverse, neutral, or beneficial and are assessed in relation to their spatial extent and temporal magnitude. The latter includes consideration of the duration, frequency, and persistence of effects; and their reversibility (passively or through mitigation). There are five magnitudes of spatial or temporal effect, respectively described in Table 8.3 and Table 8.4.

Table 8.3: Spatial Effect Magnitude Levels

Magnitude	Definition
Very high	Almost complete loss of a feature (>80 %) or its supporting processes (e.g. water supply) that affects its long-term persistence.
High	Major loss of a feature (>20 %) or its supporting processes (e.g. water supply) that affects its long-term integrity.
Moderate	Moderate loss (10 % to 20 %) of a feature or its supporting processes that may result in its degradation.
Low	Minor loss (<10 %) of a feature or its supporting processes that may result in its modification.
Negligible	Minimal change or loss (<1 %) with effects not dissimilar to those expected within the semi-natural variability of the 'do nothing' scenario (e.g. drought).

Table 8.4: Temporal Effect Magnitude Levels

Magnitude	Definition
Permanent	Effects continuing indefinitely beyond the lifespan of wind farm (35 years), except where there is likely to be substantial improvement after this period in which case 'Long Term' is appropriate.
Long term	Effects persisting for up to 35 years.
Medium term	Effects persisting for up to 15 years.
Short term	Effects persisting for up to 5 years.
Negligible	No effect.

Cumulative Effects

- 8.34 NatureScot's current guidance¹¹ informs the cumulative assessment of effects in combination with neighbouring developments, plans or projects. To focus on significant effects, this assessment considers the potential for effects with other EIA developments. The context in which these effects are considered is dependent on the behaviour and/or ecology of the feature. For example, an animal population is considered in the context of its habitat (e.g. a catchment or woodland) and the connectivity of this with additional,

¹¹ SNH (2012). Guidance - Assessing the cumulative impact of onshore wind energy developments. Available at: <https://www.nature.scot/guidance-assessing-cumulative-impact-onshore-wind-energy-developments>.

necessary resources (e.g. for foraging, roosting, or breeding). Alternatively, extensive blanket bog may require to be considered at a larger/regional scale. Accordingly, assessment of cumulative impacts for each feature is undertaken at the scale appropriate to its behaviour and ecology, which in this case is the regional Northern Highlands Natural Heritage Zone (NHZ 7) level.

Significance

- 8.35 Habitats/species of negligible or low conservation importance and those that are unaffected by the development are screened out of further assessment. The significance of effects upon the remaining Important Ecological Features is determined through a combination of their conservation importance; the magnitude (nature, extent, and timescales) of the predicted effect; and professional judgement.
- 8.36 The latest CIEEM EcIA guidance **Error! Bookmark not defined.** discourages use of the matrix approach to determine significance and describes only two categories: 'significant' or 'not significant.' A 'significant effect' is an effect that either supports or undermines conservation objectives for ecological features.
- 8.37 Maintenance of favourable conservation status involves a series of inter-connected principles¹². These are summarised in the CIEEM EcIA guidance for habitats and species as follows:
- Habitat conservation status is determined from effects on distribution, extent, structure, and function, as well as typical species/communities; and
 - Species conservation status is determined from effects on abundance, behaviour, and distribution.

Assessment Limitations

- 8.38 The 2024 habitat surveys were carried out in April which is early in the botanical survey season. Some late flowering species may be under-recorded as a result. This does not negatively affect the determination of appropriate NVC communities however.
- 8.39 No further limitations to the ecology surveys are identified.

Scope of Assessment

Effects Assessed in Full

- 8.40 The following effects were considered to be potentially significant in relation to Ecology at the scoping stage and have been assessed in full within this chapter:
- Direct habitat loss of peatlands and related habitats;
 - Direct effects on severance/fragmentation of the above habitats;
 - Indirect effects on the above habitats; and

¹² Favourable Conservation Status: UK Statutory Nature Conservation Bodies Common Statement 2018. Available at <https://data.incc.gov.uk/data/b9c7f55f-ed9d-4d3c-b484-c21758cec4fe/FCS18-InterAgency-Statement.pdf>.

- Cumulative effect on the above habitats.

Effects Scoped Out

8.41 On the basis of the desk based and field survey work undertaken, the professional judgement of the EIA team, experience from other relevant projects and policy guidance or standards, and feedback received from consultees, the following topic areas have been 'scoped out' of detailed assessment, as proposed in the Scoping Report:

- Ecologically designated sites, as both the Strathglass Complex SAC and the Glen Strathfarrar SSSI are outwith the zone of influence of the development.
- Habitats determined to be of less than local ecological importance (as defined in Table 8.7).

Effects on common and widely distributed habitats outwith the following categories:

- Habitats listed in Annex I to the Habitats Directive, and species listed in Annex II to the Habitats Directive.
- Biodiversity Action Plan (UKBAP) or Scottish Biodiversity List (SBL) Priority Habitats.

8.42

Baseline Conditions

Desk Study

Designated Sites

8.43 There are two statutory designated sites designated for ecological reasons within the 5km search area: The Strathglass Complex SAC and Glen Strathfarrar SSSI. Further information on these receptors is included in Table 8.5 below. Sites designated for their ornithological interest are presented in Chapter 9: Ornithology.

Table 8.5: Sites designated for nature conservation

Site	Distance from proposed development	Qualifying features
Strathglass Complex SAC	1.8km west of the access track and 5km from the nearest turbine.	Acidic scree Alpine and sub-alpine heaths Blanket bog Bog woodland Caledonian forest Rock vegetation Mountain willow scrub Wet and dry heaths Montane acid grassland Tall herb communities Freshwater habitats Otter population
Glen Strathfarrar SSSI	1.8km west of the access track and 5km from the nearest turbine.	Breeding bird assemblage Dragonfly assemblage Lichen assemblage Vascular plant assemblage Native pinewood

Background Records

- 8.44 HBRG provided records of a bat roost used by pipistrelle bats *Pipistrellus pipistrellus* and brown long-eared bats *Plecotus auritus*, which was well over 1 km from the Site.
- 8.45 HBRG provided a historical record from 2007 of an old bothy confirmed regular use by pine marten *Martes martes*, but this bothy has now been refurbished and no sign of use by pine marten was returned from the field survey for the proposed development.
- 8.46 HBRG provided observational records of otter *Lutra lutra*, red squirrel *Sciurus vulgaris* were provided, but there were no known resting places for these species returned from the desk study. Observational records of common lizard *Zootoca vivipara*, slow worm *Anguis fragilis* and adder *Vipera berus* were also provided, as were road traffic collisions relating to otter and badger *Meles meles*.

Field Survey Results – Habitats and Vegetation

- 8.47 The results of the Phase 1 Habitat and NVC surveys are provided in Technical Appendix 8.1 within Volume 4 of this EIA. Figures 8.1a-e within Volume 2 illustrate the habitat survey results and the infrastructure layout. This data has been analysed and interpreted in Table 8.7. This process highlighted two elements within the overall habitat assemblage that are of local or greater than local nature conservation importance. These are:
- Peatland and related habitats, and
 - Wetlands and related habitats.
- 8.48 The following sections describe these IEFs in more details below.
- 8.49 A desk-based search for species records was carried out using the NBN atlas¹³. No notable plant species were returned.

Peatlands and Related Habitats

- 8.50 This receptor has three main components that were recorded within the survey area; blanket bog, wet modified bog, and heath.
- 8.51 Blanket bogs are widespread within the survey area. All polygons within the survey area have been assessed according to Peatland Action peatland condition assessment guidance¹⁴. This assigns each blanket bog polygon (or mosaics containing blanket bogs) into a relevant condition category. Four condition categories are used, they are:
- Near natural;
 - Modified;
 - Drained; and
 - Actively eroding.

¹³ NBN Atlas. (2025). Available at: <https://nbnatlas.org/>

¹⁴ NatureScot (2023) Peatland Condition Assessment. Available at: <https://www.nature.scot/sites/default/files/2023-02/Guidance-Peatland-Action-Peatland-Condition-Assessment-Guide-A1916874.pdf>

- 8.52 In addition to this condition assessment, blanket bogs within a 250m radius of proposed infrastructure have been evaluated using the guidelines provided NatureScot¹⁵. This guidance uses a set of criteria to assess whether blanket bog polygons are considered to be of possible national interest. The criteria used includes assessing the size, peat formation capabilities, surface patterning, vegetation, and indicator species contained in each polygon. In addition, the geographical location of the peatlands is taken into consideration.
- 8.53 Using these criteria, 141 of the 152 blanket bog polygons within the 250m radius of proposed infrastructure meet these thresholds and are considered to be of possible national interest for nature conservation. The effects upon blanket bogs will be detailed in this assessment.
- 8.54 Wet modified bogs (specifically M25 NVC communities in the survey area) are often derived from blanket bogs that have been degraded through a combination or a mixture of drainage, muirburn and grazing regimes. From the information collected during the field surveys regarding composition and quality, wet modified bog vegetation is important for nature conservation at a local level.
- 8.55 The NVC survey has identified both wet and dry heaths within the survey area. Upland heath communities recorded on the site such as H10, H12, H21 and M15 NVC communities are listed on the Scottish Biodiversity Action Plan and the Highland Biodiversity Action Plan lists. Taking into consideration their composition, quality, and the relative frequency in the surrounding wider area, both dry and wet heaths within the Survey Area are considered to be of local importance.
- 8.56 In summary, the main component (habitat considered to be most sensitive to effects and highest value) of the peatland and related habitats IEF is blanket bogs. Wet modified bog, dry heath and wet heath do have local value particularly when hydrologically connected to blanket bogs or considering the assemblage as a whole.

Wetlands and related habitats

- 8.57 Wetland habitats are widespread within the survey area. Many of these communities are associated with peatland communities or valley bottoms that are predominantly acidic in nature. The majority of these communities are species poor and are widespread locally, regionally, and nationally.
- 8.58 Three wetland communities are of high distinctiveness (NVC communities M10, M32 and M6a). All are types of springs/flushes that are dependent upon groundwater and are more base rich as a result. These communities support a species-rich assemblage, some of which are regionally uncommon. Wetlands of high distinctiveness are considered to be of regional importance for nature conservation.

¹⁵ NatureScot. (2025). Advising on peatland, carbon-rich soils and priority peatland habitats in development management. Available at: [https://www.nature.scot/doc/advising-peatland-carbon-rich-soils-and-priority-peatland-habitats-development-management#:~:text=Carbon%2Drich%20soils%20are%20peat,%3C50cm\)%20at%20the%20surface.](https://www.nature.scot/doc/advising-peatland-carbon-rich-soils-and-priority-peatland-habitats-development-management#:~:text=Carbon%2Drich%20soils%20are%20peat,%3C50cm)%20at%20the%20surface.)

- 8.59 Other flushes and fen type such as NVC communities M23 *Juncus effusus/acutiflorus* – *Galium palustre* mires and M6c *Carex echinata* - *Sphagnum fallax/denticulatum*, *Juncus effusus* sub-community mire habitats are species poor and are considered to be of conservation value at less than local level.

Embedded Mitigation and Best Practice Measures

Embedded Mitigation

- 8.60 Embedded mitigation are those that are built into the project minimise potential negative effects associated with the proposed development. As outlined in the CIEEM guidance and NPF4, the following mitigation hierarchy was adopted:
- Avoidance;
 - Reduction;
 - Compensation; and
 - Remediation.
- 8.61 The following embedded mitigation measures have been included as part of the design process:
- Evolution of the design to avoid and minimise disturbance of areas of deep peat;
 - Evolution of the design to maximise the distance of the development footprint from GWDTEs; and
 - Implementation of surface water mitigation measures prior to any site clearance or construction works.
- 8.62 Where embedded mitigation is considered sufficient to prevent significant adverse effects on ecological feature. This has been included within the impact assessment in order to produce conclusions that are proportionate to the risks posed by the proposed development.

Best Practice Measures

- 8.63 In addition to embedded mitigation additional mitigation measures are considered necessary to address likely significant adverse effects, where these are concluded as part of the assessment. However, it is also good practice to propose measures to reduce effects irrespective of whether significant effects are predicted.
- 8.64 The following best practice measures will be implemented:
- Covering of all excavations, or provision of mammal ramps, or shallow graded edges to eliminate the risk of animals becoming trapped;
 - Implementation of a 15mph speed limit to minimise the risk of vehicle collisions with wildlife;
 - Dust suppression on tracks during periods of dry weather (as applicable);
 - Safe storage of all fuel and COSHH chemicals within sealed, locked containers;

- Pre-construction checks to ensure that no protected species places of rest are removed without a licence; and
- Appointment of a suitably experienced ECoW to monitor ecological/environmental constraints, review and audit environmental performance and supervise construction works.

Peat Management Plan

- 8.65 The production of a Peat Management Plan (PMP) will be developed in consultation with Highland Council, NatureScot and other relevant stakeholders. An Outline Peat Management Plan is provided within Technical Appendix 10.3 of Volume 4.
- 8.66 The final, detailed PMP will detail measures to ensure that construction is carried out in accordance with industry good practice. The document will include details regarding the selection for appropriate areas and methods for correct storage/stockpiling of peat to ensure it is not degraded, identify areas for re-use.

Construction Environmental Monitoring Plan

- 8.67 The production of a Construction Environmental Monitoring Plan (CEMP) will be developed in consultation with Highland Council, NatureScot and other relevant stakeholders.
- 8.68 The CEMP will detail measures to ensure that construction is carried out in accordance with industry good practice. Habitat restoration measures to be implemented upon completion of construction works will also be included.

Outline Habitat Management Plan

- 8.69 The development of a detailed Habitat Management Plan will be prepared in consultation with Highland Council, NatureScot, the landowner and other relevant stakeholders. An outline Habitat Management Plan has been developed (see Technical Appendix 8.4 within Volume 4) which provides habitat mitigation and enhancement measures including peatland restoration measures, long term deer management and native broadleaved woodland creation.

Field Survey Results – Bats

- 8.70 A summary of the results of the bat surveys are provided below. Full details of definitions and analysis are provide in Technical Appendix 8.3.
- 8.71 A total of 6920 bat passes were recorded over the entire monitoring period. This was recorded from four bat species and two genera were identified to be utilising the site. These were
- Common pipistrelle *Pipistrellus pipistrellus* – n=2557 (36.9%);
 - Soprano pipistrelle *Pipistrellus pygmaeus* – n=2329 (33.7%);
 - Brown longed-eared bat *Plecotus auritus* -n=123 (1.8%);
 - Daubenton's bat *Myotis Daubentonii* – n=3 (0.04%);
 - *Myotis* sp. – n=1832 (26.47%); and

- Pipistrellus sp. – n=76 (1.09%).
- 8.72 Using the Ecobat tool, and based on the median percentile, the activity level for each species at the site was categorised as:
- Common pipistrelle - Low;
 - Soprano pipistrelle Low;
 - Brown longed-eared bat – Low;
 - Daubenton's bat – Low;
 - Myotis sp. – low with the exception of a single night at location 14 in August classes as exceptional; and
 - Pipistrellus sp. – Low with the exception of a single night at location 14 in August classes as exceptional.
- 8.73 The exceptional high activity evenings were based on a reference range of 3 and 2 respectively. Ecobats uses comparative analysis with sites bat activity at a similar latitude, as such, Ecobats recommends that 200 plus reference evenings are required to have confidence in the results of data.
- 8.74 An assessment of potential collision risk was completed for all species; this considers the activity level, species risk of collision, and site risk level. Based on criteria provided by best practice guidance⁷, the site was categorised as risk level 3 (Technical Appendix 8.3). The collision risk for each species as provided by NatureScot⁷ (Technical Appendix 8.3) are:
- Common pipistrelle -high risk - medium vulnerability;
 - Soprano pipistrelle – high risk - medium vulnerability;
 - Brown longed-eared bat – low risk - low vulnerability; and
 - Daubenton's bat – low risk - low vulnerability.
- 8.75 The static detector locations (as per Figure 8.6 of Volume 2) of with the highest mean bat pass rate per species were noted to be:
- Common pipistrelle -L14,15;
 - Soprano pipistrelle – L14, 15;
 - Brown longed-eared bat – L10, 11,15; and
 - Daubenton's bat – L15;
 - Myotis sp. – L14; and
 - Pipistrellus sp. – L14.
- 8.76 Bat passes were recorded at before standard emergence time at L14 (common pipistrelle) and L8 (soprano pipistrelle). However, no structures or mature woodland are within the site these areas and as such it is assumed that any potential roost is located outside the site boundary.

Field Survey Results – Protected Species

Red Squirrel

- 8.77 A single drey was recorded within the forestry within the protected species survey area, located approximately 150m from the development footprint. Stripped feeding cones typical of red squirrel were also recorded at two locations within the survey area. The location of the drey is provided in Confidential Annex C8.1 and illustrated on Confidential Figure 8.7.

Water Vole

- 8.78 A cluster of water vole burrows were recorded on the banks of one of the watercourses within the survey area. The location of the burrows is contained in Confidential Annex C8.1 and illustrated on Confidential Figure 8.7.

Otter, Pine Marten and Badger

- 8.79 No places of rest were recorded for either of these receptors. Otter spraints were recorded in three locations within the survey area. Pine marten scats were recorded at two locations within the survey area and evidence of badger foraging (snuffle holes) was also recorded at two locations within the survey area. The locations of these signs are illustrated on Figure 8.7, with grid references provided in Table 8.6 below.

Table 8.6: Protected species results

Feature	Grid Reference
Otter spraint	NH 42410 43219
Otter spraint	NH 42780 43726
Otter spraint	NH 42857 43865
Pine marten scat	NH 41707 41540
Pine marten scat	NH 42147 42410
Badger snuffle holes	NH 42100 42542
Badger snuffle holes	NH 43469 48112

Important Ecological Features

- 8.80 The identified IEFs for consideration in terms of the development are presented in Table 8.7 below.

Table 8.7: Important ecological features

Ecological Feature	Rationale	Ecological Importance of Site for Ecological feature
H7130 Blanket bogs	Phase 1 habitats: E1.6.1 & E1.7 NVC codes: M1, M2, M3, M17, M18, M19 & M20	Regional

Ecological Feature	Rationale	Ecological Importance of Site for Ecological feature
	Much of the blanket bog resource is considered to be class 1 peatlands¹⁶This habitat is dominant within the survey area. The majority of this habitat is in very degraded condition with large areas of bare peat and complex erosion channels. Where erosion is not dominant, blanket bog has been either subject to extensive drainage (e.g. NVC: M17) or occurs on thinner peat soils (<50cm in depth) dominated primarily by M19 communities. Blanket bog is extensive within the Northern Highlands NHZ with better-quality examples elsewhere (e.g. Fannich SSSI). Therefore, the Site is considered to be of regional level importance for this habitat.	
H4030 European dry heaths	Phase 1 habitats: D1.1 NVC codes: H10, H12 & H21 Dry heaths are common in the south of the survey area. Muirburning activities and high levels of grazing have degraded the habitat throughout the survey area. Dry heaths are widespread and abundant within the Northern Highland NHZ. Therefore, the Site is considered to be of local level importance for this habitat.	Local
H4010 Northern Atlantic wet heaths with Erica tetralix	Phase 1 habitats: D2 NVC codes: M15 & M16 Wet heaths are common in the south of the survey area. Long-term drainage regimes and high levels of grazing have degraded the habitat throughout the survey area. Wet heaths are widespread and abundant within the Northern Highland NHZ. Therefore, the Site is considered to be of local level importance for this habitat.	Local
Semi-natural Broadleaved woodland	Phase 1 habitats: A1.1.1 NVC codes: W4 & W17 Areas of woodland within the survey area are very small and fragmented. They are poor examples of their type with little natural regeneration. W4 and W17 communities are widespread throughout the Northern Highland NHZ.	Less than local

¹⁶ NatureScot (2016) NatureScot Carbon and Peatland map. Accessed online 20/06/2025 at: <https://soils.environment.gov.scot/maps/thematic-maps/carbon-and-peatland-2016-map/>

Ecological Feature	Rationale	Ecological Importance of Site for Ecological feature
	Therefore, the Site is considered to be of less than local level importance for this habitat.	
Wetland and related habitats (including GWDTEs).	Phase 1: B5, E2.1 and E2.2 NVC Codes: M6a, M10 (Annex 1 code: H7230), M23, M25 & M32 Wetlands not reliant on groundwater are species poor and widespread throughout the Northern Highland NHZ. Wetlands identified as being reliant on groundwater sources are widespread throughout the Northern Highland NHZ. These communities are species rich and have high biodiversity value and moderate conservation value.	Local
Bats	Low numbers of common bat species recorded (common and soprano pipistrelle, brown long-eared and Daubenton's bats) during the field survey. No roosts identified from field survey. Desk study identified roost well over 1km from the site and therefore unaffected.	Local
Otter, water vole, red squirrel, pine marten and common reptiles.	These protected species are generally common in the local and regional context and no places of rest have been identified that would be affected by the proposed development, therefore no licensable works are currently required.	Local

Potential Effects

- 8.81 This section details the potential risks to ecological features that have been identified for the proposed development.

Construction Effects

Potential Direct Effects During the Construction Phase

Permanent Habitat Loss

Construction of infrastructure would result in permanent and temporary habitat loss. Direct losses from the footprint of the infrastructure would all be considered permanent. Habitat losses from earthworks or felling surrounding infrastructure would be lost initially, but reinstatement measures would restore habitats to their baseline condition (or enhanced where appropriate).

Habitat loss could result in a loss of communities or individual species that are reliant upon a particular niche. Habitat loss would also reduce the amount of available nesting and foraging opportunities for a range of species that are reliant upon it. Details regarding the effects on birds are set out in Chapter 9: Ornithology. Habitat loss could result in the

destruction of mammal places of rest or natal dens/sites. Mortality and /or injury from construction activities is also possible in the absence of mitigation.

Direct habitat loss could also result in other taxonomic groups including (but not limited to) invertebrates and fungi being negatively affected. Habitat loss could result in either the destruction of individuals and populations as a whole, where unable to be displaced or habitat loss renders conditions unsuitable.

Temporary Habitat Loss

- 8.82 Temporary losses from earthworks have the ability to regenerate to their baseline condition in most cases, but disturbance of soils which changes soil chemistry will change the plant composition, particularly where acidic soils are mixed with mineral soils which would encourage ruderal species and be less favourable species dependent on acid (e.g. peaty) soils.
- 8.83 Mammal and invertebrate species which have small territories or the inability to be displaced into surrounding habitat (either because of restricted movement strategies or a lack of available suitable habitat) during the reinstatement/re-generation period could be lost or their populations reduced. The magnitude of the effects upon an individual species are heavily dependent upon their ecological requirements.

Potential indirect Effects During the Construction Phase

- 8.84 Indirect effects on ecological features are likely wide ranging. The composition of habitats may become altered due to increase levels of nutrients from dust particulates from tracks or surface run-off from tracks. An increase in ruderal species may also be possible surrounding new access tracks which are likely to provide a pathway for invasive or ruderal species to establish. This will be restricted to areas immediately surrounding tracks.
- 8.85 Increased sedimentation from access tracks and surface runoff may cause pollution events during periods of high rainfall. In addition, pollution events from machinery involving oil or chemical spills may effect habitats where pollution events occur or are transported via drains or watercourses. Depending on the size and quantity of sediment or chemicals involved watercourses and habitats could be negatively affected for large areas that are hydrologically connected to the spill area.

Potential direct and indirect Effects During the Operational Phase

- 8.86 Pollution events from maintenance vehicles are possible, though as there will be no (or minimal) construction activity during this period, the risk and severity of a pollution event similar to that described for construction phase is very much reduced.

Potential direct and indirect Effects During the Decommissioning Phase

- 8.87 The effects for the decommissioning phase would be similar to those for the construction phase. However, the magnitude of the impacts would be expected to be lower.

Construction Effects

8.88 This section fully assesses the identified IEFs and the effects upon them

Predicted direct effects of construction on peatland and related features

8.89 The most notable effect of construction upon habitats will be direct loss from the footprint of infrastructure (prior to any habitat reinstatement or restoration). There are two types of infrastructure, permanent and temporary. Permanent infrastructure will remain in situ for the life of the project. Temporary infrastructure will remain in place during the construction phase of the project only. While many habitats can be effectively restored following the removal of temporary infrastructure, the poor reversibility of peatland mean that for the purposes of this assessment, peatlands lost from temporary infrastructure are considered to be permanently lost.

8.90 Direct effects involving habitat loss due to land take from permanent infrastructure is detailed in Table 8.8 below.

Table 8.8: Direct habitat loss from permanent Infrastructure

Phase 1 code	Habitat type	NVC code	Area (Ha) of habitat loss	% of NVC community resource	% of survey area
A1.1.1	Semi-natural broadleaved woodland	W4	0.05	0.67	>0.01
		W17	0.04	1.14	>0.01
A1.2.2	Coniferous plantation woodland	N/A	0.70	1.17	0.05
B1.1	Unimproved acid grassland	U4a & e	0.14	1.03	0.01
B1.2	Semi-improved acid grassland	U4b	0.06	0.77	>0.01
B5	Marshy grassland	M25	0.28	3.95	0.02
C1	Bracken	U20	1.16	3.97	0.08
D1.1	Dry dwarf shrub heath	H10	0.95	3.45	0.07
		H12	4.18	2.61	0.30
		H21	0.92	1.45	0.05
D2	Wet dwarf shrub heath	M15	4.59	2.63	0.33
		M16	0.05	1.34	>0.01
E1.6.1	Blanket bog	M17	5.27	1.22	0.38
		M19	8.03	2.45	0.55
		M20	0.04	2.76	>0.01
E1.7	Wet modified bog	M25	0.06	0.27	>0.01
E2.1	Acid/neutral flush	M4	0.02	0.98	>0.01
		M6	0.18	0.71	0.01
J4	Bare ground	N/A	2.03	20.87	0.15
		Total	28.75	-	2.07

- 8.91 The combined direct loss of blanket bog (NVC codes: M17, M19 and M20) from the proposed development is 13.34Ha or 0.96% of the total survey area. This figure is small both in relative size and proportion to the overall survey area. It is however important to assess these figures in relation to the overall blanket bog coverage within the site. Direct loss of blanket bog is predicted to be 1.73% of total blanket bog coverage within the Survey Area.
- 8.92 Direct loss of wet modified bog from the proposed development is predicted to be 0.06Ha or >0.01% of the total survey area. This equates to 0.27% of the total extent of the wet modified bog resource within the survey area.
- 8.93 Additional habitat losses resulting from temporary infrastructure are detailed in Table 8.9 below.

Table 8.9: Direct habitat loss from temporary Infrastructure

Phase 1 code	Habitat type	NVC code	Area (Ha) of habitat loss	% of NVC community resource	% of survey area
C1	Bracken	U20	0.28	0.94	0.02
D1.1	Dry dwarf shrub heath	H10	1.01	3.65	0.07
		H12	1.38	0.86	0.10
		H21	0.23	0.37	0.02
D2	Wet dwarf shrub heath	M15	0.59	0.34	0.04
E1.6.1	Blanket bog	M19	2.26	0.69	0.16
		Total	5.75	-	0.41

- 8.94 While the majority of the most sensitive and high-quality peat forming peatland areas have been avoided through the design process, the proposed development does inevitably (due to being widely distributed throughout the Developable Area) cause some direct loss to high quality peatlands. The total habitat loss (combined permanent and temporary direct losses) of blanket bog and wet modified bog is 15.66Ha or 2.03% of all blanket bog communities identified within the survey area.
- 8.95 The direct loss of 2.03% of blanket bogs within the survey area prior to reinstatement and enhancement works is considered to be of a low magnitude impact (See Table 8.3) to a regionally sensitive IEF in the long term. Considering the severe degradation of these communities (erosion, large hags, bare peat and a low frequency of peat forming species) throughout all of these communities a **low** negative magnitude impact is predicted in the long term. As such, direct effects on blanket bogs are considered **not significant**.
- 8.96 Wet heaths (NVC code: M15 & M16) and dry heaths (NVC codes: H10, H12 & H21) are present within the survey area. Details gathered during the habitat surveys regarding composition and quality found that these were in poor condition due to excessive herbivory and muirburn. All are listed as priority habitats within the Scottish Biodiversity List

and mentioned within the upland and moorland habitat category of the Highland Council Biodiversity Action Plan¹⁷.

- 8.97 Heath communities recorded within the Survey Area are common and widespread throughout the Highland region (Averis, 2014). They have also been identified during the NVC to be in a degraded state within the survey area. Direct loss of heath (wet and dry combined) from permanent and temporary infrastructure is 13.9Ha or 3.23% of the total heath component within the survey area. Unlike blanket bog, recovery time of both wet and dry heath is quicker and relatively easier and heath is expected to be recoverable in the medium term. The impact of the Development upon dry heath communities within the survey area is of a **low** negative magnitude on a locally sensitive IEF. Negative effects are considered **negligible**, therefore and the long-term effect is **not significant**.

Predicted indirect effects of construction on peatlands and related habitats

- 8.98 Indirect effects on habitats are expected to occur from the proposed development. Indirect effects include temporary or permanent disturbance to habitats surrounding infrastructure, alterations to topography, hydrology, and vegetation composition. NatureScot (2025) determine the zone of influence of peatlands should be 30m from all infrastructure.

Indirect effects are predicted to be wide ranging and are often difficult to quantify. Disturbance from earthworks surrounding infrastructure will result in temporary disturbance and changes to hydrological connection and processes of sensitive habitats. Reinstatement of habitats is proposed to mitigate for some of this disturbance (see Technical Appendix 10.3 Peat Management Plan and Technical Appendix 8.4 Outline Habitat Management Plan, however, blanket bogs are often slow to recover. With embedded reinstatement, mitigation and good practice measures recovery is expected in the long term.

Recovery of heath communities is quicker than blanket bog as they are not as hydrologically complex and therefore, not as sensitive. Recovery of heath communities following reinstatement are expected in the medium term.

- 8.99 Table 8.10 below details the expected disturbance of habitats within the predicted zone of influence.

Table 8.10: Predicted extent of indirect effects within 30m of proposed infrastructure

Phase 1 code	Habitat type	NVC code	Area (Ha) of habitat loss	% of NVC community resource	% of survey area
A1.1.1	Semi-natural broadleaved woodland	W4	1.30	18.57	0.09
		W17	1.16	33.04	0.08
A1.2.2	Coniferous plantation woodland	N/A	16.78	28.17	1.20

¹⁷ Highland Nature (2021) Highland Nature Biodiversity Action Plan 2021-2026. Accessed online at: https://www.highland.gov.uk/downloads/file/27148/highland_nature_biodiversity_action_plan_2021_%E2%80%932026

Phase 1 code	Habitat type	NVC code	Area (Ha) of habitat loss	% of NVC community resource	% of survey area
B1.1	Unimproved acid grassland	U4 a & e	0.30	2.23	0.02
		U5	0.08	11.45	0.01
B1.2	Semi-improved acid grassland	U4b	1.48	19.00	0.11
B4	Improved grassland	MG6	0.07	7.69	0.01
B5	Marshy grassland	M25	0.83	11.75	0.06
C1	Bracken	U20	6.77	23.08	0.49
D1.1	Dry dwarf shrub heath	H10	5.11	18.47	0.37
		H12	24.03	15.00	1.72
		H21	3.76	5.91	0.27
D2	Wet dwarf shrub heath	M15	20.48	11.72	1.47
		M16	0.26	6.73	0.02
E1.6.1	Blanket bog	M17	22.27	5.33	1.6
		M18	0.08	20.00	0.01
		M19	30.61	9.33	2.20
		M20	0.27	20.22	0.02
E1.7	Wet modified bog	M25	0.93	7.79	0.07
E2.1	Acid/neutral flush	M4	0.17	8.49	0.01
		M6	0.81	3.14	0.06
J3.6	Buildings	N/A	0.22	50.47	0.02
J4	Bare ground	N/A	3.30	33.95	0.24
		Total	141.07	-	10.15

- 8.100 Indirect effects are expected to cause disturbance to 53.23Ha of Blanket bog, 0.93Ha of wet modified bog (a combined total of 54.16Ha).
- 8.101 Indirect loss of dry and wet heath from permanent and temporary infrastructure is 52.64Ha or 12.47% of total heath component within the survey area. This is considered to be an impact of a **moderate** magnitude to a locally important IEF. However, these losses have been calculated using a 30m buffer from infrastructure which is applicable to blanket bog that require a high reliance on undisturbed hydrological processes to function effectively. Heath communities are not as sensitive and much of the heath component within the 30m buffer will not be lost and the majority will likely be retained during construction. The magnitude of the impact is therefore considered to be **low** on a locally sensitive IEF and **not a significant** effect in the long term.
- 8.102 Peatlands considered to be of very high sensitivity (near natural condition) have been identified through a combination of the peatland condition assessment and notes gathered in the field regarding vegetation composition, structure, and indicator species. Areas of very high sensitivity have been avoided where possible throughout the design

process from the information gathered in the habitat surveys and the peatland condition assessment.

- 8.103 Negative indirect effects from temporary disturbance amounts to 54.16Ha of blanket bog and wet modified bog, which represents 7.02% of the 771.12Ha of blanket bog within the survey area. The effects will be minimised through good practice measures such as floating roads and further measures set out within Technical Appendix 8.4 Outline Habitat Management Plan and the Technical Appendix 10.3 Peat Management Plan. The magnitude of the impacts on blanket bog are classed as **low** on a regionally sensitive IEF. As such, temporary disturbance on blanket bog is considered to be a small negative effect that is **not significant**.
- 8.104 A total of 8.73% of all peatland communities within the survey area will be indirectly affected by the proposed development. This is categorised as a **low** magnitude of impact on a regionally sensitive IEF resulting in a small negative effect. As such, indirect effects on the peatland and related habitats IEF are **not significant**.

Temporary disturbance and changes to composition of plant communities resulting from hydrological changes

- 8.105 Predicted hydrological effects upon surface water is described in detail within Chapter 10. Intact or active blanket bogs communities often have a high-water table, with a water table close to the surface of the substrate (c. 10cm from the surface).
- 8.106 A high-water table in blanket bogs is essential for peat formation due to the ecological niches that the dominant peat forming Sphagnum require. Blanket bogs can cover large areas that are hydrologically connected, any changes to the hydrological mechanisms can effect the community as a whole.
- 8.107 Changes to hydrology including disturbance of the peat substrate, pollution, or alteration to surface or groundwaters can occur during the construction phase for a variety of reasons including:
- Dewatering activities leading to a reduction in groundwater levels;
 - Disruption to flow paths or changes to drainage regimes during construction (and operation) can lead to increases in run-off and a lowering of the water table;
 - Pollution events from construction, operation and decommissioning activities which can contaminate surface waters; and
 - Pollution from increased sediment load during construction and operation.
- 8.108 Through the implementation of good practice measures as set out in the SEPA Guidance for Pollution Prevention documents (GPPs) the risk of pollution events or contamination from increased sediment load to surface waters are minimised.
- 8.109 Where access tracks occur on a peat depth greater than 1m within the site, floating roads will be constructed. Floating roads are constructed so that the weight of the access track sits on the peat substrate, avoiding the need for solid foundations. This approach is preferable to alternative designs as it maintains some degree of hydrological connectivity where the access track intersects an area of blanket bog. While this method is preferable,

some effects to hydrological connectivity and changes to surface water flows are still expected, though they are somewhat reduced.

- 8.110 The installation of drainage ditches in areas of deep peat (>1m) is likely to result in localised disturbance of the peat, but the increased flow of water and surface run-off from the ditch will have a much wider effect. It is not just the water table that is effected, installation of drainage ditches tends to empty the acrotelm (upper layer of peat) of water readily over several hundred meters from the ditch itself. The consequence of the acrotelm drying results in a progressive loss of conditions for peat forming species¹⁸. Primary consolidation (shrinkage and collapse of the peat within c. 5m surrounding the drain) is the most visible effect of the installation of these drainage ditches.
- 8.111 For the purposes of this assessment, an analysis has been undertaken where the peatlands within the Survey Area have been assigned mesotopes following the classification described in (Lindsay, 1995)¹⁹. Mesotopes that are directly or indirectly potentially effected by the proposed development are shown in Figure 8.4. A summary of the mesotopes and the predicted effects are provided in Table 8.11.

Table 8.11: Indirect effects on integrity of functional peatland units (Mesotopes)

ID	Mesotope type	Area (Ha)	Comment
1	Watershed mire	0.34	Very small in size and fragmented. Located in a small hollow. Modified through herbivory with excessive trampling noted. Infrastructure bisects mesotope. Direct losses are very small in relative terms.
2	Valleyside mire	6.74	Linear mesotope in valley bottom. Modified condition. Infrastructure bisects mesotope.
3	Watershed mire	0.33	Very small in size. Near natural condition. No direct or indirect effects predicted.
4	Watershed mire	0.60	Very small in size. Near natural condition. No direct or indirect effects predicted.
5	Watershed mire	1.22	Small in size. Modified condition. Mesotope is within 30m ZOI buffer from infrastructure but is on ground upslope. Hydrological gradient not likely to be able to negatively effect this mesotope as a result.
6	Watershed mire	2.34	Small in size and modified in condition. Infrastructure will negatively effect this mesotope by bisecting it. Effects will be proportionally large due to the small size of the mesotope. But habitat effected is small in relative terms.

¹⁸ Lindsay, R., Birnie, R. and Clough, J. (2014) 'Impacts of Artificial Drainage of Peatlands' IUCN UK Committee Peatland Programme Briefing Note 3.
<https://iucn-uk-peatlandprogramme.org>

¹⁹ Lindsay, R (1995) *Bogs: The Ecology, Classification and Conservation of Ombrotrophic Mires* Scottish Natural Heritage, Battleby

ID	Mesotope type	Area (Ha)	Comment
7	Watershed mire	1.37	Small in size and modified in condition. Infrastructure will negatively effect this mesotope by bisecting it. Effects will be proportionally large due to the small size of the mesotope. But habitat effected is small in relative terms.
8	Watershed mire	0.83	Small in size and near natural in condition. Not within the ZOI of infrastructure with clear hydrological separation. No negative effects predicted.
9	Watershed mire	0.09	Small in size and modified in condition. Infrastructure will negatively effect this mesotope by bisecting it. Effects will be proportionally large due to the small size of the mesotope. But habitat effected is small in relative terms.
10	Watershed mire	0.11	Very small in size. Located in a small hollow. Modified through herbivory and muirburn. Infrastructure bisects mesotope. Mesotope entirely within direct and indirect ZOI buffer but direct losses are very small in relative terms.
11	Watershed mire	1.43	Small in size and in modified condition. Not within the ZOI of infrastructure. No negative effects predicted.
12	Saddle mire	1.56	Small in size and near natural in condition. Not within the ZOI of infrastructure with clear hydrological separation. No negative effects predicted.
13	Watershed mire	5.90	Small in size and near natural in condition. Not within the ZOI of infrastructure with clear hydrological separation. No negative effects predicted.
14	Watershed mire	1.90	Small in size and near natural in condition. Not within the ZOI of infrastructure with clear hydrological separation. No negative effects predicted.
15	Watershed mire	405.58	Second largest mesotope within survey area. Full range of conditions present. Areas of near natural condition avoided through design. Infrastructure causes some separation in the north with three crane pads and tracks. Direct losses amount to 1.1% of total mesotope area.
16	Watershed mire	4.24	Small in size. Areas with near natural and modified conditions. Not within the ZOI of infrastructure with clear hydrological separation. No negative effects predicted.
17	Watershed mire	551.75	Largest mesotope within survey area. Full range of conditions present. Almost all areas of near natural condition avoided through design, however, one section of M18 mire is within 30m buffer of infrastructure. Infrastructure intersects the mesotope and will cause fragmentation by splitting it into five distinct areas. Direct losses amount to 2.78% of total mesotope area.

8.112 Taking into consideration the predicted effects of the proposed development on the identified mesotopes, the following effects are highlighted:

- Mesotope 17 is effected proportionally the greatest by the proposed development with expected losses of 15.33Ha in total. In addition, the mesotope will be sub-

divided into five separate compartments. The proportion of direct losses are small (2.78%) however due to the large size of the total area (551.75Ha).

- Proposed direct losses of Mesotope 15 are expected to be 4.45Ha. Infrastructure does not negatively effect this area as much as mesotope 17 due to the layout of the infrastructure. A total of 1.1% of the total area of the mesotope will be lost from the footprint of the infrastructure.
- The proportion of direct loss is very high in many of the other functional units, such as mesotopes 9 (45.56%), 6 (33.28%) and 10 (20%). This is all due to the small, fragmented nature of these mesotopes which means that small losses in terms of hectares lost proportionally affects them by a greater degree.

8.113 When assessing effects of the proposed development on the functioning of the mesotopes, it is important to take into consideration the current condition of the peatlands within the Survey Area. The peatland condition assessment (see Technical Appendix 8.1) provides in depth details with regards to the conditions of the peatlands. Much of the peatland vegetation is severely degraded with large erosion channels, significant poaching from herbivores, drainage ditches and bare peat in most areas. While the fragmentation of two large mesotopes will negatively effect the peatlands within the site, the degraded nature of the peatlands offer an opportunity to carry out peatland restoration and significantly improve retained peatlands within the survey area. The loss of smaller Mesotopes (<10Ha) will have a lower overall negative effect due to their small, fragmented nature.

8.114 Considering the current state of the peatlands which are highly degraded and the proposed peatland restoration measures as mitigation, the impact of the development will be a **small positive** magnitude impact in the long-term. **No significant** negative effects are predicted.

Summary of construction effects on peatlands and related habitats

8.115 The main potential effects from the proposed development are predicted to be:

- Direct loss of **15.6Ha** of blanket bog;
- Indirect effects to **53.23Ha** of blanket bog;
- Direct loss of **0.06Ha** of wet modified bog;
- Indirect effects to **0.93Ha** of wet modified bog;
- Fragmentation and potential disruption due to changes in hydrological connectivity to two large mesotopes (Mesotope ID 15 & 17 in Figure 8.4); and
- Loss of function and fragmentation of small (<10Ha) mesotopes.

Therefore, a combined total of **69.82Ha** of blanket and wet modified bog is predicted to be negatively effected.

Predicted direct effects of construction on Wetlands and related habitats

8.116 The habitat surveys identified two communities listed as moderate and six communities listed as having high potential for groundwater dependency. Although these communities

are listed as having potential for groundwater dependency, not all are truly reliant upon groundwater. Through the assessment process, a small number of these communities that are groundwater dependent were identified in the north-west of the survey area. These are illustrated in Figure 8.3.

- 8.117 Non- GWDTEs within the survey area are species poor and are considered to be less than local conservation importance. In addition, no direct losses of wetlands are expected. Direct effects upon communities identified as being groundwater dependent within the survey area have been avoided through the design process by siting infrastructure around these features.
- 8.118 Direct effects on wetland and related habitats are Negligible. The effect is therefore **not significant**.

Predicted indirect effects of construction on Wetlands and related habitats

- 8.119 However, the crane pads for turbine numbers 19 and 20 are both located within the recommended 250m buffer for infrastructure requiring deep excavations (>1m). In addition, the track layout for both crane pads passes through the respective 100m buffer for infrastructure requiring excavations <1m in depth.
- 8.120 The track layout for turbine 19 is sited to follow an existing track, as such, no changes to hydrology are expected to the baseline conditions in this area. The track layout between turbines 19 and 20 also intersects the 100m buffer for a M10 *Carex dioica* – *Pinguicula vulgaris* NVC community. The new track is closely situated to but not using the same footprint of an existing track (maximum distance from track is c. 20m).
- 8.121 All but one of the identified GWDTEs are located upslope of proposed infrastructure. Given the location of the GWDTEs in relation to the proposed excavations, no adverse effects are predicted. The small M10 community located 130m to the west of turbine 19 is on a similar elevation to the turbine. However, adverse effects are still considered to be unlikely to this community given ground conditions that separate the crane pad from the M10 community. The crane pad sits on shallow heath soils and the M10 is located within blanket bog. Between the two habitats is shallow valley containing a M25 *Molinia caerulea* – *potentilla erecta* mire. This creates a greater degree of hydrological disconnect between the location of the crane pad and the M10 NVC community.
- 8.122 Considering the separation distance between the proposed excavations, topographical and hydrological settings mean that the risk of indirect are considered to be a minor magnitude. The effect from the Development is therefore **not significant**.

Construction Effects – Protected Species

Construction effect: direct mortality due to construction activities

- 8.123 The construction of the wind farm will require the movement of heavy plant and machinery. During the operation phase vehicular access may be required to maintain or manage the windfarm.

- 8.124 In the absence of mitigation increased vehicular movements and plant operation has the potential to result in direct mortality of otter, water vole, red squirrel, pine marten and badger due to road traffic accident (RTA) with site vehicles or animals becoming trapped in excavations.
- 8.125 This effect is temporally limited to the construction period. The effect would be permanent in terms of any individual animals, but is considered to be negligible in terms of the regional populations of these species.
- 8.126 The effect is considered to be a negative significant effect; significant only at a Local (site) level.

Operational Effects

- 8.127 Beyond the effects identified with respect to construction, no further direct loss of habitat or degradation is anticipated during the operational phase of the proposed development. Therefore, no further effects are predicted.
- 8.128 Indirect effects from long term changes in hydrology and fragmentation of peatlands are likely to result in changes to vegetation composition of blanket bog communities. Providing good practice measures are adhered to, no pollution or sedimentation events are likely during maintenance work.

Predicted direct effects of operational turbines on bats

- 8.129 Bat species considered to be at 'high' collision risk were recorded using the site; common and soprano pipistrelle bats. Although noted throughout the static detector locations there were recorded with the highest mean bat passes at L14 and L15 located at the east and west extents respectively. Both common and soprano pipistrelles are considered to be 'common' species, in Scotland, both species are considered to have a stable population with a widespread distribution. The current population estimates for common pipistrelle 875,000 and for soprano pipistrelles it is 1,210,000²⁰. These populations are of medium vulnerability to collision. This effect is, therefore, considered to be a negative significant effect; significant only at a Local (site) level. At a population level this effect would be negligible.
- 8.130 The OHMP (within Technical Appendix 8.4) proposes additional woodland planting to the south or the site and riparian planting to the north of the site. These areas are located at a distance greater than 167m from any turbine location and as such they will maintain the minimum 50m from woodland edge required to comply with best practice²⁰. As such no negative effects are predicted. The creation of woodland may increase the linear features edge habitat used by bats and in particular, common and soprano pipistrelles. In addition, broadleaved woodland is a favoured habitat type of brown long eared bats. As such there may be a positive effect which would be limited to a Site level and is therefore not significant.

²⁰ Natural England Technical Information Note TIN051 (2014) Bats and onshore wind turbines Interim guidance. (3rd edn). ISBN 978-1-78354-095-2 [online]. Available at: <https://publications.naturalengland.org.uk/publication/35010>

Decommissioning Effects

- 8.131 Potential effects during the decommissioning of the proposed development would be of a similar nature to those identified during the construction and operational phases. As the proposed development timeline spans 35 years, any new legislation and guidance prior to decommissioning will be adhered to.

Mitigation Measures and Monitoring

- 8.132 Generic mitigation measures that would apply during construction and operational phases are outlined below. The following measures represent general best practice and would reduce potential effects on a number of receptors:
- Not more than 16 weeks prior to construction of the proposed development and within the correct survey season, the Applicant will engage a Suitably Qualified Ecologist (SQE) to undertake a series of repeat ecological surveys to update the baseline data.
 - The aim of the repeat ecological surveys will be to provide up to date information in order to confirm required mitigation, including the need for protected species licensing and species protection plans for the site. The result of the pre-construction surveys will be communicated to the Contractor by the SQE and will be fed into the CEMP. The recommendations will ensure compliance with the necessary wildlife legislation.
 - Adherence to SEPA Guidance Pollution Prevention (GPP) in respect to working in and around watercourses.
 - Adherence to NatureScot (formally SNH) guidance on upland track construction.
 - All vehicles will be restricted to 5mph while within 100m of watercourses.
 - Avoidance of unnecessary disturbance to habitats by minimising the extent of vegetation clearance and other construction practices.
 - Restriction of plant and personnel to a prescribed working corridor through the use of temporary barriers or fences, minimising damage to habitats and potential direct mortality and disturbance to species.
 - Adherence to best practice guidance with respect to culvert and bridge design.
 - Any trenches dug during construction and decommissioning operations will be covered at the end of each day to prevent mammals becoming trapped. Alternatively, mammal ramps will be positioned in such a way that trapped mammals may be allowed to escape.
 - All exposed pipes and trenches will be checked each morning prior to starting construction activities. If trapped animals are found, the SQE will be contacted.
- 8.133 Ecological toolbox talks will be provided to all new site staff on the potential presence of protected species and any measures that need to be undertaken.

Construction

- 8.134 The proposed development has sought to implement the mitigation hierarchy in relation to the effects on habitat through the design process. Embedded mitigation has been

largely effective in implementing avoidance of IEFs. The extent and location of blanket bog communities within the Site means that it has not been possible to completely avoid effects on blanket bog.

- 8.135 As such, measures to minimise or reduce the scale of the effect on these IEFs have included selecting routes through areas which are less damaging to the function of the blanket bog and the use of floating roads on areas of deep peat to minimise potential hydrological effects have been incorporated.
- 8.136 An Outline Habitat Management Plan (OHMP) and a Peat Management Plan (PMP) (EIA Report Volume 4, Technical Appendix 8.4 and 10.3 respectively) details the proposed mitigation and enhancement measures designed to reduce negative effects. In summary, these proposals include:
- Reduction of grazing through deer management;
 - Peatland restoration of suitable areas amounting to 522Ha;
 - Translocate any surplus excavated peat within the Developable Area;
 - Riparian woodland creation amounting to 7Ha; and
 - Native woodland creation amounting to 39Ha.
- 8.137 Prior to the small amount of felling, and within the correct survey season, all trees within the felling plan will be further surveyed from the ground to determine the potential to support roosting bats. Should feature be identified trees will be inspected at height and presence / absence surveys will be conducted where necessary. It is acknowledged that, as a result of age, infection or mechanical damage (i.e. directly from weather such as winter storms or indirectly from other trees falling) the presence of feature suitable to support bats may change over time. Should a roost be identified a Licence from NatureScot will be sought prior to the continuation of works.
- 8.138 All site lighting (if required) will be directed to the area of works and light spill minimised. No lighting of linear features should be undertaken.

Operation

- 8.139 Monitoring of the proposed mitigation and enhancement activities outlined above will be carried out to measure effectiveness during the lifespan of the windfarm (35 years). There is currently not a strict timeline for the peatland restoration proposals, though these should be carried out during either construction phases or at the beginning of the operational phase.

Decommissioning

- 8.140 During the decommissioning of the proposed development, potential effects on IEFs will be similar to those during the construction phase. Similar measures to minimise effects will be employed but will use any updated published guidance or legislation which will be incorporated into the relevant management plan/s prior to decommissioning.

Cumulative Effects

- 8.141 In addition to assessing the effects of the proposed development upon IEFs, it is also appropriate to assess the cumulative effects of the proposed development in the context of similar proposals within the wider region. In this case, blanket bogs are considered the primary component of conservation concern within the 'peatland and related habitat' IEF.
- 8.142 A common approach to previous wind farm cumulative assessments for peatlands has been to compare the potentially effected peatland areas with their respective proposed development plans and calculate the percentage of peatland habitat (whether modified or not) will be affected in relation to the peatland resource at a regional or national scale. However, this approach does not fully recognise the quality of the peatlands and whether they are actively peat forming or not.
- 8.143 In order to address these limitations, an alternative approach has been taken in this assessment. The NatureScot Carbon and Peatland Map ²¹ provides details with regard to the location and extent of high-quality peat areas. Within this dataset, 'Class 1' peatlands are ranked as the most important in terms of their carbon resource, but this approach also broadly aligns with areas of peatland that are the best quality and most actively forming peat. The vegetation survey results within the Survey Area shows a relatively high level of agreement with this approach when compared to the Class 1 peatland data.
- 8.144 The effects that similar schemes have on Class 1 peatlands has been used here to assess the cumulative effects. Cumulative effects have been calculated by cross referencing operational, consented and schemes under construction obtained from the Highland Council Open Map Data (2025)²² with Class 1 peatland polygons
- 8.145 The Northern Highlands Natural Heritage Zone (NHZ) has been used to assess the scale of cumulative effects.
- 8.146 Excluding Class 1 peatlands potentially effected by the proposed development, a total of 9.12% of the total area of Class 1 peatlands within the Northern Highlands NHZ contained wind turbines. This figure would rise to 10.21% if the effects on peatlands are considered significant.
- 8.147 In order to establish what wind farm developments have caused significant effects upon Class 1 peatlands within the Northern Highland NHZ, a review of all available information obtained through the Energy Consents Unit website²³ was carried out. Information was collected for all available schemes, though information for many schemes could not be located. All available information was collected and their effects on habitats (and any reference to peatland habitats) are summarised in Table 8.12 below.

²¹ NatureScot (2016) NatureScot Carbon and Peatland map. Accessed online 20/06/2025 at: <https://soils.environment.gov.scot/maps/thematic-maps/carbon-and-peatland-2016-map/>

²² Highland Council (2023) Highland Council Open Map Data Accessed online 20/06/2025: https://map-highland.opendata.arcgis.com/datasets/fdad9392071a477087c9e0cb4184b5d4_0/about

²³ <https://www.energyconsents.scot/>

Table 8.12: Summary of effects from wind farms schemes within the Northern Highland (NHZ)

Site name	Approximate location from Development	Effect on habitats
Bunloinn Wind Farm	48km to the south-west	No significant effects
Bhlaraidh Extension Wind Farm	25km to the south	No significant effects
Kirkan Wind Farm	23km to north	No significant effects
Beinneun Extension	25km to the south	No significant effects
Corriemoillie	23km to north	No significant effects
Culachy Wind Farm	45km to the south	Minor adverse - not significant
Loch Liath Wind Farm	23km to the south	Bog habitats - Minor, not significant
Tomchrasky Wind Farm	39km to the south-west	Negligible - not significant
Abhainn Dubh Wind Farm	22km to the north-east	Minor adverse - not significant
Strath Oykel Wind Farm	50km to the north	No significant effects
Chrathaich Wind Farm	25km to the south	No significant effects

- 8.148 Taking into consideration that the effect of the proposed development on the peatland and related IEFs has been classed as not significant, and that no significant effects from any other wind farm schemes where information was available was located, **no significant** cumulative effects have been identified.

Residual Effects

Construction

- 8.149 The proposed peatland restoration measures outlined in the OHMP consists of restoring of approximately 552Ha of blanket bog within the Survey Area. NatureScot currently recommends a ratio of 1:10 for the area of peatland lost to that which is restored. The OHMP has proposed an area of restoration at a ratio of approximately 1:7.7. The amount of restoration is limited by the availability of suitable restoration options within the Site, however the scale of peatland restoration on site proposed is proportionate given the positive effect being delivered.
- 8.150 In addition to peatland restoration measures, other proposed mitigation includes a reduction of deer within the site. Given the frequency and extent of trampling and poaching collected during the field surveys, this is considered to be one of the primary drivers of degradation to the site's peatland habitats. Working in combination with the peatland restoration measures which will deliver short, medium and long-term positive effects on peatlands, management of effects from deer will aid further degradation to peatlands in the long-term.
- 8.151 Native broadleaved woodland planting proposals have also been provided to increase biodiversity and carbon sequestration opportunities within the developable area. This

involves the creation of 39Ha of native broadleaved woodland and 7Ha of riparian woodland.

- 8.152 Despite the peatland restoration proposals falling below NatureScot's recommended 1:10 ratio, considering the baseline conditions relating to the severity of degradation and the target improved condition of these communities resulting from the OHMP proposals, an overall benefit is expected. Taking a combined consideration of both direct and indirect effects from infrastructure layout, fragmentation of mesotopes and the benefits that will be gained from restoring significantly degraded peatland, a **small positive magnitude impact** at a regional scale of the proposed development upon peatlands and related habitats is predicted and the effect is **not significant**.
- 8.153 The identified GWDTE communities are the primary feature of conservation importance of the wetlands and related habitats IEF within the Survey area. Taking into consideration the mitigation measures (avoidance, topographical and hydrological details), a **negligible** magnitude impact is predicted, and the effect is **not significant** on wetlands and related habitats.

Operation

- 8.154 The low risk of direct mortality of bats cannot be mitigated and as such there remains a low magnitude negative significant effect only at a Local (site) level.

Decommissioning

- 8.155 Beyond the effects identified with respect to construction, no further effects are predicted.

Summary

8.156 Table 8.13 below summarises the effects on key receptors, together with any mitigation measures and residual effects.

Table 8.13: Summary of Effects

Receptor	Sensitivity	Predicted Effect Characterisation	Significance before mitigation	Summary of Mitigation	Residual Effect
Construction Phase					
Peatlands and related Habitat	Regional Importance	Direct and indirect Habitat loss of 15.66Ha of blanket and wet modified bog	Small negative Not significant.	Generic Mitigation Outline Habitat Management Plan (OHMP). Outline Peat Management Plan - Reduction of grazing through deer management - Peatland restoration of 552Ha - Translocate any surplus excavated peat within the Development Area.	Small positive. Not Significant
		Indirect effect of construction to 54.16Ha of blanket and wet modified bog	Small negative Not significant.	Generic Mitigation Outline Habitat Management Plan (OHMP). Outline Peat Management Plan - Reduction of grazing through deer management - Peatland restoration of 552Ha Translocate any surplus excavated peat within the Development Area.	Small positive. Not Significant
		Direct and indirect effect to dry and wet dwarf shrub heath	Low magnitude. Not significant.	Generic Mitigation Outline Habitat Management Plan (OHMP). Outline Peat Management Plan - Reduction of grazing through deer management	Negligible. Not significant.

Receptor	Sensitivity	Predicted Effect Characterisation	Significance before mitigation	Summary of Mitigation	Residual Effect
				- Peatland restoration of 552Ha Translocate any surplus excavated peat within the Development Area.	
Wetlands and related Habitats	Local	Indirect effect of construction	Negligible. Not significant	Generic Mitigation Outline Habitat Management Plan (OHMP). Outline Peat Management Plan - Reduction of grazing through deer management - Peatland restoration of 552Ha Translocate any surplus excavated peat within the Development Area.	Negligible. Not Significant
Protected species (excluding bats)	Local	RTA and entrapment during construction	Negligible. Not significant	Generic Mitigation. Pre-construction update protected species surveys.	Negligible. Not Significant
Operational Phase					
Bats	Local	Direct effects of operation – collision	Negative – significant at local level only	No mitigation proposed	Negative at local level only

Ballach Wind Farm

Environmental Impact Assessment Report Volume 1 Chapter 9: Ornithology

July 2025

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9 ORNITHOLOGY

Introduction

- 9.1 This chapter considers the potential effects of Ballach Wind Farm (the 'proposed development') on ornithology.
- 9.2 This chapter is also supported by the following figures as contained within EIA Report Volume 2: Figures:
- Figure 9.1: Site and Designated Sites
 - Figure 9.2: Ornithology Survey Areas
 - Figure 9.3 Vantage Point Viewsheds
 - Figure 9.4a-g: Target Species Flights
 - Figure 9.5a-c: Breeding Bird Territories
 - Figure 9.6: CONFIDENTIAL Bird Territories
- 9.3 The chapter is supported by a number of Technical Appendices (as set out within Volume 4: Technical Appendices), comprising:
- Technical Appendix 9.1: Bird Survey Methods and Survey Conditions
 - Technical Appendix 9.2: Collision Risk Modelling Report
 - Technical Appendix 9.3: Confidential Annex
 - Technical Appendix 9.4: GET Model Report
- 9.4 Other relevant chapters include Chapter 3: Project Description and Chapter 8: Ecology. .
- 9.5 The ornithology survey and assessment have been undertaken by WildLife Consulting Limited and associates. Specifically, the ornithological surveys have been undertaken by Carroll Ecology and Colin Nisbet. Andy Carroll (Carroll Ecology) and his team have been undertaking bird surveys on wind farm sites for over 20 years. The bat assessment has been undertaken by Colin Nisbet MSc, BSc, MCIEEM - Director (WildLife Consulting Ltd). Colin specialises in birds and on-shore windfarms and has been an ecological consultant for 19 years.

Legislation, Policy, and Relevant Guidance

- 9.6 Relevant legislation, policy and guidance has been consulted to inform the assessment of impacts. A list of pertinent documents are provided below; where specific documents have been consulted, these are referenced in the relevant section.
- 9.7 Scottish Natural Heritage (SNH) has been rebranded as NatureScot as of the 24th of August 2020. As such some guidance documents or consultation may refer to the original name used at the time of publication.

Legislation

9.8 The following pieces of legislation are relevant to this assessment:

- Directive 2009/147/EC on the Conservation of Wild Birds (the Birds Directive) 1979;
- The Conservation of Natural Habitats and Wild Flora and Fauna (the Habitats Directive) 1992 (92/43/EEC);
- The Wildlife and Natural Environment (Scotland) Act 2011;
- Nature Conservation (Scotland) Act 2004;
- The Conservation (Natural Habitats &c.) Regulations 1994 (as amended);
- The Wildlife and Countryside Act 1981 (as amended);
- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017;
- The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017;
- Environmental Impact Assessment Directive 2014/52/EU;
- Chartered Institute of Ecology and Environmental Management. (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, and Coastal;
- Institute of Environmental Management and Assessment. (2005). Guidelines for Environmental Impact Assessment; and
- Scottish Natural Heritage (2013) A handbook on environmental impact assessment.

Policy

9.9 Chapter 5: Renewable Energy and Planning Policy of the EIA Report sets out the planning policy framework that is relevant to the EIA process and the proposed development. The policies set out include those from the Highland Wide Local Development Plan (HwLDP) relevant aspects of National Planning Framework 4 (NPF4) (Scottish Government, 2023), Planning Advice Notes and other relevant guidance.

- NPF4: Policy 1 - Tackling the climate and nature crises;
- NPF4: Policy 2 - Climate mitigation and adaptation;
- NPF4: Policy 3 - Biodiversity;
- NPF4: Policy 4 Natural Places;
- NPF4: Policy 5 – Soils;
- NPF4: Policy 11 Energy; and
- The Highland Council LDP: Policy 58 Protected Species.

Guidance

- Developing field and analytical methods to assess avian collision risk at wind farms (Band et al., 2007)¹;

¹ Band, W., Madders, M. & Whitfield, D.P. (2007) *Developing field and analytical methods to assess avian collision risk at wind farms*. In de Lucas, M., Janss, G. & Ferrer, M. (eds.) *Birds and Wind Power*. Quercus, Madrid.

- Scottish Raptor Monitoring Scheme Report (SRMS) 2020 (Challis et al., 2022)²;
- Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (Chartered Institute of Ecology and Environmental Management (CIEEM), 2018)³;
- Birds of Conservation Concern (BoCC) 5: the population status of birds in the United Kingdom, Channel Islands and Isle of Man (Stanbury et al., 2021)⁴;
- Wind Energy Developments and Natura 2000 (European Commission, 2011)⁵;
- The Birds of Scotland (Forrester et al., 2007)⁶.
- Bird Monitoring Methods (Gilbert et al., 1998)⁷;
- Raptors: a field guide to survey and monitoring, 3rd edition (Hardey et al., 2013)⁸;
- Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species. NatureScot Research Report 1283⁹;
- The Scottish Biodiversity List (SBL)¹⁰;
- Windfarms and birds: calculating a theoretical collision risk assuming no avoidance action. (Scottish Natural Heritage (SNH)¹¹, 2000)¹²;
- Recommended bird survey methods to inform impact assessment of onshore wind farms (SNH, 2017)¹³;
- Assessing connectivity with Special Protection Areas (SPAs) (SNH, 2016a)¹⁴;
- Environmental Statements and Annexes of Environmentally Sensitive Bird Information; Guidance for Developers, Consultants and Consultees (SNH, 2016b)¹⁵;
- Wind farm proposals on afforested sites – advice on reducing suitability for hen harrier *Circus cyaneus*, merlin *Falco columbarius* and short-eared owl *Asio flammeus* (SNH, 2016c)¹⁶;

² Challis, A., Eaton, M., Wilson, M.W., Holling, M., Stevenson, A. & Stirling-Aird, P. (2019). *Scottish Raptor Monitoring Scheme Report 2018*. BTO Scotland, Stirling.

³ CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1*. Chartered Institute of Ecology and Environmental Management, Winchester.

⁴ Author(s): Stanbury, A.J., Eaton, M.A., Aebischer, N.J., Balmer, D., Brown, A.F., Douse, A., Lindley, P., McCulloch, N., Noble, D.G. & Win, I. (2021). *Birds of Conservation Concern 5*.

⁵ European Commission (2011). *Natura 2000 Guidance Document 'Wind Energy Developments and Natura 2000'*. European Commission, Brussels.

⁶ Forrester, R.W., Andrews, I.J., McInerney, C.J., Murray, R.D., McGowan, R.Y., Zonfrillo, B., Betts, M.W., Jardine, D.C., & Grundy, D.S. (eds) (2007) *The Birds of Scotland*. The Scottish Ornithologists Club, Aberlady.

⁷ Gilbert, G., Gibbons, D.W. & Evans, J. 1998. *Bird monitoring methods*. RSPB, Sandy.

⁸ Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. & Thompson, D. (2013). *Raptors: a field guide to survey and monitoring*, 3rd edition. The Stationery Office, Edinburgh

⁹ Ruddock, M. & Whitfield, D.P. (2007). *A Review of Disturbance Distances in Selected Bird Species*. A report from Natural Research (Projects) Ltd to Scottish Natural Heritage

¹⁰ Goodship, N.M. and Furness, R.W. (2022) *Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species*. NatureScot Research Report 1283.

¹¹ Note that SNH changed the name to NatureScot on 24/08/2020.

¹² Scottish Natural Heritage (SNH) (2000). *Windfarms and birds: calculating a theoretical collision risk assuming no avoidance action*. SNH Guidance Note.

¹³ SNH (2017). *Recommended bird survey methods to inform impact assessment of onshore wind farms*, Version 2.

¹⁴ SNH (2016a). *Assessing connectivity with Special Protection Areas (SPAs)*, Version 3.

¹⁵ SNH (2016b). *Environmental Statements and Annexes of Environmentally Sensitive Bird Information; Guidance for Developers, Consultants and Consultees*, Version 2.

¹⁶ SNH (2016c). *Wind farm proposals on afforested sites – advice on reducing suitability for hen harrier, merlin and short-eared owl*.

- Assessing significance of impacts from onshore wind farms on birds out with designated areas (SNH, 2018a)¹⁷;
- Assessing the cumulative impacts of onshore wind farms on birds (SNH, 2018b)¹⁸;
- Environmental Impact Assessment Handbook (SNH, 2018c)¹⁹;
- Natural Heritage Zone Bird Population Estimates (Wilson et al., 2015)²⁰.

Consultation

- 9.10 As part of the Scoping exercise, a consultation exercise was undertaken to inform the design of the proposed development and to seek agreement on potential significant environmental effects that result from the proposed development as well as the scope of any assessment work required as part of this EIA.
- 9.11 The Scoping Opinion was received from the ECU/ Scottish Ministers on 28th November 2024.
- 9.12 Consultation relevant to the ornithology assessment was undertaken with Highland Council, NatureScot and the RSPB who commented on aspects of methodology, sources of information, scope of assessment and cumulative development. A summary of these consultation responses is provided in Table 9-1.

Table 9-1: Consultation Responses

Consultee	Date Received	Consultation Response	Where and how is this addressed?
Highland Council	12 th November, 2024	1) Assessment of relevant SPAs/SPA species, Schedule 1 listed species, will be required. 2) Assess collision risk, displacement and disturbance to foraging, breeding and roosting birds.	1) All SPAs within 20km were considered in this assessment, as were schedule 1 listed bird species. 2) Collision risk, disturbance and displacement to birds is assessed as part of this chapter.
NatureScot	22 nd November, 2024	1) Assess effects on Glen Affric to Strathconnon and Inner Moray Firth SPAs. 2) The original (2017-2018) data is too old for the assessment and the 2019 data may also be considered too old.	1) Effects on SPAs are considered in the Habitats Regulations Appraisal section of this document. 2) The 2024 survey was designed to update the 2017-2019 data. As the baseline data collected in 2024 are consistent with the previous baseline

¹⁷ SNH (2018a). Assessing significance of impacts from onshore wind farms on birds outwith designated areas, Version 2.

¹⁸ SNH (2018b). Assessing the cumulative impacts of onshore wind farms on birds. SNH Guidance Note.

¹⁹ SNH (2018c). Environmental Impact Assessment Handbook – Version 5: Guidance for competent authorities, consultation bodies, and others involved in the Environmental Impact Assessment process in Scotland.

²⁰ Wilson, M.W., Austin, G.E., Gillings S. & Wernham, C.V. (2015) *Natural Heritage Zone Bird Population Estimates*. SWBSG Commissioned report number SWBSG_1504.

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		Further survey required in 2025. 3) Vantage point (VP) locations do not conform to guidance as they are in the turbine array. 4) Provide detail on viewshed height. 5) Collision modelling should use the standard 85% operational factor. 6) The surveys should follow NatureScot guidance and effects on birds assessed at the regional (NHZ 7) level. 7) Background records should be requested from RSPB and Highland Raptor Study Group (HRSRG).	data, it is considered that the analysis of both data sets is sufficient for the purpose of assessing the effects of the proposed development and that further survey in 2025 is not necessary. 3) The VP locations match those used in 2017-2019 for consistency and are best placed given the topography of the site. No other VPs can be seen from any given VP, therefore, surveyor effects on flight activity are not an issue. While the VP viewsheds do not have a full 500m buffer around the turbine layout the surrounding habitat is homogenous and therefore it is considered that the VPs provide a representative baseline for the assessment. 4) The viewsheds were all run at a height of 20m. 5) Collision modelling has been run using the standard 85% operational factor, and additionally using a 40% operational factor, which is considered a realistic worst case based on the Renewable UK load factor²¹. 6) Surveys are all based on NatureScot guidance and the assessment of effects on key species are undertaken at the NHZ 7 level.

²¹ <https://www.renewableuk.com/energypulse/ukwed/>

Consultee	Date Received	Consultation Response	Where and how is this addressed?
			7) Background records have been provided from the RSPB and HRSG.
RSPB	13 th November, 2024	1) Assess effects on Glenaffric to Strathconon SPA, the Inner Moray Firth SPA and the Cromarty Firth SPA. 2) GET model and survey data should be used to help evolve the development design. 3) RSPB advised they have background records of breeding golden eagle approximately 3km from the site, as well as osprey, hen harrier, red kite, black grouse, common gull, golden plover, merlin, curlew, lapwing and snipe. 4) Collision modelling should be undertaken for red kite. 5) Windfarm infrastructure should be a minimum of 750m from the black grouse lek. The assessment should also consider enhancements to black grouse. 6) Waders should be included in the assessment, including measures to benefit this group. 7) Two years bird survey should be undertaken for the development. 8) Winter surveys should be undertaken for golden eagle, hen	1) Effects on SPAs are considered in the Habitats Regulations Appraisal section of this document. 2) GET modelling and survey data have been used to revise the development design. 3) Background records supplied by RSPB contained records of black grouse and Slavonian grebe between 2014 and 2019. Data were also requested from the HRSG, who provided records of golden eagle. 4) Collision modelling has been undertaken for red kite. 5) The nearest turbine is 750m from the lek. Enhancements for black grouse are included in this assessment. 6) Wading birds are considered in the assessment, as well as enhancements for this group, which are included in the OHMP. 7) The 2024 survey was designed to update the 2017-2019 data. As the baseline data collected in 2024 are consistent with the previous baseline data, it is considered that the analysis of both data sets is sufficient for the purpose of assessing the effects of the development and that further survey in 2025 is not necessary.

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		harrier, red kite and wintering geese. 9) RSPB provided advice on the scale of a cumulative assessment.	8) Winter surveys comprised VP surveys only. There are no known eagle roosts within potential disturbance distance (1km) to the development, no hen harrier activity was recorded in 2024 (and only a single flight between 2017-2019. Goose flight activity is also very low. Save for the land adjacent to the southern half of the access track, there is no suitable roosting habitat for red kite. Hence winter surveys were not considered necessary. 9) Noted.

Assessment Methodology and Significance

Scope of Assessment

9.13 The key issues for the assessment of potential ornithological effects relating to the Development are:

- Direct loss of breeding, foraging and/or roosting habitat through construction of the proposed development;
- Displacement of birds through direct and indirect loss of habitat as a result of disturbance associated with construction or decommissioning activity, turbine operation and maintenance, or visitor disturbance;
- Death or injury through collision with turbine blades or other types of infrastructure associated with the proposed development; and
- Cumulative effects on Natural Heritage Zone (NHZ) and Special Protected Area (SPA) populations, resulting from construction, operation and decommissioning of the proposed development in conjunction with other developments that may also impact on the same populations.

Elements Scoped Out of Assessment

9.14 Due to the relatively small scale of the development potential barrier effects on Important Ornithological Features (IOFs) were also scoped out of the assessment.

- 9.15 Effects resulting from the development on Ben Wyvis SPA/SSSI, Achanalt Marshes SPA/SSSI, and North Inverness Lochs SPA are all scoped out as the development lies further than the core foraging distances of their qualifying species to the site.
- 9.16 Bird species considered to be of local or less than local importance (see Table 9-2: Framework for Determining Importance of Ornithological Receptors) have also been scoped out of the assessment.

Survey Areas

- 9.17 Survey areas are based on best practice guidance (SNH, 2017)¹³. All survey areas are based on the site boundary. The site boundary encompasses the hole development and access route. The site boundary and survey areas are illustrated on Figure 9.2.
- The breeding bird survey area covers all land within 500m of the site, including the access track.
 - The black grouse survey area covers all land within 1.5km of the site, excluding the access track, which is covered to 500m.
 - The breeding raptor and diver survey area covers all land within 2km of the site, excluding the access track, which is covered to 500m.
 - The eagle survey area covers all land within 6km of the site, excluding the access track, which is covered to 500m.

Desk Based Study and Data Sources

- 9.18 A request for the background records of raptor species recorded within 2km of the Site in the last five years (extended to 6km for eagle species), was made to the Highland Raptor Study Group.
- 9.19 Background records within the last five years relating raptors, black grouse *Lyrurus tetrix* and wader species within 2km of the Site were requested from the RSPB.

Field Survey Methods

- 9.20 Baseline Ornithology Surveys were originally completed over a two year-long period between October 2017 and September 2019 (inclusive). Given that NatureScot generally consider bird data to remain valid for approximately five years, another year of bird surveys were undertaken between October 2023 and August 2024 to update the previous baseline and determine whether it remained consistent. Full details of ornithology survey effort and weather conditions are given in Technical Appendix 9.1 and survey areas are illustrated on Figure 9.2.
- 9.21 During each survey, signs and observations of the relevant species were recorded in the field on large scale maps. A description of the methods followed for each survey is provided below.

Flight Activity Surveys

- 9.22 Flight Activity Surveys (FAS) were carried out between October 2017 and September 2019 and between October 2023 and August 2024, using a series of watches from three VPs overlooking the Site, to record flight activity of target bird species and allow collision risk to be estimated.

VP Locations

- 9.23 The VP locations and viewsheds used during the FAS are illustrated on Figure 9.3. The viewshed (visible area from each VP) analysis was re-run to take into account the Rotor Swept Height (RSH) of the candidate turbine.

Target Species

- 9.24 Target species included the following:

- All wild swan, goose, heron and duck species;
- All raptors and owls listed on Schedule 1 of the Wildlife and Countryside Act 1981 **Error! Bookmark not defined.** (as amended) and/or Annex I of the Birds Directive **Error! Bookmark not defined.**;
- All wader species;
- Black grouse; and
- Divers.

- 9.25 In accordance with NatureScot guidance¹³, flight lines of all target species passing through the VP viewshed (see below) were mapped in the field. Each recorded flight line was numbered and cross-referenced to the following flight information, which was recorded on standardised survey forms:

- Species, age and sex (where identification of age/sex was possible);
- Number of birds;
- Time (when first seen);
- Duration of flight within the viewshed; and
- Flight height on detection and at 15 second intervals, recorded in the following height band, which are either below, at or above potential collision height (PCH):
 - Band 1 - 0 to 30 m (below PCH);
 - Band 2 - 30 m to 240 m (at PCH); and
 - Band 3 – >240m (above PCH).

Secondary Species

- 9.26 In addition to recording target species flights, the number and activity of 'secondary' species was summarised every 5-minutes during each FAS. Secondary species included the following: cormorant *Phalacrocorax carbo*, sparrowhawk *Accipiter nisus*, buzzard *Buteo buteo*, kestrel *Falco tinnunculus*, all gull species and raven *Corvus corax*. Recording of target species took priority over that of secondary species.

Survey Details

- 9.27 Surveys were stratified to cover all times of day including dawn and dusk periods. Each watch lasted up to three hours with a minimum 30-minute break in between watches. The recommended minimum 36 hours per season¹³ was achieved or exceeded at all VPs, for each of the two breeding and non-breeding seasons covered during the survey period.

Breeding Bird Survey

- 9.28 The Breeding Bird Survey (BBS) follows the Brown and Shepherd methodology²². This methodology is used to census upland breeding waders and was adapted to record all other breeding bird species within the survey area. However, territory mapping was not undertaken for passerine species, which are not considered to be particularly susceptible to the effects of onshore wind farms. The survey area comprises the site boundary, plus all accessible land within a 500 m buffer zone (Figure 9.2). Surveys took place between 08:00 and 18:00 hours. Four BBS visits were undertaken in 2018 and three visits in 2019. Four further BBS visits were undertaken between April – mid July 2024 to refresh the baseline and ensure it remains consistent.
- 9.29 The surveyors walked a predetermined transect through 500m × 500m grid squares ensuring that all points within the survey area are approached to within 100 m. Surveyors spent 20-25 minutes surveying each 500m × 500m grid square. All species seen or heard were recorded accurately onto large-scale field maps, using standard British Trust for Ornithology (BTO) Common Bird Census (CBC) notation. This allowed for a distinction between different species and between different behaviours – particularly between behaviours indicative of breeding (e.g. singing, alarm calling, aggressive interactions, distraction displays etc.) and those not related to breeding. The breeding bird survey results were supplemented by records of breeding birds noted during other surveys carried out in the breeding season. If a singing or displaying bird was recorded at a particular location within the survey area on at least one of the four visits, it was assumed to be holding a territory and/or breeding.
- 9.30 Criteria used to classify territorial behaviour included:
- Presence of nest, eggs and/or chicks;
 - Alarm calling indicative of nest, young or territory;
 - Singing males;
 - Displaying or song-flighting;
 - Distraction display;
 - Birds aggressively defending territories;
 - Birds are seen carrying food to nest or young; and
 - Birds carrying faecal sacs away from active nests.

Black Grouse Surveys

- 9.31 Black Grouse Surveys were completed in April and May 2018, 2019 and 2024, based on standard methods⁷. All surveys commenced before sunrise and continued for at least two

²² Brown, A.F. and Shepherd, K.B. (1993). "A method for censusing upland breeding waders". Bird Study 40: 189-195.

hours after sunrise. Surveys covered all potentially suitable lekking habitat within the Site Boundary and a surrounding 1.5 km Buffer Area.

Breeding Raptor and Diver Surveys

- 9.32 In addition to the BBS, walkovers and short Vantage Point (VP) watches of all accessible areas of habitat within 2km of the site were carried out on five occasions between March to early July inclusive in each of the 2018 and 2019 breeding seasons and on four occasions between April and early July 2024. to establish whether or not raptors of conservation concern are breeding within or close to the site, following methodologies detailed in Hardey et al. (2006)²³ for raptors and Gilbert et al for diver species. Target species included Birds Directive Annex and WCA Schedule 1 listed raptor species, as well as diver species and Slavonian grebe. The survey area extended to 6 km for eagle species. Observations of common raptor species buzzard, sparrowhawk and kestrel were also noted. All surveys were undertaken under Schedule 1 licence.

Assessment of Significance

- 9.33 The approach used for the Ecological Impact Assessment (EclA) process is in line with guidance produced by CIEEM³ and NatureScot¹⁹, and comprises the following stages:
- Evaluation of the importance of ornithological features through Desk Study and Baseline Ornithology Surveys – those considered to be Important Ornithological Features²⁴ (IOFs) are scoped into the assessment, while species considered to be of local importance are scoped out;
 - Identification and characterisation of potential effects on IOFs;
 - Assessment of potential effects on IOFs, both from the Development alone and in combination with other developments in the surrounding area (cumulative effects);
 - Identification of any measures required to avoid and mitigate (reduce) these effects; and
 - Assessment of the significance of any residual effects after mitigation.
- 9.34 Further details relating to the methods used for evaluating the importance of ornithological features, characterising potential impacts, and assessing the significance of residual effects are provided below.

Sensitivity

- 9.35 Ornithological features can be important for a variety of reasons and may relate, for example, statutory designations (for protected sites), or (for species) to rarity, the extent to which they are threatened throughout their range, or to their rate of decline.
- 9.36 The level of importance of ornithological features identified during the Desk Study and Baseline Ornithology Surveys has been determined using the criteria defined in Table 9-2.

²³ Hardey, J., Crick, H., Werham, C., Riley, H., Etheridge, B., Thompson, D. 2006. Raptors: a field guide to survey and monitoring. SNH, Inverness.

²⁴ CIEEM guidance³ recommends defining Important Ecological Features (IEFs), but for the purpose of this chapter, IEFs will be referred to as IOFs since only avian species are considered.

These criteria have been determined with reference to CIEEM guidance³. For protected sites, this includes a consideration of statutory designations and relevant legislation, as well as potential connectivity to the Site. For species, this includes a consideration of relevant legislation, conservation status, population size and distribution, level and type of Site use and, where not a designated feature of an SPA or Ramsar site (with potential connectivity to the Site), whether the species is identified in NatureScot guidance¹⁷ as a priority for assessment when considering the development of onshore wind farms in Scotland.

9.37 Note that, in some cases, information relating to the size (and distribution) of local and regional populations can be limited or unavailable. Where this is the case and it is not clear whether a population is present in locally versus regionally (or regionally versus nationally) important numbers, a precautionary approach is used and the population is assessed as being of the higher level of importance.

9.38 In addition to the importance of each bird species in terms of relevant legislation and conservation listings, the evaluation of species importance levels also considers the value of the Site and immediate surroundings for that species, in terms of the number of individuals using it and the nature and level of use. For example, if one or more pairs of birds listed on Schedule 1 of the Wildlife & Countryside Act 1981 (as amended) **Error! Bookmark not defined.** was found to be breeding within the Site, the species would likely be assigned a regional or higher importance level (depending on population status and trends). However, if one–two Schedule 1 birds flew across the site very occasionally, and the species was not considered to be using it regularly²⁵, it would likely be assessed as being of low importance. Similarly, for protected sites, in addition to the statutory designations, the potential for connectivity with the Site is taken into account when determining its importance in the context of the assessment. Thus, a statutory site identified during the Desk Study and designated as being of national or higher importance, but with no potential connectivity to the Site, would likely be evaluated as being of no more than local importance in the context of the assessment, because there is no pathway for the proposed development to have an effect.

Table 9-2: Framework for Determining Importance of Ornithological Receptors

Importance of Receptor	Examples
International	Statutory sites of international ornithological importance (SPAs and Ramsar sites) with potential connectivity to the Site. The regular presence²⁵ within or around the Site of a cited interest of an existing or proposed statutory site of international ornithological importance, i.e. SPA or Ramsar site, with potential connectivity to the Site. Cited means mentioned in the citation text for the protected site as a species for which the site is designated. Numbers of birds making use of the Site and/or surrounding area are also taken into account. The regular presence within or around the Site of other bird species that contribute to the integrity of an existing or proposed SPA or

²⁵ Regular presence is based on professional judgement but is broadly defined as breeding, or more than occasional commuting, foraging or roosting.

Importance of Receptor	Examples
	Ramsar site (such as part of an assemblage where this is a designated feature), where there is potential connectivity with the Site. Numbers of birds making use of the Site and/or surrounding area are also taken into account.
National (Scotland)	Statutory sites of national ornithological importance (SSSIs and NNRs) with potential connectivity to the Site. The regular presence within or around the Site of a designated feature of an existing or proposed statutory site of national ornithological importance, i.e. SSSI or NNR, with potential connectivity to the Site. Numbers of birds making use of the Site and/or surrounding area are also taken into account. The regular presence within or around the Site of a species listed on Annex I of the Birds Directive, where the species is not a cited interest of a statutory site of international ornithological importance, but is present in nationally important numbers. The regular presence within or around the Site of a breeding species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), where the species is not a cited interest of a statutory site of international ornithological importance but is present in nationally important numbers. The regular presence within or around the Site of nationally important numbers of a species of conservation concern²⁶, where this is identified in NatureScot guidance¹⁹ as a priority for assessment. The regular presence within or around the Site of nationally important numbers of a migratory species which is either rare or vulnerable, or warrants special consideration on account of the proximity of migration routes, or breeding, moulting, wintering or staging areas in relation to a proposed development, and which is identified in SNH guidance¹⁹ as a priority for assessment.
Regional	A cited interest of an existing or proposed SPA or Ramsar site, with potential connectivity to the Site, which is present within or around the Site infrequently or in relatively low numbers, but could use the Site more regularly post-construction. Other bird species that contribute to the integrity of an existing or proposed SPA or Ramsar site, with potential connectivity to the Site, which is present within or around the Site infrequently or in low numbers, but could use the Site more regularly post-construction. Other species listed on Annex I of the Birds Directive, or breeding species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), that are present within or around the Site infrequently or in low numbers (regionally or locally important numbers), but could use the Site more regularly post-construction.

²⁶ An SBL priority species or Red/Amber-listed BoCC

Importance of Receptor	Examples
	A regionally (i.e. at the NHZ scale) important population/assemblage of a species of conservation concern²⁶ that regularly occurs within or around the Site, where this is identified in NatureScot guidance¹⁹ as a priority for assessment.
Local	Statutory sites of international or national ornithological importance (SPAs, Ramsar sites, SSSIs and NNRs) with no potential connectivity to the Site. Sites of local ornithological importance (e.g. Local Nature Reserves (LNRs)). A cited interest of an existing or proposed SPA or Ramsar site, with potential connectivity to the Site, but which is present within or around the Site infrequently or in low numbers, and Site use is not expected to increase significantly post-construction. Other bird species that contribute to the integrity of an existing or proposed SPA or Ramsar site, with potential connectivity to the Site, but which are present within or around the Site infrequently or in low numbers, and Site use is not expected to increase significantly post-construction. Other species listed on Annex I of the Birds Directive, or breeding species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), that are present within or around the Site infrequently or in low numbers, and Site use is not expected to increase significantly post-construction Other species identified in NatureScot guidance¹⁹ as a priority for assessment, but which are present within or around the Site infrequently or in low numbers, and Site use is not expected to increase significantly post-construction. A locally important population/assemblage of a species of conservation concern²⁶ that regularly occurs within or around the Site, but is not identified in NatureScot guidance¹⁹ as a priority for assessment and is unlikely to be at significant risk of impact from the Development.
Less than Local	All other species that are widespread and common and of low conservation concern (e.g. included on the UK BoCC Green-list) and which are not present in locally important (or greater) numbers.

Identifying and Characterising Potential Effects

9.39 In line with the CIEEM EclA guidance³ where possible, consideration is given to the following characteristics when identifying potential effects of the Development on IOFs:

- **Nature of effect:** whether it is positive (beneficial) to the IOF, e.g. by increasing species diversity or extending habitat, or negative (detrimental), e.g. by loss of, or displacement from, suitable habitat;

- **Extent:** the spatial or geographical area over which the effect may occur;
- **Magnitude:** the size, amount, intensity, and volume of the effect;
- **Duration:** the duration of an effect as defined in relation to IOF characteristics (such as a species' life cycle) as well as human timeframes. It should also be noted that the duration of an activity may differ from the duration of the resulting effect; e.g. if short-term construction activities cause disturbance to breeding birds, there may be long-term implications from failure to reproduce that season;
- **Frequency:** the number of times an activity occurs may influence the resulting effect;
- **Timing:** this may result in an impact on an IOF if it coincides with critical life stages or seasons (e.g. the breeding season); and
- **Reversibility:** a reversible effect is one from which spontaneous recovery is possible or which may be counteracted by mitigation (within a reasonable timescale).

9.40 The criteria for assessing the magnitude of a potential effect are presented in Table 9-3.

Table 9-3: Framework for Determining Magnitude of Potential Effects

Magnitude of Effects	Definition
High	A fundamental change to the baseline condition of the IOF, leading to total loss or major alteration of the relevant population.
Medium	A material change to the baseline condition of the IOF, leading to partial loss or alteration of the relevant population.
Low	A slight, detectable, alteration of the baseline condition of the IOF.
Negligible	A barely distinguishable change from baseline conditions.

Significance of Effect

9.41 The latest CIEEM EcIA guidance³ avoids and discourages use of the matrix approach to determine significance, and describes only two categories: 'significant' or 'not significant'.

9.42 According to the CIEEM guidance, for the purpose of EcIA, a 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for important ecological features (which in this case would be IOFs) or for biodiversity in general.

9.43 NatureScot guidance (2018a)¹⁷ refers to maintaining the favourable conservation status of a bird species (or not affecting its recovery) when assessing the significance of any wind farm impact. Conservation status is defined in this guidance as:

"The sum of the influences acting on it which may affect its long-term distribution and abundance, within the geographical area of interest (which for the purposes of the Birds Directive is the EU)".

9.44 Conservation status is considered to be "favourable" under the following circumstances:

- "population dynamics indicate that the species is maintaining itself on a long-term basis as a viable component of its habitats;

- the natural range of the species is not being reduced, nor is likely to be reduced for the foreseeable future; and
- there is (and probably will continue to be) a sufficiently large habitat to maintain its population on a long-term basis”.

9.45 Effects can be considered significant at a wide range of scales from international to local. NatureScot (2018a)¹⁷ recommends that:

“The concept of favourable conservation status of a species should be applied at the level of its Scottish population, to determine whether an impact is sufficiently significant to be of concern. An adverse impact on a species at a regional scale (within Scotland) may adversely affect its national conservation status”.

9.46 Thus,

“An impact should therefore be judged as of concern where it would adversely affect the existing favourable conservation status of a species or prevent a species from recovering to favourable conservation status, in Scotland.”

9.47 For all species, the most relevant scale for assessment of significant effects on conservation status of breeding populations is considered to be the appropriate NHZ.

9.48 The Site is located within the east of NHZ 7 (The Northern Highlands)²⁰. For wintering or migratory species that are not designated features of statutory sites, there is limited information on NHZ populations; in this situation effects on the conservation status of the Scottish population have been considered when determining whether potential effects are likely to be significant.

9.49 In this assessment, all effects that could threaten the integrity of a statutory site designated for ornithological features or the favourable conservation status of a population have been scoped out.

Embedded Mitigation

9.50 The key embedded mitigation with relevance to ornithological features is the implementation of a Breeding Bird Protection Plan (BBPP), as outlined below, to protect breeding birds.

9.51 Subsequent sections of this chapter assume that the embedded mitigation described below will be fully implemented.

9.52 Under the Wildlife and Countryside Act 1981 (as amended)^{Error! Bookmark not defined.} it is an offence to kill or injure any bird, or to damage or destroy nests and eggs. Breeding species listed on Schedule 1 of the Act are afforded additional protection, and there was evidence of merlin (which is a Schedule 1 species) establishing breeding territories within the Site. A BBPP will be developed to detail good practice measures aimed at ensuring the safeguarding of breeding birds and legislative compliance during all phases of the Development. Proposed measures are outlined below.

Construction Phase

- 9.53 **Pre-construction survey for breeding divers:** Both red-throated and black-throated divers were recorded within the survey area, although no evidence of any breeding was recorded in either of the 2018, 2019 or 2024 breeding seasons. There are suitable breeding waterbodies for both species in and adjacent to the site. As such, precautions must be taken to avoid potential disturbance to nesting birds. A pre-construction survey of areas of suitable habitat for breeding divers within 1km of works will be completed ahead of any operations, by a suitably experienced and Schedule 1 licenced qualified Ecological Clerk of Works (ECoW), to check for active nests (or other evidence of breeding).
- 9.54 **Pre-construction survey for breeding birds including Schedule 1 listed species:** where construction works are required during the breeding bird season (March to August inclusive), the area within 500m of works will be surveyed ahead of any operations, by a suitably experienced and qualified ECoW, to check for active nests of all bird species.
- 9.55 **Avoidance of works within 750m of black grouse leks during black grouse lekking season:** no works within 750m of black grouse leks are to be permitted until two hours following sunrise between mid-March and mid-May inclusive to safeguard lekking black grouse.
- 9.56 **Toolbox talk:** a 'toolbox talk' will be delivered by a suitably experienced ECoW to ensure that all contractors working on the Development are aware of ornithological sensitivities and relevant legislation.
- 9.57 **Protection of nesting birds:** if any nests (or breeding territories of Schedule 1 species) are identified during pre-construction surveys, an exclusion zone around the nest/breeding territory will be established (with the distance appropriate to the species and in consultation with NatureScot as deemed necessary)). No works will be permitted within the exclusion zone and no personnel or vehicles will be allowed to enter or pass through until the ECoW has confirmed that the chicks have fledged or the breeding attempt has failed.
- 9.58 Where this is not feasible, NatureScot will be contacted and further mitigation measures agreed to ensure that nesting birds are not harmed and those species listed on Schedule 1 not disturbed either.
- 9.59 **Minimising disturbance from site vehicles:** where construction works are required during the breeding bird season, further mitigation measures to limit the impact of vehicular disturbance will be considered and implemented where necessary.

Operational Phase

- 9.60 Routine maintenance required during operation is expected to be minimal, limited to small areas and of temporary duration. However, should significant operational works be required during the nesting bird season, or any Schedule 1 nesting birds be observed during the operational phase, it is recommended that the mitigation measures outlined above for the construction phase are implemented to protect breeding birds and ensure compliance with the relevant legislation.

Decommissioning Phase

- 9.61 As decommissioning works are likely to be of a similar nature and duration as construction activities, the mitigation outlined above for construction works should also be implemented during the decommissioning phase, in order to protect breeding birds.

Cumulative Effects

- 9.62 A cumulative ornithological assessment has been undertaken following NatureScot¹⁸ guidance, and considering the favourable conservation status populations within the relevant NHZ (NHZ 7 – The Northern Highlands).
- 9.63 Note that, as different projects often employ different baseline survey and impact assessment methods, data often cannot be directly compared, and so quantitative assessment of cumulative impacts and effects is often not possible. Furthermore, as there is no compulsion for developers to share commercial data with other companies, it is often impossible to acquire a full dataset. Therefore, a comprehensive and quantitative cumulative impact assessment is rarely possible. However, every effort has been made to provide a qualitative assessment that is as robust as the available data allows.

Assumptions and Limitations

- 9.64 The 2024 survey was designed to update the 2017-2019 data as it was mostly now over five years old. As the baseline data collected in 2024 are consistent with the previous baseline data, it is considered that the analysis of both data sets is sufficient for the purpose of assessing the effects of the development and that further survey in 2025 is not necessary.
- 9.65 The VP locations used in 2023-2024 match those used in 2017-2019 for consistency and are best placed given the topography of the site. No other VPs can be seen from any given VP, therefore, surveyor effects on flight activity are not an issue. While the VP viewsheds do not have a full 500m buffer around the turbine layout, the surrounding habitat is homogenous and therefore it is considered that the VPs provide a representative baseline for the assessment.

Baseline Conditions

Desk Study Results

Statutory Sites

- 9.66 Information about statutory and non-statutory sites designated for ornithology will be sought during the desk study undertaken as part of this assessment. In terms of ornithology, internationally designated nature conservation sites (Special Protected Areas (SPAs) and Ramsar sites) within 20km of the Development and nationally designated sites (SSSIs and National Nature Reserves; NNRs) within 5km of the Development will be identified.
- 9.67 Data relating to non-statutory sites designated for ornithology within 2km of the Development site will be considered for the assessment.

9.68 A summary of known ornithologically designated sites is presented on Table 9-4 below and illustrated on Figure 9.1.

Table 9-4: Ornithologically Designated Sites

Site name	Designation	Distance from site (km)	Reason for designation
Glen Strathfarrar	SSSI	1.5km Southwest	Breeding bird assemblage (as well as its ecological features dealt with in Section 8).
Glen Affric to Strathconon	SPA	2km West	Breeding golden eagle.
Inner Moray Firth	SPA and Ramsar	6.3km East	Breeding osprey and common tern; non-breeding cormorant, curlew, bar-tailed godwit, goldeneye, goosander, greylag goose, oystercatcher, red-breasted merganser, redshank, scaup, teal, wigeon and its non-breeding waterfowl assemblage.
North Inverness Lochs	SPA	10.9km Southeast	Breeding Slavonian grebe.
Cromarty Firth	SPA, SSSI, Ramsar	12.2km Northeast	Breeding common tern and osprey; non-breeding bar-tailed godwit, curlew, dunlin, greylag goose, knot, oystercatcher, pintail, red-breasted merganser, redshank, scaup, wigeon, whooper swan and its non-breeding waterfowl assemblage.
Ben Wyvis	SPA, SSSI	16.4km North	Breeding dotterel
Achanalt Marshes	SPA, SSSI	17.3km Northwest	Breeding wood sandpiper. Breeding bird assemblage (SSSI only).

9.69 No non-statutory sites designated for ornithology have been identified within 2 km of the proposed development.

Background ornithological records

9.70 Highland Raptor Study Group confirmed there were previously known eagle eyries within the search area. Details are contained in Confidential Technical Appendix 9.3. No information on any other raptor species has been provided.

- 9.71 The RSPB provided details of black grouse leks and non-breeding Slavonian grebe between 2014 and 2019. Details of the black grouse leks are contained in Confidential Technical Appendix 9.3

Baseline Surveys

Flight Activity Surveys

- 9.72 Details of the total number of target species flights are presented in Table 3 in Technical Appendix 9.1, located in EIA Report Volume 4. Species specific breeding and non-breeding seasons and the number of flights per season for each species is included in Technical Appendix 9.2. Details of the target species flights taken forward for collision modelling are summarised in Table 9-5: Summary of target species flights below.

- 9.73 Eleven other target species were recorded during the flight activity surveys, but there was very low frequency of observed activity at RSH within or close to the turbine envelope, such that quantification of risk based on the observations would result in predictions of negligible risk:

- Pink-footed goose and unidentified grey goose: one flight of 30 pink-footed geese and a skein of 30 unidentified grey geese flew high across the site above RSH in November 2018 and May 2019 respectively; a skein of 100 unidentified grey geese flew at RSH over 2 km to the east of the site;
- Whooper swan: one flight of two birds crossing the site at RSH in February 2018 and a flight of seven birds crossing the site at RSH in October 2018; four other flights of two or seven birds commuting below RSH between lochans within and to the east of the site;
- Black grouse: a single bird flew briefly at RSH across part of the site in November 2023;
- Curlew: seven flights of single, locally breeding birds within the site in 2018 and 2019, only one of which was at RSH while the remaining flights were below RSH;
- Snipe: three short flights of locally breeding, single birds in 2018 and 2019, only one of which was at RSH.
- Dunlin: just three birds together foraging in a wetland area in the site in November 2017; another bird was flushed on the drive to the VP in January 2019;
- Diver species: an unidentified diver was observed distantly flying low across Loch Ballach in March 2018;
- Grey heron: a single heron flew across the north of the site at RSH in June 2024;
- Hen harrier: single birds recorded flying across the site at RSH in October 2017 and October 2023; another was observed flying low to the south of the site after the survey in March 2018;
- Merlin: frequently observed between May 2018 and August 2019 and on one occasion in each of October 2023 and February 2024, but only four short flights of single birds were recorded at RSH; and
- Peregrine: only three flights of single birds recorded within the site in 2019, 2023 and 2024, none of which were at RSH.

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Table 9-5: Summary of target species flights taken forward for collision modelling

Survey Period	Species	Number of Flights	Number of Birds	Number of Flights at PCH	Number of Birds at PCH
2017/2019	Golden plover	23	194	23	194
2023/2024	Golden plover	13	254	11	225
2017/2019	Golden eagle	53	54	53	54
2023/2024	Golden eagle	8	8	7	7
2017/2019	Red kite	145	159	145	159
2023/2024	Red kite	44	53	26	33
2017/2019	White-tailed eagle	4	4	4	4
2023/2024	White-tailed eagle	Not recorded			

- 9.74 The assumption has been made that turbines are operational for 85% of the time (15% down-time) for comparison with other onshore wind farm collision risk models.
- 9.75 The standard collision modelling 85% operating factor is based on a very precautionary assumption in relation to turbine operation. The UK government publish load factor numbers which can be used to provide a realistic windfarm operational %, using the available empirical data. The load factor is calculated by RenewableUK as a rolling average of the past five years using data (on an Unchanged Configuration Basis) from the Digest of UK Energy Statistics, published by the Department of Energy Security and Net Zero. Using statistics from 2019-2023 (released in July 2024). This gives a UK onshore wind farm average operational percentage of 26.34% over this period. Therefore the collision risk calculations have also been prepared with a realistic down-time of 60%, which, based on the above figures, is still considered precautionary.
- 9.76 Full species collision modelling results are presented in Technical Appendix 9.2 and are summarised in Table 9-6 and Table 9-7 below.

Table 9-6: Summary of Target Species Collision Modelling Results (15% downtime)

Species	Mean Collisions Per Year
Golden plover	2.5
Golden eagle	0.18
Red kite	0.43
White-tailed eagle	0.16

Table 9-7: Summary of Target Species Collision Modelling Results (60% downtime)

Species	Mean Collisions Per Year
Golden plover	1.2
Golden eagle	0.09

Species	Mean Collisions Per Year
Red kite	0.2
White-tailed eagle	0.07

- 9.77 Secondary species flights recorded during flight activity survey comprised low numbers of raven *Corvus corax* (small numbers of flights comprising one – two birds) on the majority of surveys; and very occasional buzzard *Buteo buteo* and kestrel *Falco tinnunculus* flights.

Breeding Bird Survey

- 9.78 In the 2018 breeding season one pair of common sandpiper, four pairs of curlew, ten pairs of red grouse, one pair of redshank and 11 pairs of golden plover were recorded during the breeding bird survey.
- 9.79 In the 2019 breeding season one pair of common sandpiper, three pairs of curlew, six pairs of golden plover, four pairs of snipe, two pairs of red grouse and one pair of teal were reported within the breeding bird survey area, as well as an assemblage of common passerine species in the woodland around the access track.
- 9.80 It should be noted that the 2018 and 2019 numbers differ slightly from those reported in the scoping report as the scoping report summary included records, which, following territory mapping, were found to relate to existing territories, or non-breeding birds). In addition, the location of the pair of widgeon reported in the third party dataset in the coping report is within existing forestry and therefore considered to be a BTO code error, most likely relating to wren.
- 9.81 In the 2024 breeding season two pairs of common sandpiper, one pair of curlew, one pair of greenshank, five pairs of golden plover, one pair of lapwing, one pair of little grebe, four pairs of red grouse, two pairs of snipe and two pairs of teal were recorded within the survey area.
- 9.82 The Survey Area also supports a range of non-target breeding species typical of the habitats present.
- 9.83 Bird survey results for which territory mapping was undertaken are presented in Table 9-8: Breeding Bird Survey Results below and illustrated on Figures 9.5a-c.

Table 9-8: Breeding Bird Survey Results

Species*	Disturbance distance (m)	Number of territories in Survey Area		Conservation listings**
		Within survey area	Within disturbance distance Total	
2018 Breeding Season				
Common sandpiper	200*	1	0	Amber

Species*	Disturbance distance (m)	Number of territories in Survey Area		Conservation listings**
		Within survey area	Within disturbance distance Total	
Curlew	300	4	1	Red
Golden plover	500	11	7	Annex 1, Green
Redshank	200	1	1	Amber
Red grouse	200*	10	6	Amber
2019 Breeding Season				
Common sandpiper	200*	1	1	Amber
Curlew	300	3	1	Red
Golden plover	500	6	5	Annex 1, Green
Red grouse	200*	2	1	Amber
Snipe	200*	4	1	Amber
Teal	200*	1	0	Amber
2024 Breeding Season				
Common sandpiper	200*	2	1	Amber
Curlew	300	1	1	Red
Greenshank	500	1	1	Schedule 1, Amber
Golden plover	500	5	4	Annex 1, Green
Lapwing	200*	1	1	Amber
Little grebe	200*	1	1	Amber
Red grouse	200*	4	3	Amber
Snipe	200*	2	2	Amber
Teal	200*	2	2	Amber
*Species names and order follow the British List maintained by the BOU **Red = UK Red-listed Birds of Conservation Concern (BOCC) 5; Amber = UK Amber-listed BoCC 5; Green = UK Green-listed (not of conservation concern) SBL = listed on the Scottish Biodiversity List.				

Black Grouse Survey

- 9.84 In 2018 black grouse were recorded incidentally in flight near Lochan Fada, but no leks were recorded during the targeted black grouse surveys.
- 9.85 In 2019 a single black grouse was recorded adjacent to the access track at Gleann Goibhre. Black grouse (possibly two birds) were also heard within the 6km buffer to the south-west of the site in April.
- 9.86 In 2024 a three bird lek was recorded within the survey area. The location of this lek is illustrated on Confidential Figure 9.6 and grid references are provided in the Confidential Technical Appendix 9.3.

Breeding Raptor and Diver Survey

- 9.87 Merlin was the Schedule 1 listed raptor species confirmed as breeding within the survey area. Two merlin territories were recorded in 2018. A single merlin territory was recorded within the survey area in 2019 and a second territory was recorded outwith the survey area. In 2024, a single merlin territory was also confirmed within the survey area. An occasionally used barn owl roost site was also confirmed within the survey area in 2024 and no evidence of any breeding was recorded here.
- 9.88 There have been incidental sightings of red-throated diver in 2018 and red and black-throated divers in both 2019 and 2024, but no evidence of any breeding has been recorded by either diver species, during any of the three breeding seasons covered for the development.
- 9.89 The location of the merlin territories and barn owl roost are illustrated on Confidential Figure 9.6 and the grid references are provided in Confidential Technical Appendix 9.3

Identification and Evaluation of Key Effects

Potential Effects on Birds

- 9.90 The main ways in which the wind farm may affect IOFs are via:
- Habitat loss due to land-take;
 - Disturbance/displacement; and
 - Collision with turbines.
- 9.91 Each of these potential effects, during each phase of the proposed development's life cycle (construction, operation and decommissioning) in which the effect could occur, is discussed in turn below.
- 9.92 In addition, as noted previously, cumulative effects may arise as a result of the combined effects of multiple developments affecting the same bird population.

Effects during Construction

Habitat Loss

- 9.93 Construction of turbine bases and associated infrastructure will lead to direct habitat loss. The severity of potential effects is dependent on the extent of land-take, the type of habitat affected and the species using the Site and surrounding area. In this case, the extent of permanent habitat loss will be relatively small (28.75 ha in total), and will largely comprise approximately 2.22% of the habitats located within the site. Accordingly, target raptor species and wader species will lose a small amount of foraging habitat to the development as will upland wader species, but this is of a small scale given the proportions of suitable habitats that exist within these species core foraging ranges within and adjacent to the site. As most of the site and the surrounding area is comprised of similar open upland habitats, it is likely that the impacts of habitat loss on birds will be minimal.

Disturbance and Displacement

- 9.94 During the construction phase of the proposed development, there will be increased levels of activity by site personnel, vehicles and machinery, resulting in increased levels of noise and visual disturbance. This could lead to displacement or disruption of breeding, foraging and/or roosting birds. The severity of potential effects depends on the following:
- The timing of works, with potential effects likely to be greatest during the breeding season;
 - The magnitude of the disturbance (e.g. a vehicle driving slowly along the access track without stopping is likely to result in a relatively low or even negligible magnitude of disturbance, whereas a period of prolonged and noisy machinery operation involving numerous Site personnel is likely to be of high magnitude);
 - The extent of displacement (both spatially and temporally);
 - The availability of suitable habitats in the surrounding area for displaced birds to occupy; and
 - The behavioural sensitivity of birds using the Site (which is likely to vary between species).

Effects during Operation

Disturbance and Displacement

- 9.95 The operation of turbines and increased human activity associated with maintenance of the proposed development has the potential to cause disturbance and displace birds from the Site. However, disturbance effects during the operational phase are likely to be of a lower magnitude than during construction, as some species may become habituated to turbines, and the level of human activity and associated disturbance on Site will be considerably reduced compared to the construction phase.
- 9.96 Individual turbines, or a wind farm as a whole, may present a barrier to the movement of birds, restricting or displacing birds from much larger areas. The effect this would have on a population is subtle and difficult to predict with any degree of certainty. If birds regularly

have to fly over or around obstacles or are forced into suboptimal habitats, this may result in reduced feeding efficiency and greater energy expenditure. By implication, this will reduce the efficiency with which they accumulate reserves, potentially affecting survival during migration and/or breeding success. Based on the location and size of the proposed development, presence of other wind farms in the wider area, habitats within the Site and wider area, and target species flight activity, it is considered highly unlikely that there will be any barrier effects on any target species. Potential barrier effects have therefore been scoped out of the assessment.

Collision with Turbines

- 9.97 The frequency and likelihood of a collision occurring depends on a number of factors. These include aspects of the size and behaviour of the bird (including their use of a site), the nature of the surrounding environment and the structure and layout of the turbines. Clearly, birds that tend to fly above or below RSH are likely to collide less frequently than species that regularly fly at RSH. Collision risk is also likely to be higher for birds that spend much of the time in the air, such as foraging raptors and species that regularly commute between feeding and breeding or roosting grounds (e.g. geese and gulls), where this involves frequent flights over a site. The risk of bird collisions at wind farms is also higher in areas where large concentrations of birds are present (e.g. on major migration routes or close to roost sites used by large numbers of birds).
- 9.98 It should be noted that operational disturbance and collision risk effects are mutually exclusive in a spatial sense, i.e. a bird that avoids a wind farm due to disturbance cannot be at risk of collision with the turbine rotors at the same time²⁷. However, they are not mutually exclusive in a temporal sense; a bird may initially avoid a wind farm but habituate to it, and could then be at risk of collision.

Effects during Decommissioning

- 9.99 Turbine removal may cause disturbance to birds breeding, foraging or roosting on site. The level of impact will depend on the bird species present at the time of decommissioning and cannot be reliably predicted at this stage. However, as decommissioning activities are generally of a similar type and intensity as construction activities, the assessment considers that the potential effects of decommissioning will be similar in nature to the potential effects of construction, with the exception that habitat is likely to be restored and any displaced birds will be able to return to abandoned territories.

Evaluation of Ornithological Features

- 9.100 An evaluation of the importance of each ornithological feature identified during the Desk Study or recorded during the Baseline Ornithology Surveys is provided in Table 9-9. Sites designated for ornithological interest of bird species evaluated as being of Regional or higher importance are considered to be IOFs, while those of Local or lesser importance are not considered to be IOFs and have been scoped out of the assessment in the following sections.

²⁷ Madders, M. & Whitfield, D.P. (2006). Upland raptors and the assessment of wind farm impacts. Ibis 148, 43-56

Table 9-9: Evaluation of Importance of Ornithological Features

Importance Level	Feature	Justification
International	Glen Affric to Strathconnon SPA; and Golden eagle	Glen Affric to Strathconnon SPA qualifies under Article 4.1 by regularly supporting a population of European importance of the Annex 1 species golden eagle (10 active territories in 2003, 2.2% of the GB population). It is currently considered to be in favourable and maintained status. Annex I, Schedule 1/1A and green listed species. Latest SRMS (2022 data)²⁸ cites 125 pairs of golden eagle in Highland. Nearest known eyrie is over 3km from the site. The SPA lies 2km west of the site at its closest point and 2.8km from the development footprint. There are no known golden eagle eyries that lie within the SPA, that are within the 6km core foraging range for this species. There are two known eyries within 6km of the development, the closest of these lies over 3km from the site. 53 golden eagle flights were recorded over the course of the 2017-2019 FAS surveys and eight flights during the 2023-2024 FAS surveys and collision risk for this species modelled as 0.18 collisions per year based on a 15% operational downtime, or 0.09 collisions per year based on a 60% operational downtime.
International	Inner Moray Firth SPA and Ramsar	Inner Moray Firth SPA qualifies under Article 4.1 by regularly supporting populations of European importance of the Annex 1 species: osprey forage throughout the SPA (2008 to 2012, up to 25 territories within feeding range, 12.5% of the GB population, with 4 pairs breeding within the site, 4% of the GB population); common tern <i>Sterna hirundo</i> (310 pairs, 2% of the GB population) and bar-tailed godwit <i>Limosa lapponica</i> (1992/93 to 1996/97 a winter peak mean of 1,090 individuals, 2% of the GB population). The Inner Moray Firth SPA further qualifies under Article 4.2 by regularly supporting populations of European importance of the migratory species (1992/93 to 1996/97 winter peak means): greylag goose <i>Anser anser</i> (2,651 individuals, 3% of the Iceland/UK/Ireland biogeographic population); red-breasted merganser <i>Mergus serrator</i> (1,184 individuals, 1% of the NW & Central Europe biogeographic population), and redshank <i>Tringa totanus</i> (1,621 individuals, 1% of the Eastern Atlantic biogeographic population). Inner Moray Firth SPA also qualifies under Article 4.2 by regularly supporting in excess of 20,000 individual waterfowl. Between 1992/93 to 1996/97 a winter peak mean of 26,800 individual waterfowl comprising 16,800 wildfowl and 10,000 waders including nationally important populations of the following species: scaup <i>Aythya marila</i> (118 individuals, 1% of the GB population); curlew <i>Numenius arquata</i> (1,262 individuals, 1% of the GB population); goosander <i>Mergus merganser</i> (325 individuals, 4% of the GB population); goldeneye <i>Bucephala clangula</i> (218 individuals, 1% of the GB population); teal <i>A. crecca</i> (2,066 individuals, 1% of the GB population); wigeon <i>Anas penelope</i> (7,310 individuals, 3% of the GB population).

²⁸ Challis, A., Wilson, M.W., Eaton, M.A., Stevenson, A., Stirling-Aird, P., Thornton, M. & Wilkinson, N.I. (2022). Scottish Raptor Monitoring Scheme Report 2020. BTO Scotland, Stirling,

Importance Level	Feature	Justification
		population); cormorant <i>Phalacrocorax carbo</i> (409 individuals, 3% of the GB population); redshank (1,621 individuals, 1% of the GB population); red-breasted merganser (1,184 individuals, 12% of the GB population); greylag goose (2,651 individuals, 3% of the GB population) and bar-tailed godwit (1,090 individuals). In the five-year period 1991/92 to 1995/96, a winter peak mean of 33,148 individual waterfowl was recorded with the assemblage additionally including a nationally important population, greater than 2,000 individuals, of oystercatcher <i>Haematopus ostralegus</i> (3,063 individuals, 0.9% of the GB population). The SPA lies 6.3km east of the site at its closest point. The only species recorded within the survey area that have a core foraging range in excess of this distance are osprey (10km) and greylag goose (15-20km). Single ospreys were recorded once in 2018 and twice in 2019 only. Such irregular activity indicates the site is not a key resource for this species. Two unidentified goose flights were recorded in 2019 (totalling 130 birds). It is possible that these are greylag geese (although they could be pink-footed geese), but even with this assumption, two flights in three years indicates the site is not a key resource for this species. On this basis effects on this site are therefore predicted to be negligible and it is considered that a full HRA is not required to support this conclusion.
International	Cromarty Firth SPA, SSSI and Ramsar	Cromarty Firth SPA qualifies under Article 4.1 by regularly supporting populations of European importance of the Annex 1 species: osprey forage throughout the SPA (2008 to 2012, five year mean of up to 25 territories within feeding range, 12.5% of the GB population, with 1 pair breeding within the site, 1% of the GB population); common tern (1989 to 1993 mean of 294 pairs; 2% of the GB population); whooper swan (1992/93 to 1996/97 winter peak mean of 64 individuals, 1% of the GB population) and bar-tailed godwit (1,355 wintering individuals, 3% of the GB population). Cromarty Firth SPA further qualifies under Article 4.2 by regularly supporting a population of European importance of the migratory species: greylag goose (1992/93 to 1996/97 winter peak mean of 1,782 individuals; 2% of the Iceland/UK/Ireland biogeographic population). Cromarty Firth SPA also qualifies under Article 4.2 by regularly supporting in excess of 20,000 individual waterfowl. In the five-year period 1992/93 to 1996/97, a winter peak mean of 30,200 individual waterfowl was recorded, comprising 14,800 wildfowl and 15,400 waders including nationally important populations of the following species: redshank (1,149 individuals, 1% of the GB population); curlew (1,313 individuals, 1% of the GB population); knot <i>Calidris canutus</i> (4,312 individuals, 1% of the GB population); red-breasted merganser (204 individuals, 2% of the GB population); scaup (295 individuals, 3% of the GB population); pintail <i>Anas acuta</i> (319 individuals, 1% of the GB population); wigeon (9,204 individuals, 3% of the GB population); greylag goose (1,782 individuals, 2% of the GB population); bar-tailed godwit (1,355 individuals) and whooper swan (64 individuals). In the five-year period 1991/92 to 1995/96, a winter peak mean of 34,847 individual waterfowl was recorded with the assemblage additionally including nationally important populations greater

Importance Level	Feature	Justification
		than 2,000 individuals of: dunlin <i>Calidris alpina alpina</i> (3,384 individuals, 0.6% of the GB population) and oystercatcher (2004/5 to 2009/10, 2,702 individuals, 0.8% of the GB population). Of the SPA qualifying species recorded on during the surveys for the development only greylag goose has a core foraging range (15-20km)¹⁴ within connectivity to the site. As mentioned above, the site is not a key resource for greylag goose. They do not use the site and flight activity from the two unidentified goose flights collected by a third party in 2019, show that this species rarely (if at all) overflies the site. Effects on this site are therefore predicted to be negligible and it is considered that a full HRA is not required to support this conclusion.
Regional	Merlin	Annex 1, Schedule 1 and Red listed species. NHZ population estimate of 30 pairs in 2013²⁰. Merlin bred within the survey area in 2018 (two pairs), and single pairs bred in the survey area in 2019 and 2024. Both of the 2018 territories and the 2024 territory lie within the 500m disturbance distance for this species. As such, there is the potential for the localised displacement of up to two pairs. There is insufficient at risk flight activity to warrant collision modelling for this species.
Regional	Red kite	Annex 1, Schedule 1 and Green listed species. NHZ population estimate of nine pairs in 2013²⁰. However, this figure is likely to be much higher, given red kite are increasing since their re-release at several Scottish sites, including relatively nearby at the Black Isle, between 1989 – 1993 (total of 99 birds released there)²⁹. Scottish Raptor Monitoring Scheme data indicates 39 home ranges were occupied by pairs in Inverness-shire and Ross-shire in 2022. Red kite do not breed on site, but regularly forage over the area, with a total of 189 flights recorded over the three years of FAS surveys undertaken at the site. Collision modelling indicates an estimated loss of 0.43 birds per year based on 15% downtime and 0.2 birds per year based on 60% downtime.
Regional	Golden plover	Annex 1, Schedule 1 and Green listed species. NHZ population estimate of 3009 pairs in 2013²⁰. Seven pairs located within a potential (500m) disturbance zone¹⁰ in 2018, five pairs in 2019 and four pairs in 2024. Collision modelling for this species estimates a loss of 2.5 birds per year with a 15% downtime, or 1.2 birds per year with a 60% downtime.
Local	Greenshank	Schedule 1 and Amber listed species. NHZ population estimate of 421 pairs in 2013²⁰. A single territory was recorded within the survey area in 2024 only, which is within the potential disturbance zone for greenshank¹⁰. Insufficient flight activity to warrant collision modelling. The localised displacement of a single pair is not considered to be significant at the regional level and, if this occurs, these birds will likely to be accommodated in neighbouring suitable habitat.
Local	White-tailed eagle	Schedule 1, A1 and 1A, Annex 1 and Amber listed species. 62 pairs in Highland in 2022 based on the latest available SRMS data²⁸.

²⁹ <https://www.birdguides.com/news/red-kites-restored-across-scotland/>

Importance Level	Feature	Justification
		No breeding records within survey area. Collision modelling predicted the loss of 0.16 birds per year based on 15% downtime and 0.07 birds per year based on 60% downtime.
Local	Black grouse	A red listed and SBL species. Black grouse were seen in flight in 2018. A single non-lekking bird was recorded in 2019 and also (possibly two birds) heard but not seen. In 2024, a three bird lek was recorded and a grey hen within the survey area. NHZ population estimate of 473 males ²⁰ . The closest lek (six birds) is on the access track, but is an old record from 2015, supplied by the RSPB. There are three other RSPB leks approximately 400m from the development footprint (two of six birds and one of four birds) these records were all collected in separate surveys/years (2016-2018) and are all east of the access track. They likely relate to the same birds, and this also matches the general location of the three bird lek recorded in 2024. As such, black grouse are still lekking the maximum 750m potential disturbance zone for this species ¹⁰ .
Less than local	All other species	All other species are either recorded in very low numbers, or are overflying the site on an occasional basis, or not considered to be priority species for assessment ¹⁹ .

Assessment of IOFs

- 9.101 Potential effects of the proposed development on each IOF categorised as regionally important or above are assessed below. For golden eagle a Habitats Regulations Appraisal (HRA) is undertaken to assist the competent authority in its determination of the potential effects of the proposed development on Glen Affric to Strathconon SPA.
- 9.102 The assessment considers the significance of potential impacts following implementation of embedded mitigation.

Habitats Regulations Appraisal

Context – Glen Affric to Strathconon SPA

- 9.103 Glen Affric to Strathconon SPA qualifies under Article 4.1 by regularly supporting a golden eagle breeding population of European importance. The site supported 10 breeding pairs at the time of designation, representing about 2.2% of a GB population in 2003. It was considered to be in 'favourable and maintained' status in October, 2012, with no negative pressures cited.
- 9.104 Glen Affric to Strathconon SPA comprises a total area of 50,419.34 ha. The site lies 2km west from the boundary of the SPA and the nearest turbine lies approximately 2.8km from the boundary of the SPA.'

SPA Conservation Objectives

- 9.105 Conservation objectives should define the desired state for a designated site in terms of the features for which it has been designated. The aim of the conservation objectives for

a designated site is to maintain the favourable conservation status of the qualifying interests.

9.106 This requires definition of “favourable conservation status”. The Habitats Directive³⁰ defines the ‘conservation status’ of a species as *“the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within a national level.”*

9.107 The conservation status will be taken as ‘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, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis”.

9.108 The conservation objectives for each of the SPA are:

- To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and
- To ensure for the qualifying species that the following are maintained in the long term:
 - Population of the species as a viable component of the site
 - Distribution of the species within site
 - Distribution and extent of habitats supporting the species
 - Structure, function and supporting processes of habitats supporting the species
 - No significant disturbance of the species

Overview of the HRA Process

9.109 The European Union Council Directives on the Conservation of Wild Birds (2009/147/EC) – the Birds Directive – and on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC) – the Habitats Directive – are implemented in Scotland by the Conservation of Habitats and Species Regulations 2017³¹, known as the ‘Habitat Regulations’. The Habitat Regulations place a statutory duty on Planning Authorities to meet the requirements of these Directives.

9.110 The Habitats Regulations impose specific and strict legal ‘tests’ that must be met before plans or projects, not directly connected with or necessary to the management of a site, can be approved by the competent authority (in this case the Moray Council).

9.111 The competent authority must determine whether the plan or project is likely to have a significant effect on the site. If the plan or project is deemed to have a likely significant

³⁰ 92/43/EEC

³¹ <https://www.legislation.gov.uk/uksi/2017/1012/contents/made>

effect (LSE), either individually or in combination with other plans or projects, it will be subject to 'appropriate assessment'.

- 9.112 The competent authority may only agree to the proposals after having ascertained that they will not, in combination with other plans or projects, adversely affect the integrity of the site based on its qualifying species and the conservation objectives for the site (required to maintain Favourable Conservation Status). The competent authority may consider any mitigation measures committed to maintain site integrity when undertaking the Appropriate Assessment.
- 9.113 In Scotland, the competent authority must consult NatureScot, as the Statutory Nature Conservation Organisation, for advice during the HRA process prior to making their determination.
- 9.114 The European Commission has provided guidance in relation to the appropriate assessment process³². This guidance sets out the procedure for an appropriate assessment, and provides help in defining the terms used in the Habitats Directive. In simple terms, this means that if a proposed development, such as a wind farm, is likely to have a significant effect on an SPA, then the competent authority must undertake an 'Appropriate Assessment'. The mechanism of this is described in more detail below.
- 9.115 The key considerations to inform the appropriate assessment are to:
- Describe the potential impacts of the proposal on the qualifying species detailing which aspects or effects of the proposal could impact them and their conservation objectives.
 - Characterise the potential impacts, e.g. whether short/long term, reversible or irreversible, and in relation to the proportion/importance of the interest affected, and the overall effect on the site's conservation objectives, taking into account any possible 'in combination' effects with other plans or projects.
 - Each conservation objective should be considered to determine whether the conservation objective will still be maintained in the event of consent of the development.
 - If an adverse effect on site integrity is concluded there is a requirement to consider alternative solutions which could avoid the effect.
 - Where there are no satisfactory alternative solutions a project can only proceed where there are imperative reasons of overriding public interest.

Potential Effects on Golden Eagle

- 9.116 There is the potential for disturbance and increased mortality to these species (via collision) as a result of the installation, operation and decommissioning of the development. These impact pathways are considered in detail in this section. GET modelling for the site has concluded that there will be no significant loss of good eagle habitat as a result of a barrier effect (i.e. additional energy required by birds to avoid the wind farm) so this has been

³² European Commission 2000. Managing Natura 2000 Sites: The provisions of Article 6 of the "Habitats" Directive 92/43/EEC. Office for official publications of the European Communities, Luxembourg.

scoped out of the HRA. Additionally, there is no land-take from any of the SPAs required for the proposed development and therefore direct habitat loss is also scoped out.

- Indirect Habitat Loss – in this case this refers to the loss of roosting, foraging or nesting habitat from disturbance and displacement of birds from the windfarm infrastructure.
- Collision Risk - the proposed wind farm could result in direct mortality of golden eagle associated with the SPA populations when they fly through the wind rotor swept area. There is also the potential for the increase of this risk from birds striking guy lines or being attracted to the presence of aircraft warning lights on the turbine towers and nacelles³³. It should be noted that the loss of breeding adult birds may also result in the loss of their unfledged young on a given season.

Summary of Baseline for SPA Species Considered in the HRA

Golden Eagle

- 9.117 Golden eagle is a species which is listed on Schedule 1 and Schedule 1A of the Wildlife and Countryside Act, which affords this species legal protection from disturbance while breeding and from harassment on a year round basis. Golden eagle is also listed on Annex 1 of the Birds Directive and is a green listed species of conservation concern⁴. The regional (Highland) golden eagle population was estimated to be 125 pairs in 2022 based on the latest available SRMS data²⁸.
- 9.118 There was no golden eagle breeding in the survey area confirmed in either of the 2018, 2019, or 2024 breeding seasons. The nearest known eyrie lies over 3km from the site. 61 golden eagle flights were recorded in the FAS over the three years of surveys. collision risk for this species modelled as a loss of a 0.18 birds per year based on a 15% operational downtime, or 0.09 birds per year based on a 60% operational downtime.

Summary of Development

- 9.119 The development is fully described in Chapter 3 (Project Description) with the key components shown on Figure 3.1.
- 9.120 The development infrastructure is as follows:
- 20 turbines;
 - Associated turbine compound areas including foundations and hardstanding areas for erecting cranes at each turbine location;
 - On-site tracks connecting each turbine;
 - An energy storage compound to store batteries with a 5MW capacity which would be within the construction compound footprint;
 - Underground cables linking the turbines to the substation;
 - Up to three borrow pits for the extraction of stone on-site (indicated on Figure 3.1 as borrow pit search areas);

³³ NatureScot (2020). Information Note: The Effect of Aviation Obstruction Lighting on Birds at Wind Turbines, communication Towers and Other Structures

- A temporary construction compound including provision for onsite concrete batching;
- An on-site 132kV substation to provide a grid connection;
- Habitat Management provisions as proposed within EIA Volume 4, Technical Appendix 8.4.

9.121 The proposed development would be time-limited to 35 years from the first date of final commission. The construction phase would last approximately 18 months and decommissioning would last approximately six months.

Effects Resulting from Indirect Habitat Loss to Golden Eagle

9.122 There is no direct loss of any SPA habitat resulting from the installation of the development. However, there is likely to be some loss of habitat outwith the SPA used by golden eagle outwith their 6km core foraging range from the SPAs (there are no known eyries within the SPA that lie within 6km of the site). The land-take within the site is 28.75ha which represents a very small proportion the land available within the core foraging distance for golden eagle (6km) and in the context of the areas of the SPA. Under the proviso that golden eagle may be subject to disturbance from human activity within 1km, which is considered to be the upper limit for each of this species¹⁰, there is considered the potential for temporary displacement of foraging birds during the construction and decommissioning phases. During operation it is considered that effects resulting from indirect habitat loss will be reduced. Accordingly, effects on golden eagle are very likely to be of a low magnitude and **not significant**.

Collision Risk to Golden Eagle

9.123 61 golden eagle flights were recorded in the FAS over the three year period. Collision modelling predicts a loss 0.18 birds per year based on 15% down time, or 0.09 birds per year based on a 60% downtime, which is considered to be a realistic 'worst case' based on the windfarm capacity factor. Having said that, given there are no known eyries within the SPA that lie within the 6km core foraging area from the site. These flights are more likely related to the two known eyries that lie within 6km of the site, which are both outwith the SPA. Given this, and the precautionary nature of the model and the lack of actual recorded golden eagle UK windfarm bird fatalities, (one juvenile bird at a Dumfries and Galloway wind farm in 2024)³⁴, it is unlikely that there will be any collisions at all and accordingly effects on the SPA and NHZ populations are predicted to be negligible.

Assessment of Development in Isolation

9.124 On the basis that none of the effects on golden eagle are predicted to elevate beyond the negligible level both at the SPA and NHZ population levels. As such, it is considered that conservation objectives of the SPAs will be maintained based on the assessment of the development in isolation.

³⁴ <https://www.goldeneaglessouthofscotland.co.uk/blog/sparky-b31-sad-news-from-galloway#:~:text=A%20pathological%20investigation%2C%20which%20was%20made%20possible%20thanks,been%20killed%20by%20a%20wind%20turbine%20in%20Galloway.>

In Combination Assessment

9.125 Windfarms within NHZ 7 are considered in the In Combination Assessment. Single turbine schemes and those at the scoping stage are excluded. The results of this are presented in Table 9-10 below.

Table 9-10: In-Combination Assessment

Windfarm	Status	Within 6km of SPA	Golden eagle collision risk	Golden eagle habitat loss	Golden eagle disturbance and barrier effect
Coire na Cloiche	Installed	No	Collision risk 0.0075 birds per annum Effects on SPA population negligible	Not significant	Not significant
Beinn Tharsuinn	Installed	No	No information available	No information available	No information available
Novar	Installed	No	No information available	No information available	No information available
Kirkan	Application	No	Collision risk 0.0075 birds per annum Effects on SPA population negligible	Not significant	Not significant
Lochluichart	Installed	Yes	No information available	No information available	No information available
Lochluichart extension	Approved	Yes	Collision risk 0.0047 birds per annum Effects on SPA population negligible	Not significant	Not significant
Corriemoille	Installed	No	Collision risk 0.005 birds per annum Effects on SPA population negligible	Not significant	Not significant
Fairburn	Installed	Yes	No information available	No information available	No information available
Bhlaraidh	Approved	Yes	Collision risk 0.06 birds per annum	Not significant	Not significant

Windfarm	Status	Within 6km of SPA	Golden eagle collision risk	Golden eagle habitat loss	Golden eagle disturbance and barrier effect
			Effects on SPA population negligible		
Corrimony	Installed	Yes	Collision risk 0.021 birds per annum Effects on SPA population negligible	Not significant	Not significant
Millenium	Installed	No	No information available	No information available	No information available
Beinneun	Installed	No	Collision risk 0.124 birds per annum Effects on SPA population negligible	Not significant	Not significant
Beinneun Extension	Installed	No	Collision risk 0.09 birds per annum Effects on SPA population negligible	Not significant	Not significant
Chrathaich	Approved	No	Collision risk 0.067 birds per annum Effects on SPA population negligible	Not significant	Not significant

Future Baseline – Golden eagle (Glen Affric to Strathconon SPA)

- 9.126 This SPA golden eagle population is favourable and maintained is not noted to be facing any negative pressures. Effects on golden eagles associated with the SPA are predicted to be not significant both in isolation and in combination with other developments. On this basis it is concluded that the conservation objectives of the SPA will be maintained and that there will be no likely significant effect on the SPA and its golden eagle population.

Red Kite Assessment

Construction Effects on Red kite

Habitat Loss/Change

- 9.127 The amount of habitat lost to the development is negligible in relation to the overall size of suitable breeding habitat available either in the local area or within the NHZ. It is predicted that sufficient suitable habitat will remain to maintain the local red kite population, therefore there will be a negligible impact on this species as a result of habitat loss.

Disturbance/Displacement

- 9.128 Under the assumption that foraging red kite may be disturbed from areas within 300m of the proposed construction activities, there will be some temporary disturbance to foraging birds. Due to the temporary nature of the potential impact, it is considered to be of negligible magnitude.

Operational Effects on Red Kite

Disturbance/Displacement

- 9.129 There are no known breeding red kites within 300m of the development. Taking a worst-case scenario that red kites using habitats within 300m of the development footprint may be affected, there may be some displacement to foraging birds in the long-term due to operation of the wind farm. It is expected that displaced birds, if this occurs at all, will be accommodated in suitable nearby foraging habitats (open hill ground) outwith the development. As a worst case scenario, the localised displacement of foraging birds in terms of the the regional NHZ population is of a negligible magnitude and is **not significant**.

Collision Risk to Red Kite

- 9.130 Collision modelling predicts the loss of a single bird every 9.4 years based on 15% downtime and one bird every 20 years based on 60% downtime. Under the realistic (40%) worst case scenario one – two birds may be lost over the 35 year lifespan of the development. This potential impact is likely to be negligible in terms of the local and wider regional population.

Summary of Impacts on Red Kite

- 9.131 The direct loss of habitat that would occur as a result development and the indirect loss of habitat through potential displacement due to disturbance are not predicted to result in any more than negligible impacts on the regional population of the NHZ. Collision risk is also likely to be negligible; therefore, the predicted effect of the development on this species is not significant.

Merlin Assessment

Construction Effects on Merlin

Habitat Loss/Change

- 9.132 The amount of habitat lost to the development is negligible in relation to the overall size of suitable breeding habitat available either in the local area or within the NHZ. It is predicted that sufficient suitable habitat will remain to maintain the local merlin population, therefore there will be a negligible impact on this species as a result of habitat loss.

Disturbance/Displacement

- 9.133 Under the assumption that breeding merlin may be disturbed from areas within 500m of the proposed construction activities, there is the potential for the localised displacement of up to two pairs. This effect is potentially reversible, with birds possibly returning to existing territories following construction, but this localised displacement may be permanent. This represents a low magnitude effect, which is not likely to be significant in terms of the wider regional (NHZ 7) population.

Operational Effects on Merlin

Disturbance/Displacement

- 9.134 Survey results confirm there are up to two pairs of merlin within 500m of the development. Taking a worst-case scenario that merlin using habitats within 500m of the development footprint may be affected, there may be a localised displacement of two pairs in the long-term due to operation of the wind farm. It is expected that displaced birds, if this occurs at all, will be accommodated in suitable nearby breeding habitats outwith the development. As a worst case scenario the localised displacement of two pairs in terms of the regional NHZ population is of a low magnitude and is **not significant**.

Collision Risk to Merlin

- 9.135 There was insufficient merlin flight activity at risk height within 500m of the windfarm layout to warrant collision modelling. Collision risk to this species is therefore negligible and **not significant**.

Summary of Impacts on Merlin

- 9.136 The direct loss of habitat that would occur as a result of development and the indirect loss of habitat through potential displacement due to disturbance are not predicted to result in any more than negligible impacts on the regional population of the NHZ. Collision risk is also likely to be negligible; therefore the predicted effect of the development on this species is not significant.

Golden Plover Assessment

Construction Effects on Golden Plover

Habitat Loss/Change

- 9.137 The amount of habitat lost to the development is negligible in relation to the overall size of suitable breeding habitat available either in the local area or within the NHZ. It is predicted that sufficient suitable habitat will remain to maintain the local golden plover population, therefore there will be a negligible impact on this species as a result of habitat loss.

Disturbance/Displacement

- 9.138 Under the assumption that breeding golden plover may be disturbed from areas within 500m of the proposed construction activities, there will be some temporary disturbance to birds, potential affecting up to seven pairs (based on the 2018 baseline). Due to the temporary nature of the potential impact, it is considered to be of low magnitude and **not significant**.

Operational Effects on Golden Plover

Disturbance/Displacement

- 9.139 There are up to seven pairs of golden plover that bred within 500m of the development footprint (using the 2018 figure, this reduced to five pairs in 2019 and four pairs in 2020). Taking a worst-case scenario that golden plover using habitats within 500m of the development footprint may be affected, there may be some displacement to foraging birds in the long-term due to operation of the wind farm. Having said that golden plover are known to continue to breed near operational turbines (at Beinn Tharsuinn for example – Colin Nisbet Pers. Obs.). It is expected that displaced birds, if this occurs at all, will be accommodated in suitable nearby breeding habitats (open moorland) outwith the development. As a worst case scenario the localised displacement of foraging birds in terms of the the regional NHZ population is of a low magnitude and is **not significant** in terms of the wider NHZ 7 population of 3009 pairs.

Collision Risk to Golden Plover

- 9.140 Collision modelling predicts the loss of a single bird every 9.4 years based on 15% downtime and one bird every 20 years based on 60% downtime. Under the realistic (40%) worst case scenario one – two birds may be lost over the 35 year lifespan of the development. This potential impact is likely to be negligible in terms of the local and wider regional population.

Summary of Impacts on Golden Plover

- 9.141 The direct loss of habitat that would occur as a result development and the indirect loss of habitat through potential displacement due to disturbance are not predicted to result in any more than negligible impacts on the regional population of the NHZ. Collision risk is

also likely to be negligible; therefore the predicted effect of the development on this species is not significant.

Cumulative Effect Assessment

- 9.142 Potential cumulative effects can include direct habitat loss, disturbance and collision risk. The potential for each of these effects is considered in turn below and considered across consented, and operational wind farm sites within the Northern Highlands NHZ. Save for cumulative effects on golden eagle, which are covered in the HRA for the Glen Affric to Strathconon SPA above, red kite, merlin and golden plover.

Cumulative Habitat Loss

- 9.143 The total habitat loss will be 28.75 ha, which is considered to be minimal, and, as such, it is unlikely that there will be any for potential cumulative effects on IOFs due to direct habitat loss.

Cumulative Disturbance

- 9.144 Disturbance effects are predicted to be of low to negligible magnitude for all IOFs. It is likely that any displaced birds will breed in the wider area, and some birds will potentially return to breed on or around a development site post-construction, particularly at those sites where there is abundant suitable habitat. These birds would therefore only be temporarily lost from the breeding population. Furthermore, as developments are at different phases of their life-cycle and most displacement is likely to occur during the construction phase, the numbers of birds displaced annually will be relatively small. It is considered that any disturbance during the construction, operational or decommissioning phases of the proposed development will be so minimal that there is negligible potential for significant cumulative disturbance impacts on IOFs.

Cumulative Collision Risk

- 9.145 A search for any relevant reports from wind farm applications within NHZ 7 was conducted to assess the cumulative collision risk to these species. The results of this are presented in Table 9-11 below.

Table 9-11: Summary of Information to Inform Cumulative Effects on Red Kite, Merlin and Golden Plover

Windfarm	Status	Collision risk	Habitat loss	Disturbance/displacement
Coire na Cloiche	Installed	N.A.	Not significant – all species	Not significant – all species
Beinn Tharsuinn	Installed	No information available	No information available	No information available
Novar	Installed	No information available	No information available	No information available

Windfarm	Status	Collision risk	Habitat loss	Disturbance/displacement
Kirkan	Application	N.A.	Not significant – all species	Not significant – all species
Lochluichart	Installed	No information available	No information available	No information available
Lochluichart extension	Approved	N.A.	Not significant – all species	Not significant – all species
Corriemoille	Installed	Golden Plover Collision risk 0.04 birds per annum. N.A. for merlin and red kite	Not significant – all species	Not significant – all species
Fairburn	Installed	No information available	No information available	No information available
Bhlaraidh	Approved	Golden Plover Collision risk 0.002 birds per annum. N.A. for merlin and red kite	Not significant – all species	Not significant – all species
Corrimony	Installed	Merlin collision risk 0.021 birds per annum N.A. for golden plover and red kite	Not significant – all species	Not significant – all species
Millenium	Installed	No information available	No information available	No information available
Beinneun	Installed	N.A.	Not significant – all species	Not significant – all species
Beinneun Extension	Installed	N.A.	Not significant – all species	Not significant – all species
Chrathaich	Approved	Golden Plover Collision risk	Not significant – all species	Not significant – all species

Windfarm	Status	Collision risk	Habitat loss	Disturbance/displacement
		0.053 birds per annum. N.A. for merlin and red kite		

- 9.146 Given the levels of activity of these species observed at sites where data was available, it is considered that cumulative effects are extremely unlikely to add up to a cumulatively significant effect at the NHZ population levels for these receptors.

Mitigation, Monitoring and Residual Effects

Mitigation

- 9.147 Following the implementation of embedded mitigation measures, no requirements for further mitigation were identified.

Monitoring

- 9.148 It is proposed that ornithological monitoring should take place post-construction, as outlined below and within OHMP (Technical Appendix 8.4):
- Year-round collision monitoring, to determine whether actual bird collisions are in line with predicted values; and
 - Breeding bird surveys with a focus on waders, divers, and Schedule 1 listed raptors, to determine the operational impacts on breeding success.

Statement of Significance

- 9.149 An assessment has been made of the potential for significant effects of the Development on IOFs. Embedded mitigation measures will be implemented as part under the BBPP. Accounting for this, the magnitude of effects of the proposed development on IOFs both alone and in combination with other schemes are assessed as being of low to negligible magnitude, and thus non-significant in terms of the EIA Regulations.

Summary

- 9.150 The summary of residual effects on ornithology is present on Table 9-12 below.

Table 9-12: Summary of Effects

IOF	Potential Effect	Significance of Effect	Mitigation Proposed	Residual Effect
<i>Construction and Decommissioning Phases</i>				
Glen Affric to Strathconon SPA	Habitat loss/change	Not significant	N.A.	Not significant

IOF	Potential Effect	Significance of Effect	Mitigation Proposed	Residual Effect
and golden eagle				
Glen Affric to Strathconon SPA and golden eagle	Disturbance/displacement	Not significant	BBPP	Not significant
Red kite	Habitat loss/change	Not significant	N.A.	Not significant
Red kite	Disturbance/displacement	Not significant	BBPP	Not significant
Merlin	Habitat loss/change	Not significant	N.A.	Not significant
Merlin	Disturbance/displacement	Not significant	BBPP	Not significant
Golden plover	Habitat loss/change	Not significant	OHMP	Not significant
Golden plover	Disturbance/displacement	Not significant	BBPP	Not significant
Operational Phase				
Glen Affric to Strathconon SPA and golden eagle	Disturbance/displacement to golden eagle	Not significant	BBPP	Not significant
Glen Affric to Strathconon SPA and golden eagle	Collision risk to golden eagle	Not significant	N.A.	Not significant
Red kite	Disturbance/displacement to red kite	Not significant	BBPP	Not significant
Red kite	Collision risk to red kite	Not significant	N.A.	Not significant
Merlin	Disturbance/displacement to merlin	Not significant	BBPP	Not significant
Merlin	Collision risk to merlin	Not significant	N.A.	Not significant
Golden plover	Disturbance/displacement to golden plover	Not significant	BBPP	Not significant
Golden plover	Collision risk to golden plover	Not significant	N.A.	Not significant

Ballach Wind Farm

Environmental Impact Assessment Report Volume I Chapter 10: Hydrology, Geology and Peat

July 2025

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HYDROLOGY, GEOLOGY AND PEAT

Introduction

- 10.1 This chapter considers the potential effects of Ballach Wind Farm (the 'proposed development') on Hydrology, Geology and Peat.
- 10.2 This chapter is also supported by the following figures as contained within EIA Report Volume 2: Figures:
- Figure 10.1: Superficial Geology
 - Figure 10.2: Bedrock Geology
 - Figure 10.3: Soils Mapping
 - Figure 10.4 (a & b): Regional Hydrogeology
 - Figure 10.5: Groundwater Vulnerability
 - Figure 10.6: Hydrological Features
 - Figure 10.7: Private Water Supplies
- 10.3 The chapter is supported by a number of Technical Appendices (as set out within Volume 4: Technical Appendices), comprising:
- Technical Appendix 10.1: Outline Water Crossing Schedule
 - Technical Appendix 10.2: Outline Peat Landslide Hazard Risk Assessment (PLHRA)
 - Technical Appendix 10.3: Outline Peat Management Plan
 - Technical Appendix 10.4: Carbon Calculator; and
 - Other relevant chapters include Chapter 8: Ecology and associated Technical Appendices.
- 10.4 The author of this Chapter, Stuart Clarke Bsc (Hons) MSc, has approximately 10 years of relevant experience in geology and ground conditions baseline assessments and preparation of EIA Chapters and associated technical appendices (desk studies, peat management plans, peat landslide hazard risk assessment, carbon balance assessments, remediation strategies) relating to geology and ground conditions (including hydrogeology, peat and contaminated land) for a range of renewable energy (onshore wind, onshore elements of offshore wind, solar, BESS) and infrastructure developments across Northern Ireland and Scotland.
- 10.5 The reviewer of this Chapter, David Gemmell BSc (Hons) MSc, a chartered Environmentalist and Scientist, has approximately 20 years of relevant experience in in ground conditions (including hydrogeology) baseline assessments and preparation of EIA Chapters and associated technical appendices (desk studies, peat management plans, peat landslide hazard risk assessment, carbon balance assessments, remediation strategies) relating to geology and ground conditions (including hydrogeology, peat and contaminated land)

for a range of renewable energy (onshore wind, onshore elements of offshore wind, solar, BESS), infrastructure and mining developments across Western Australia, the UK and particularly Scotland.

Legislation, Policy and Guidance

Legislation

- 10.6 Regulation of activities relating to the water environment in Scotland is the responsibility of the Scottish Environment Protection Agency (SEPA) and the relevant local authorities.
- 10.7 The European Union (EU) Water Framework Directive (WFD) has been implemented in Scotland through the Water Environment and Water Services (Scotland) Act 2003 (WEWSA). This Act introduced a regulatory system for the water environment with SEPA as the lead authority working alongside the public, private and voluntary sectors. The Act ensures that all human activities with the potential to cause a harmful effect on the water environment can be controlled by establishing a framework for co-ordinated controls on water abstraction and impoundment, engineering works affecting watercourses, and discharges to the water environment.
- 10.8 The EC Groundwater Directive provides specific measures to protect groundwater against pollution and deterioration. This Directive is implemented through the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (CAR) (as amended), introduced under WEWSA to provide the main regulatory controls for protecting the water environment from harm. CAR introduced specific controls for activities affecting watercourses and waterbodies and which encompass the following activities relevant to the Proposed Development:
- Discharges to all wetlands, surface waters and groundwaters; and,
 - Engineering works in inland waters and wetlands.
- 10.9 SEPA maintains water monitoring and classification systems that provide the data to support the aim of the WFD, namely that all waterbodies would have good ecological status, or similar objective, by 2015. The classification system covers all rivers, lochs, transitional, coastal and groundwater bodies, and is based on an ecological classification system with five quality classes: High, Good, Moderate, Poor and Bad. It has been devised following EU and UK guidance and is underpinned by a range of biological quality elements, supported by measurements of chemistry, hydrology (changes to levels and flows) and morphology (changes to the shape and function of waterbodies).
- 10.10 The Water Resources (Scotland) Act 2013 makes provisions for the development of Scotland's water resources through improved water quality, the creation of contracts for non-domestic sewerage services, protection of the public sewer network and the maintenance of private sewerage works.
- 10.11 The relevant legislation relating to flood prevention is the Flood Risk Management (Scotland) Act 2009, which replaces the Flood Prevention (Scotland) Act 1961 (as amended).

- 10.12 UK legislation on contaminated land is principally contained in Part IIA of the Environmental Protection Act 1990 (EPA). This legislation endorses the principle of a 'suitable for use' approach to contaminated land, where remedial action is only required if there are unacceptable risks to health or the environment, taking into account the use of the land and its environmental setting.
- 10.13 The Environment Act 1995 creates a system whereby local authorities must identify and, if necessary, arrange for the remediation of contaminated sites. The provisions are set out in Section 57, which inserts Part IIA into the EPA 1990. In addition to these requirements, the operation of the regime is subject to regulation and statutory guidance.
- 10.14 The Contaminated Land (Scotland) Regulations 2000 (as amended) sets out the responsibilities of authority and SEPA in the identification and management of contaminated land. Scottish Planning Policy, is also used to address contaminated land through the planning process, following the same principles as those set out under Part 2A.

Policy

- 10.15 Chapter 5: Renewable Energy and Planning Policy of the EIA Report sets out the planning policy framework that is relevant to the EIA process and the proposed development. The policies set out include those from the Highland Wide Local Development Plan (LDP), National Planning Framework 4 (NPF4) and other relevant guidance.
- 10.16 NPF4 contains policies with relevance to Hydrology, Geology and Peat including Policy 5 (Soils), Policy 22 (Flood Risk and Water Management) and Policy 33 (Minerals).
- 10.17 Policy 5 (Soils) states the following:
- Development proposals on peatland, carbon-rich soils and priority peatland habitat will only be supported for the generation of energy from renewable sources that optimises the contribution of the area to greenhouse gas emissions reductions targets. Where development is proposed on peatland, carbon-rich soils, or priority peatland habitat, a detailed site-specific assessment will be required to identify the following:
 - The baseline depth, habitat condition, quality, and stability of carbon-rich soils;
 - The likely effects of the development on peatland, including on soil disturbance; and
 - The likely net effects of the development on climate emissions and loss of carbon.
 - This assessment should inform careful project design and ensure, in accordance with relevant guidance and the mitigation hierarchy, that adverse impacts are first avoided and then minimised through best practice. A Peat Management Plan (PMP) will be required to demonstrate that this approach has been followed, alongside other appropriate plans required for restoring and / or enhancing the site into a functioning peatland system capable of achieving carbon sequestration.
- 10.18 Policy 22 (Flood Risk and Water Management) states the following:

- Development proposals at risk of flooding or in a flood risk area will only be supported if they are for:
 - essential infrastructure where the location is required for operational reasons;
- Development proposals will:
 - not increase the risk of surface water flooding to others, or itself be at risk.
 - manage all rain and surface water through sustainable urban drainage systems (SUDS), which should form part of and integrate with proposed and existing blue-green infrastructure. All proposals should presume no surface water connection to the combined sewer;
 - seek to minimise the area of impermeable surface.

10.19 Policy 33 (Minerals) states the following:

- Development proposals that would sterilise mineral deposits of economic value will only be supported where:
 - there is an overriding need for the development and prior extraction of the mineral cannot reasonably be undertaken; or
 - extraction of the mineral is impracticable or unlikely to be environmentally acceptable.

10.20 The following policies within the Highland Wide LDP are also considered to be of relevance to the hydrology, geology and peat assessment presented within this chapter:

- Policy 28: Sustainable Design – This policy states that developments will be assessed on the extent to which they, make use of brownfield sites, existing buildings and recycled materials, impact on non-renewable resources such as mineral deposits of potential commercial value and prime quality agricultural land and demonstrate sensitive siting and design in keeping with the natural environment and in making use of appropriate materials;
- Policy 53: Minerals – This policy specifically states borrow pits that are near to or on the site of the associated development will be supported if it can be demonstrated that they are the most suitable source of material, are time limited and that appropriate environmental safeguards are in place for the workings and the reclamation.
- Policy 55: Peat and Soils - This policy specifically states that development proposals should demonstrate how they will avoid unnecessary disturbance of peat and soils and that unacceptable peat disturbance would not be permitted unless it is shown that the adverse effects of this are outweighed by social, environmental or economic benefits. It also states that where development on peat is clearly unavoidable, a peat management plan demonstrating how impacts have been minimised and mitigated may require to be submitted.

- Policy 62: Geodiversity – This policy states that development proposals that include measures to protect and enhance geodiversity interests of international, national and regional/local importance in the wider countryside, will be supported.
- Policy 63: Water Environment – This policy states that proposals for development that do not compromise the objectives of the Water Framework Directive (2000/60/EC), will be supported.
- Policy 64: Flood Risk – This policy states that development proposals should avoid areas susceptible to flooding and promote sustainable flood management.
- Policy 66: Surface Water Drainage – This policy states that the proposed development must be drained by Sustainable Drainage Systems (SuDS) designed in accordance with The SuDS Manual ((CIRIA C697) and, where appropriate, the Sewers for Scotland Manual 2nd Edition.
- Policy 72: Pollution – This policy states that major developments and developments that are subject of Environmental Impact Assessment will be expected to follow a robust project environmental management process.

Guidance

10.21 The following relevant guidance has been considered as part of the assessment of hydrology, geology and peat:

- SEPA (2009) - Temporary Construction Methods (WAT-SG-29);
- SEPA (2017) Guidance for Pollution Prevention (GPP) 5: Works and maintenance in or near water;
- SEPA (2021) Supporting Guidance (WAT-SG-75) – Sector Specific Guidance: Water Run-Off from Construction Sites;
- SEPA (2016) The Water Environment (Controlled Activities) (Scotland) Regulations (as amended) - A Practical Guide;
- SEPA (2017) Land Use Planning System Guidance Note 4 (LUPS GU4) - Planning guidance on on-shore windfarm developments;
- SEPA (2006) Guidelines for Water Pollution Prevention from Civil Engineering Contracts, Special Requirements';
- SEPA (2009) Policy 19 Groundwater Protection Policy for Scotland (Version 3);
- SEPA (2024) The Water Environment (Controlled Activities) (Scotland) Regulations – A Practical Guide v9.4;
- SEPA (2025) Guidance on Assessing the Impacts of Developments on Groundwater Dependent Terrestrial Ecosystems;
- SEPA (2025) Guidance on Assessing the Impacts of Development on Groundwater Abstractions;
- CIRIA (2001) C532: 'Control of Water Pollution from Construction Sites - Guidance for Consultants and Contractors';
- SEPA (2012) PPG6: Working at Construction and Demolition Sites;
- NatureScot (2019) Good Practice During Wind Farm Construction;
- NatureScot (2023) Advising on peatland, carbon-rich soils and priority peatland habitats in development management;

- Scottish Government, SNH, SEPA (2017) Guidance on Developments on Peatland - Peatland Survey (2017);
- Developments on Peatland: Guidance on the assessment of peat volumes, reuse of excavated peat and the minimisation of waste (Scottish Renewables and SEPA, 2014); and
- Developments on Peat and Off-Site Uses of Waste Peat (SEPA, 2017)

Consultation

- 10.22 As part of the Scoping exercise, consultation was undertaken to inform the design of the proposed development and to seek agreement on potential significant environmental effects that result from the proposed development as well as the scope of any assessment work required as part of this EIA.
- 10.23 The Scoping Opinion was received from the Scottish Government Energy Consents Unit (ECU) on 28th November 2024 as per Technical Appendix 4.2.
- 10.24 Consultation relevant to the hydrology, geology and peat assessment was undertaken with NatureScot, The Highland Council and SEPA who commented on aspects of methodology, sources of information, scope of assessment and cumulative development. A summary of these consultation responses is provided in Table 10.1.

Table 10.1: Consultation Responses

Consultee	Date Received	Consultation Response	Where and how is this addressed?
The Highland Council	12 th November 2024	The Highland Council indicated the following:	
		The EIA Report should include a full assessment on the impact of the development on peat. The assessment of the impact on peat must include peat probing for all areas where development is proposed. The Council are of the view this should include probing not just at the point of infrastructure as proposed by the scheme but also covering the areas of ground which would be subject to micrositings limits.	An outline Peat Management Plan and an outline Peat Slide Risk Assessment are provided in Technical Appendices 10.2 and 10.3 respectively.
		Carbon balance calculations should be undertaken and included within the EIA Report with a summary of the results provided focussing on the	Carbon payback periods are discussed in Chapter 14: Other Issues. Carbon balance calculations are presented in Technical Appendix 10.4.

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		carbon payback period for the wind farm	
		The EIA Report should fully describe the likely significant effects of the development on the local geology including aspects such as borrow pits, earthworks, site restoration and the soil generally including direct effects and any indirect.	Proposed borrow pits are discussed in Chapter 3: Project Description and paragraphs 10.100 to 10.105.
		The EIA Report needs to address the nature of the hydrology and hydrogeology of the site, and of the potential impacts on water courses, water supplies including private supplies, water quality, water quantity and on aquatic flora and fauna. Impacts on watercourses, lochs, groundwater, other water features and sensitive receptors, such as water supplies, need to be assessed. Measures to prevent erosion, sedimentation or discolouration will be required, along with monitoring proposals and contingency plans. Assessment will need to recognise periods of high rainfall which will impact on any calculations of run-off, high flow in watercourses and hydrogeological matters.	Details of site hydrogeology, private water supplies and hydrology are discussed in paragraphs 10.70 – 10.74, 10.84 – 10.88 and 10.90 – 10.97 respectively
		Most of the site is within a Group 1 Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas likely to be of high conservation value) and Class 2 (Nationally important carbon-rich soils, deep peat and priority peatland habitat). It was recommended that a peat assessment is undertaken to guide development away from	An outline Peat Management Plan and an outline Peat Slide Risk Assessment are provided in Technical Appendices 10.2 and 10.3 respectively. The condition of habitats are covered within Chapter 8: Ecology and associated appendices.

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		the most sensitive areas and help inform potential mitigation.	
		The EIA Report should include a map and an assessment of impacts on Ground Water Dependent Terrestrial Ecosystems (GWDTE).	A map of potential GWDTEs identified from an NVC survey and associated buffers is provided in Chapter 8: Ecology and Technical Appendix 8.1: Habitat Survey and Peatland Condition Assessment. Potential effects on GWDTE are discussed in paragraphs 10.75 to 10.80.
		The applicant will be required to carry out an investigation to identify any private water supplies, including pipework, which may be adversely affected by the development and to submit details of the measures proposed to prevent contamination or physical disruption.	A map of private water supply (PWS) abstractions provided in consultation with The Highland Council and associated buffers is provided as Figure 10.7. Potential effects on PWS are discussed in paragraphs 10.81 to 10.85.
NatureScot	22 nd November 2024	NatureScot highlighted that the vast majority of the proposal site is covered by Class 1 and Class 2 areas of peatland,. These areas are described as nationally important carbon-rich soils, deep peat and priority peatland habitat likely to be of high conservation concern and/or restoration value. NatureScot consider that the developer will need to demonstrate, that a wind farm can be built on the site without significant loss or damage to these nationally important interests. The EIA Report should include how impacts to these interests will be avoided, mitigated and/or compensated.	An outline Peat Management Plan is provided in Technical Appendix 10.2, which presents the results of peat surveys undertaken at the site and details how peat will be managed during the proposed construction works. Chapter 8: Ecology and associated appendices discuss the condition of habitats.
SEPA	11 th October 2024	SEPA indicated that the following items must be submitted with the EIA:	

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		Peat depth survey and table detailing re-use proposals.	An outline Peat Management Plan and an outline Peat Slide Risk Assessment are provided in Technical Appendices 10.2 and 10.3, respectively.
		Map and assessment of GWDTEs and buffers.	A map of potential GWDTEs identified from an NVC survey and associated buffers is provided in Chapter 8: Ecology and Technical Appendix 8.1: Habitat Survey and Peatland Condition Assessment. Potential effects on GWDTE are discussed in paragraphs 10.75 to 10.80.
		Decommissioning Statement	Outline decommissioning proposals are provided in Chapter 3: Project Description and effects are assessed in this chapter as appropriate.
SEPA	Various dates	SEPA were consulted (by way of teams call on 11 March 2025 where combined Phase 1/2 peat depth mapping was shared) to seek their initial feedback on the revised 'design chill' development layout and its potential impact upon peat. During this call SEPA raised some concerns with the location of infrastructure/turning heads associated with T8, T13, T19 and T20. SEPA also asked whether potential GWDTEs would be assessed and reminded the Applicant of SEPAs new GWDTE (and groundwater abstractions) guidance. The Applicant also advised SEPA of their intention to float tracks over any localised areas of deep peat. Following the SEPA call the design was further optimised (to address SEPA comments amongst other changes required due to other constraints) and a second phase of Phase 2 probing (Phase	Consultation feedback from SEPA has helped to guide the approach to design iteration and to minimise any impacts on peat (refer to Paragraphs 10.61 to 10.69 and Technical Appendix 10.2 Outline Peat Management Plan). See also SEPA email chain of 8th March 2023 (Appendix D of Appendix 10.2 Outline Peat Management Plan) for details.

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		2b) was undertaken in late March 2024 to address the data gaps. Data obtained from the Phase 2b probing was subsequently used to plot the presence and distribution of peat across the further revised 'design chill' development layout, which was issued to SEPA on 8 April 2025 which SEPA commented on 15 April 2025. No further changes were made to the design following SEPA's 15 April 2025 comments and the design was subsequently 'frozen'.	

Assessment Methodology and Significance

Scope of Assessment

Consultation

- 10.25 As noted in the previous section, consultation has been undertaken with NatureScot, The Highland Council and SEPA. Responses and relevant considerations are noted in Table 8.1.

Study Area

- 10.26 The study area has incorporated the area within the site boundary and this assessment also considers any potential hydrological and hydrogeological effects up to 1 km from any proposed infrastructure.
- 10.27 The location of private water supplies (PWS) located within 4km of the proposed new infrastructure have been identified following consultations with The Highland Council, site survey work and a review of available OS mapping.
- 10.28 The criteria for defining the study area have been established based on the professional judgement and experience of the assessment team with regard to likely access and working areas, and with due consideration to the relevant guidance on hydrological, geological and peat assessment.

Desk Study

- 10.29 Baseline conditions have been established primarily through desk-based research which has included:
- Consultation with SEPA, NatureScot and The Highland Council;

- Identification of the locations and characteristics of catchments and principal watercourses and waterbodies, as shown on 1:50,000 scale OS mapping which may be affected by construction activities;
- Identification of SEPA/WFD watercourse and waterbody classification;
- Review of on-line SEPA flood mapping;
- Review and collation of pertinent information on surface hydrology, flooding, climate, etc.;
- Review of on-line British Geological Survey (BGS) geological mapping of the area, and the SNH Carbon and Peatlands Map 2016;
- Review of drainage / surface water and hydrogeological characteristics and groundwater resource;
- Review of NatureScot's Sitelink map to identify any protected areas that may be located on or in the vicinity of the site, such as Sites of Special Scientific Interest (SSSI) which include sites that are designated as a result of their geology and Geological Conservation Review sites (GCR); and
- Review of publicly available historical mapping.

Site Visit

- 10.30 Several site survey visits have been undertaken by members of the assessment team as described below:
- 10.31 During peat depth survey work in 2024 (by Wildlife Consulting, Phase 1) and Spring 2025 (RPS, Phase 2a and 2b), the site was visited and surveyed extensively, with observations made of site terrain, vegetation, the nature of watercourses and their banks, ground conditions (including any evidence of peat slides / instability), and the nature and condition of existing infrastructure (e.g. tracks), if present.
- 10.32 The fourteen proposed water crossings and five existing crossings that require upgrading were inspected during the peat survey work.
- 10.33 Habitat and vegetation surveys were undertaken in May 2025, providing information relevant to the identification of habitats which could represent groundwater dependent terrestrial ecosystems (GWDTE).

Peat Depth Survey

- 10.34 On the basis of the scoping responses received from The Highland Council, SEPA and NatureScot and from a review of available desk-based information including published geological mapping, the Scottish Natural Heritage (SNH) Carbon and Peatlands Map (2016) and aerial photography it was considered that peat would be present across much of the site.
- 10.35 Peat depth surveys have subsequently been undertaken at the site over the course of two phases. A 'Phase 1' peat survey was initially undertaken by EK in 2024. These works were undertaken within the turbine development area only. The probing works were undertaken on a general 100m grid. During these works, pockets of deep peat were encountered

across the site but most notable in southern and eastern areas of the turbine development area.

- 10.36 Following completion of the Phase 1 survey, the site design was reviewed, and changes were made to avoid or minimise siting infrastructure on areas of deeper peat. A 'design chill' was subsequently arrived at and a Phase 2 survey was undertaken by RPS in February 2025. The Phase 2 survey comprised detailed surveys at each proposed turbine and hardstanding location, along all proposed new access tracks, and at other proposed infrastructure locations including the site substation, construction compound and borrow pits.
- 10.37 The pattern of Phase 2 peat probing in relation to proposed turbine locations and other infrastructure elements can be broadly described as follows:
- Probe at each proposed turbine location plus an additional probe, approximately 25m from the turbine location to the north, south, east and west;
 - Probes advanced on a grid at approximate 25m centres across the area of each proposed turbine hardstanding and crane pad area;
 - Probes advanced at 50 m centres along the proposed routes of new access tracks; and
 - Probes advanced on a grid at approximate 25m centres at the location of the proposed substation, and the proposed construction compound and within each of the proposed borrow pit search areas.
- 10.38 The above density (reduced in relation to guidance) reflected the fact that all infrastructure (except some sections of track) were located on peat less than 1.0m as informed by previous Phase 1 probing. This approach has been acceptable to SEPA on other Applicant windfarm schemes.
- 10.39 Following completion of Phase 2 probing, the site design was further reviewed to avoid or minimise siting infrastructure on areas of deeper peat. A revised 'design chill' was subsequently arrived at.
- 10.40 SEPA were then consulted (by way of Teams call on 11 March 2025 where combined Phase 1/2 peat depth mapping was shared) to seek their initial feedback on the revised 'design chill' development layout and its potential impact upon peat. During this call SEPA raised some concerns with the location of infrastructure/turning heads associated with T8, T13, T19 and T20. SEPA also asked whether potential GWDTEs would be assessed and reminded the Applicant of SEPA's new GWDTE (and groundwater abstractions) guidance. The Applicant also advised SEPA of their intention to float tracks over any localised areas of deep peat.
- 10.41 Following the SEPA call the design was further optimised (to address SEPA comments amongst other changes required due to other constraints) and a second phase of Phase 2 probing (Phase 2b) was undertaken in late March 2024 to address the data gaps. These works were undertaken using the probing patterns described above (again due to peat being expected to be less than 1.0m).

- 10.42 Data obtained from the Phase 2b probing was subsequently used to plot the presence and distribution of peat across the further revised 'design chill' development layout, which was issued to SEPA on 8 April 2025 which SEPA commented on 15 April 2025. No further changes were made to the design following SEPA's 15 April 2025 comments and the design was subsequently 'frozen'. The data was subsequently used to inform an outline Peat Landslide Risk Assessment (PLHRA), presented as Technical Appendix 10.2 and development of an outline Peat Management Plan (PMP) presented as Technical Appendix 10.3.

Assessment of Significance

Sensitivity

- 10.43 The sensitivity characteristics of geological hydrological and hydrogeological resources have been guided by the matrix presented in Table 10.2, which lists indicative criteria.

Table 10.2: Sensitivity Criteria (Hydrology, Geology and Peat)

Sensitivity	Definition and Examples
High	Areas containing geological, geomorphological or hydrological features considered to be of national interest, for example, Aquatic Natura 2000 sites, Special Areas of Conservation, Sites of Special Scientific Interest. Highly permeable superficial deposits allowing free transport of contaminants to groundwater and surrounding surface waters. Wetland/watercourse of High or Good Ecological Status. Raised or blanket bog. High risk of flooding. Land capable of supporting Arable Agriculture i.e. Class 1, 2 and 3.1.
Medium	Areas containing features of designated regional importance, for example, Regionally Important Geological and Geomorphological Sites (RIGS) considered worthy of protection for their educational, research, historic or aesthetic importance. Moderately permeable superficial deposits allowing some limited transport of contaminants to groundwater and surrounding surface waters. Wetland/watercourse of Moderate Ecological Status. Significant peat deposits. Moderate risk of flooding. Land capable of supporting Mixed Agriculture i.e. Class 3.2, 4.1 and 4.2.
Low	Geological features not currently protected and not considered worthy of protection. Low permeability superficial deposits likely to inhibit the transport of contaminants. Wetland/watercourse of Poor or Bad Ecological Status or no WFD classification. Thin superficial peat deposits. Low risk of flooding. Land capable of supporting improved grassland or rough grazing only i.e. Class 5.1 to 7.

- 10.44 The criteria for sensitivity have been developed based on a hierarchy of factors relating to quality of the aquatic and geological environment including international and national

designations, water and soil quality information, waterbody status from the WFD review work undertaken to date by SEPA, consultations, site visits, and the professional judgement of the assessment team.

Magnitude

- 10.45 The prediction and assessment of the magnitude of effects on geology, hydrology, and hydrogeology has been undertaken using a series of tables to document the various potential impacts from aspects of the construction and operational phases of the Proposed Development. Impacts have been predicted based on the guidance criteria for the magnitude of change set out in Table 10.3. Impacts from aspects of decommissioning are considered to be the same as or lesser than those for construction.

Table 10.3: Magnitude of Effects Criteria (Hydrology, Geology and Peat)

Magnitude	Criteria
<i>High</i>	<i>Total loss of, or alteration to key features of the baseline resource such that post development characteristics or quality would be fundamentally and irreversibly changed, for example, extensive excavation of peatland or watercourse realignment.</i>
<i>Medium</i>	<i>Loss of, or alteration to key features of the baseline resource such that post development characteristics or quality would be partially changed, for example, in-stream permanent bridge supports or partial excavation of peatland.</i>
<i>Low</i>	<i>Small changes to the baseline resource, which are detectable, but the underlying characteristics or quality of the baseline situation would be similar to pre-development conditions e.g. culverting of very small watercourses/drains and / or the excavation of thin deposits of peat.</i>
<i>Negligible</i>	<i>A very slight change from baseline conditions, which is barely distinguishable, and approximates to the 'no change' situation, for example short term compaction from machinery movements.</i>

- 10.46 Using these criteria, potential effects resulting from the proposed development have been assessed. These effects are presented in paragraphs 10.110 – 10.136. Details of generic and site-specific mitigation measures are given in paragraphs 10.137 – 10.168, with the remaining residual effects detailed in paragraphs 10.169 – 10.178.

Significance of Effects

- 10.47 The significance of predicted effects has been assessed in relation to the sensitivities of the baseline resource. A matrix of significance, based on the combination of magnitude of change and sensitivity of receptor, has been developed to provide a consistent framework for evaluation. This is shown in Table 10.4 below.

Table 10.4: Significance of Effects Matrix

	Sensitivity			
Magnitude	High	Medium	Low	Negligible
High	<i>Major</i>	<i>Major</i>	<i>Moderate</i>	<i>Minor</i>
Medium	<i>Major</i>	<i>Moderate</i>	<i>Minor</i>	<i>Negligible</i>

Low	Moderate	Minor	Negligible	Negligible
Negligible	Minor	Negligible	Negligible	Negligible

10.48 The guideline criteria for the various categories of effect are provided in Table 10.5.

Table 10.5: Significance Criteria (Hydrology, Geology and Peat)

Significance	Definition	Guidance Criteria
<i>Major</i>	A fundamental change to the environment.	Changes in water quality or quantity affecting widespread catchments or groundwater reserves of strategic significance, or changes resulting in substantial loss of conservation value to geological or aquatic habitats and designations.
<i>Moderate</i>	A large, but non-fundamental change to the environment.	Changes in water quality or quantity affecting part of a catchment or groundwaters of moderate vulnerability, or changes resulting in loss of conservation values to geological or aquatic habitats or designated areas.
<i>Minor</i>	A small but detectable change to the environment.	Localised changes resulting in minor and/or reversible effects on soils, surface and groundwater quality or habitats.
<i>Negligible</i>	No detectable change to the environment.	No effects on geological resources, drainage patterns, surface and groundwater quality or aquatic habitats.

10.49 In the above classification, fundamental changes are those which are permanent, either adverse or beneficial, and would result in widespread change to the baseline environment. For the purposes of this assessment, those effects identified as being major or moderate have been evaluated as significant environmental effects in terms of the EIA Regulations and, therefore, are those which may have an adverse effect on the status of waterbodies, watercourses, groundwater or geological resources.

10.50 These matrices have been used to guide the assessment, though they have been applied with a degree of flexibility, since the evaluation of effects will always be subject to location-specific characteristics which must be taken into account. For this reason, the evaluation of the significance of effects in particular will not always correlate exactly with the cells in the relevant matrix, especially where professional judgement and knowledge of local conditions may result in a slightly different interpretation of the impact concerned.

10.51 Cumulative effects have been accounted for through the prediction and evaluation of effects at a catchment-wide level.

Requirements for Mitigation

10.52 Committed mitigation measures are presented within this chapter where the potential to affect sensitive geological, hydrological or hydrogeological receptors has been

predicted. These may include temporary effects from construction or permanent/longer-term effects associated with the operational phase of the proposed development and its associated infrastructure.

Assessment of Residual Effect Significance

- 10.53 An assessment of any predicted significant residual effects on sensitive geological, hydrological or hydrogeological receptors is presented within this chapter.

Limitations

- 10.54 No water quality monitoring or intrusive investigations, other than peat depth survey work as described in paragraphs 10.32 to 10.40, have been undertaken. This is not considered to represent a significant limitation to the assessment of effects, as detailed intrusive site investigation works and water quality monitoring would, as is typical, will be undertaken prior to and during construction to inform detailed engineering design, micro-siting, and environmental protection and control measures to be implemented.

Baseline Conditions

Designated Sites

- 10.55 Reference to the NatureScot Site Link map indicates that no designated sites relating to hydrology, geology and peat are located within or in proximity to the study area.

Geology (including Soils)

- 10.56 BGS online mapping for the study area shows that the majority of the development site is underlain by metamorphic bedrock of the Tarvie Psammite Formation which comprises psammite, thin-bedded, siliceous to micaceous. Northeastern areas of the site are shown to be underlain by the Achnaconeran Striped Formation which comprises interbedded psammite and semipelite. Both formations were formed approximately 720 to 1,000 million years ago. These rocks were originally sedimentary in origin, forming in shallow seas, and has subsequently undergone low grade metamorphic change.
- 10.57 Small igneous intrusions (Unnamed Igneous Intrusion, Pre-Caledonian and Caledonian Supersuite) are also shown to be present in the east and southern eastern part of the site.
- 10.58 The bedrock geology as shown on BGS 1:50,000 scale mapping is shown on Figure 10.2.
- 10.59 BGS mapping shows that bedrock across the site area is overlain by various superficial deposits including Till, Hummocky Glacial Deposits, River Terrace Deposits, Alluvium and Peat. The Till and Hummocky Glacial Deposits are expected to comprise poorly sorted sand, gravel, cobbles and boulders in a clay matrix, localised to the south of the access road (Till) and to the north of the site, in proximity to five of the turbines and two of the borrow pits. River Terrace Deposits and Alluvium are present along the northernmost site boundary and are not anticipated to be present in proximity to any of the site infrastructure. The central parts of the site are shown to be underlain by Peat deposits, in proximity to a number of turbines, borrow pits and infrastructure.

- 10.60 The superficial geology as shown on BGS 1:50,000 scale mapping is shown on Figure 10.1.
- 10.61 With respect to soil resources, reference to the National Soil Map of Scotland indicates that soils across the majority of the north of the site are classified as Dystrophic blanket peat and peaty gleyed podzols with dystrophic semi-confined peat with peaty gleys. In the south eastern and south of the site the soils are classified as Humus-iron podzols with peaty gleyed podzols.
- 10.62 There is no Prime agricultural land mapped (i.e. Grade 1, 2 or 3a) as per the Land Classifications for Agriculture (LCA) system.

Peat

- 10.63 The SNH carbon and peatland mapping (2016) defines that most of the site comprises Class 1 peat, which is described as *'Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas likely to be of high conservation value'*. Pockets of Class 2 and Class 5 peat are present in the northern extent of the site and within the central boundary. Class 2 peat is described as Class 1 peat above. Class 5 peat is described as *'Soil information takes precedence over vegetation data. No peatland habitat recorded. May also include areas of bare soil.'* The southern part of the site, including the access road is mapped as Class 0 described as *'mineral soil – peatland habitats are not typically found on such soils'*.
- 10.64 Peat mapping for the site area is shown on Figure 10.3.
- 10.65 Peat depth surveys were undertaken as described in paragraphs 10.32 to 10.40, in consultation with SEPA and guided by Guidance on Developments on Peatland - Site Surveys (2017) to identify and characterise peat deposits that may be present around proposed turbines and associated infrastructure.
- 10.66 The locations and findings of the peat surveys are illustrated within Technical Appendix 10.2: Outline Peat Management Plan.
- 10.67 The Guidance on Developments on Peatland - Site Surveys (2017) uses the definition of peat, deep peat and organo-mineral (peaty) soils which is presented in the Joint Nature Conservation Committee (JNCC) report 445 Towards an Assessment of the State of UK Peatlands (2011). This definition, which has been used within this chapter, is summarised below:
- **Peaty (or organo-mineral) soil:** a soil with a surface organic layer less than 0.5 m deep;
 - **Peat:** a soil with a surface organic layer greater than 0.5 m deep which has an organic matter content of more than 60%;
 - **Deep peat:** a peat soil with a surface organic layer greater than 1.0 m deep.
- 10.68 In total 2,746 peat probes were advanced across the development site during Phase 1, 2 and 2b. Contouring of the peat probe results from all stages of the work was subsequently undertaken to establish an estimation of the peat depths across the assessment site.

- 10.69 The peat probing undertaken has generally confirmed that the majority of infrastructure has avoided deep peat with the exception of T18 (where the peat is considered to be very localised). Localised areas of deeper peat are also noted to have been recorded within turbine hardstanding areas associated with T20 and T15 (on its northern periphery) and within the substation area (localised probe locations). Sections of track which are proposed to be constructed over deeper areas of peat are proposed to be floated. The average depth of peat across the site is 0.80m. The maximum recorded peat depth was 4.07m.
- 10.70 Full details of the peat depth survey, together with an outline Peat Slide Risk Assessment, are provided in Technical Appendix 10.3. An outline Peat Management Plan is provided as Technical Appendix 10.2.
- 10.71 Overall, the sensitivity of the baseline geological resources at this site are considered to be medium, given the presence of peat across the site, although of variable thickness.

Hydrogeology

- 10.72 The groundwater body beneath the site is indicated by SEPA to comprise part of the Northern Highlands groundwater body. This groundwater body was classified by SEPA in 2023 as having an overall status of good.
- 10.73 Hydrogeology mapping data from the BGS shows that the bedrock beneath the main site area comprises a low productive aquifer in which flow is virtually all through fractures and other discontinuities.
- 10.74 Peat and peaty soils would be expected to contain perched groundwater but would also be expected to inhibit groundwater flow. Hummocky Glacial Deposits and Till, where present, are anticipated to be of variable permeability, depending on the proportion of clays and silts relative to coarser components (sand, gravel, cobbles and boulders).
- 10.75 Groundwater vulnerability mapping indicates that most of the site is classified as Class 4a or 4b with some localised areas classified as 5. Class 4a / 4b areas are those where groundwater would be vulnerable to pollutants that are not readily adsorbed or transformed. Superficial deposits within areas classified as 4a generally comprise low permeability soils but are less likely to include clay, whereas superficial deposits in areas classified as 4b are more likely to include clay. Class 5 areas are those where groundwater would be vulnerable to most pollutants, with rapid impact in many scenarios. Areas classified as 5 are those where superficial deposits are likely to be thin or absent.
- 10.76 Regional hydrogeology and vulnerability mapping for the site is shown on Figures 10.4 a & b and Figure 10.5.

Potential Groundwater Dependent Habitats

- 10.77 Several areas of potential GWDTE were identified during National Vegetation Classification survey work that has been undertaken at the site (see Chapter 8: Ecology and Figure 8.2 a-e and Figure 8.3 for further detail).

- 10.78 Of these, seven areas (all M10 and M32 communities) were considered to be groundwater dependent by the ecologists due to evidence of groundwater arising from springheads or percolating through the ground creating permanently basic conditions for calcicolous plant species to grow. In addition to this, some M6 sub-communities identified within the survey area were also considered to be maintained from springheads.
- 10.79 All of the identified GWDTEs are shown to be localised to the north-western part of the site (within the developable area) and are situated to the south of turbines T20 and T19.
- 10.80 SEPA guidance indicates that excavations <1m in depth should be sited at least 100m away from GWDTEs and that excavations >1m in depth should be sited at least 250m from GWDTEs. Where this is not possible, mitigation measures will be required to ensure the GWDTEs are not negatively affected.
- 10.81 On the basis of the available information, it is noted that infrastructure associated with T20 and T19 (i.e. turbine base foundation, crane hardstandings areas etc) are located out with the 100m buffer for all of the GWDTEs, although some short sections of access track between linking the turbine locations encroach into this. Infrastructure associated with both turbine locations and associated access tracks are shown to be located within the wider 250m buffer.
- 10.82 On this basis, it is considered that the GWDTEs that have been identified on site may potentially be affected by the proposed development.

Private Water Supplies

- 10.83 The Highland Council Open Map Data was consulted about the presence of Private Water Supplies (PWS) located in the vicinity of the proposed turbines and associated infrastructure. Records for five PWS located within 4 km of the site have been provided.

Table 10.6: Summary of PWS Located in the Vicinity of the Site

Unique ID	Site Name	Class	Co-ordinates	Source Type
30,430	East Culligran	FA1	239,542 840,612	Spring
40,343	Stru New Borehole	FB1	240,857 840, 620	Groundwater - Borehole
56,944	2 Farley	FB1	246,829 845,386	Stream
29,470	3 Farley	FB1	247,079 845,320	Well
29,449	Cnoc Vann	FB1	247,468 845,727	Spring

- 10.84 The first two PWS listed above are located south of the site entrance and approximately 4km from the nearest area of construction activity (beginning of the upgraded sections of main access track). Given their distance these PWS are considered unlikely to be impacted by the proposed development. The next three are located approximately 2-3km east of the nearest area of construction activity (T2, T4, T6 and associated

infrastructure). Given their distance, these are also considered unlikely to be impacted by the proposed development.

- 10.85 No wells, springs or other features suggesting the potential presence of a PWS have been identified from a review of OS mapping, within the site boundary or within 1km of any proposed turbines or other new infrastructure. In addition, no evidence of potential PWS were observed on site during the course of the site survey work.
- 10.86 A map highlighting the location of the PWS records described above are presented on Figure 10.7.
- 10.87 An assessment of effects on PWS is not considered further within this chapter.

Summary of Groundwater Sensitivity

- 10.88 Taking account of the low productivity aquifer underlying the site, generally low permeability superficial deposits, the absence of PWS in the study area and the localised presence of GWDTE's in the north-western part of the site, the sensitivity of baseline hydrogeological resources beneath this site is considered to be medium.

Watercourses

- 10.89 As shown on Figure 10.6, there are a number of watercourses within the study area. The largest of these is Gleann Giobhre, which runs along the northern site boundary, draining to the east. Allt Chogach, Allt Beinn Name Fitheach, Allt an Torra Dhuinn, Allt a' Chrochadair and Allt Dearg all spring within the northern part of the study area and flow towards the Gleann Giobhre, along with nine unnamed tributaries.
- 10.90 Allt an Torra Dhuinn itself has several unnamed tributaries within the central part of the site.
- 10.91 Loch nan Eun is present immediately to the north east of the study area with the very western area of the loch within the study boundary. Three unnamed tributaries are mapped that rise within the study area.
- 10.92 Loch Ballach is located in the central part of the study area and is connected to Allt an Locha Bhallaich, which flows towards the Breakachy Burn immediately to the southeast of the study area. Allt Liach flows along the southern extent of the study area towards the Breakachy Burn.
- 10.93 A number of unnamed tributaries flow across the main access track, into Lochan Fada and Allt an Lochan Fada.
- 10.94 No infrastructure is proposed in close proximity to surface water features with the exception of proposed access track crossings, which are detailed below.
- 10.95 Reference to the SEPA Water Classification Hub indicates that Gleann Goibhre had an overall status of Poor and Breakachy Burn had an overall status of High in 2023. This indicates that surface water features across the study area are in variable condition.

- 10.96 For the purposes of this assessment and taking account of the variable status of the local watercourses, the sensitivity of baseline hydrological resources at this site is considered to be medium.

Water Crossings

- 10.97 The road and tracks providing access to the turbines and other infrastructure will require to cross watercourses at a number of locations. In total, fourteen new water crossings will be required. In addition, five existing water crossings will require upgrading. The proposed new crossings and upgraded crossings are briefly outlined below, with further details provided in the outline water crossing schedule, Technical Appendix 10.1.

- NWC1 is a new crossing of an unnamed tributary of River Beaully on the access track north of EWC1. A circular culvert watercourse crossing will be formed at the new track crossing point.
- NWC2 is a new crossing of an unnamed tributary of the River Beaully, south of the construction compound. A circular culvert watercourse crossing will be formed at the new track crossing point.
- NWC3 is a new crossing of an unnamed tributary of River Beaully to the north of T6. A circular culvert watercourse crossing will be formed at the new track crossing point.
- NWC4 is a new crossing of an unnamed tributary of River Beaully between T2 and T4. A circular culvert watercourse crossing will be formed at the new track crossing point.
- NWC5 is a new crossing of the Allt a' Chrchaidh (tributary of the Gleann Goibhr) east of T11. A circular culvert watercourse crossing will be formed at the new track crossing point.
- NWC6 is a new crossing of an unnamed tributary of Allt Goibhre between T1 and T3. A circular culvert watercourse crossing will be formed at the new track crossing point.
- NWC7 is a new crossing of an unnamed tributary of Gleann Goibhre north of T9. A circular culvert watercourse crossing will be formed at the new track crossing point.
- NWC8 is a new crossing of an unnamed tributary of Gleann Goibhre east of T15. A circular culvert watercourse crossing will be formed at the new track crossing point.
- NCW9 is a new cross of an unnamed tributary of the Gleann Goibhre west of T17. A circular culvert watercourse crossing will be formed at the new track crossing point.
- NCW10 is a new crossing of a tributary of Gleann Goibhre east of T18. A circular culvert watercourse crossing will be formed at the new track crossing point.
- NCW11 is a new crossing of a tributary of Gleann Goibhre immediately south of NCW10. A circular culvert watercourse crossing will be formed at the new track crossing point.
- NCW12 is a new crossing of a tributary of Gleann Goibhre east of T19. A circular culvert watercourse crossing will be formed at the new track crossing point.
- NCW13 is a new crossing of Allt Creagach (tributary of Gleann Goibhre) west of T19. A circular culvert watercourse crossing will be formed at the new track crossing point.
- NCW14 is a new crossing of Allt Creagach (tributary of Gleann Goibhre) west of T19. A circular culvert watercourse crossing will be formed at the new track crossing point.
- EWC1 is an existing crossing of an unnamed tributary of Erkness Burn on the access track to the site. The crossing will be replaced or upgraded as a circular culvert.

- EWC2 is an existing crossing of an unnamed tributary of Erkness Burn on the access track to the site. The crossing will be replaced or upgraded as a circular culvert.
- EWC3 is an existing crossing of an unnamed tributary of Erkness Burn on the access track to the site. The crossing will be replaced or upgraded as a circular culvert.
- EWC4 is an existing crossing of an unnamed tributary of Erkness Burn on the access track to the site. The crossing will be replaced or upgraded as a span bridge.
- EWC is an existing crossing of an unnamed tributary of Erkness Burn on the access track to the site. The crossing will be replaced or upgraded as a circular culvert.

10.98 The locations of the existing and proposed water crossings are shown in Figure 1 in Technical Appendix 10.1 Outline Water Crossing Schedule.

Borrow Pit Search Areas

- 10.99 The northern borrow pit search area is located immediately to the south of the proposed access track that is to be constructed between T9 and T3. This location is mapped as being partially underlain by peat and partially directly underlain by bedrock of the Tarvie Psammite Formation. This location is considered likely to be a suitable location for providing stone for access track construction in northern parts of the site.
- 10.100 The north-western borrow pit search area is located immediately to the north of the proposed access track that is to be constructed between T16 and T18. This location is mapped as being underlain by Hummocky Glacial Deposit which in turn are underlain by the Tarvie Psammite Formation. This location is considered likely to be a suitable location for providing stone for access track construction across north western parts of the site.
- 10.101 The southern borrow pit search area is immediately west of the proposed track that is to be constructed between the substation and T6. This location is mapped as being directly underlain by bedrock strata of the Tarvie Psammite Formation, peat may encroach the western edge of the borrow pit. This location is considered likely to be a suitable location for providing stone for access track construction in the southern part of the site.
- 10.102 As set out in Chapter 3: Project Description, intrusive site investigation work will be undertaken at each borrow pit search area to further characterise the rock, identify its suitability, and allow a specific excavation location or locations within the search areas to be confirmed prior to commencement.
- 10.103 Following excavation, the borrow pit area(s) will be restored using site-won soils and peat in accordance with relevant good practice guidance. Further information on the use of excavated peat for restoration of borrow pits is given in Technical Appendix 10.2 Outline Peat Management Plan.

Flooding

- 10.104 The online SEPA Indicative River & Coastal Flood Map shows areas of the site, including those in close proximity to Lochan Fada to the north of the access track, the tributaries of Breakachy Burn to the north of the access track and adjacent to the Gleann Goibhre

watercourse on the northern site boundary, have a 10 % chance of being flooded in any given year.

- 10.105 The map identifies localised areas with a risk of surface water flooding (high likelihood), all confined to the surface water features that are located on site.
- 10.106 With the only flood risk being associated directly adjacent to the onsite watercourses, remote from any proposed infrastructure, the risk of flooding on the site, and the sensitivity of the site to flooding, is considered to be low.

Contaminated Land

- 10.107 Historically, the main body of the is shown to have largely comprised undeveloped moorland, with historical maps from the mid-1800s to 1974 showing no development onsite.
- 10.108 No potential sources of contamination are shown to be present on-site on the available historical maps. In addition to this, no recent development is noted to have taken place on site during site visits undertaken as part of this assessment.
- 10.109 With no potentially significant contamination sources identified within the main body of the site, contaminated land will not be considered further within this assessment.

Identification and Evaluation of Key Effects

- 10.110 The potential effects resulting from the proposed development are detailed below. Effects have been separated into those which occur during the construction, operation and decommissioning phases individually.

Construction Effects

- 10.111 The construction phase includes all activities prior to the operation of the proposed development, i.e. up to the point at which the turbines begin generating electricity. The following paragraphs outline the potential effects identified, with respect to hydrology, geology and peat during this phase.

Pollution Impact from Sediment Run-off / Transport and / or Chemical Contaminated Run-off

- 10.112 Surface run-off containing silt and other sediments, particularly during and after rainfall events, has the potential to enter the watercourses, drains and lochs that are present on-site. Silt and sediment laden surface water run-off is predicted to arise from excavations, exposed ground and any temporary stockpiles.
- 10.113 Silt and sediment laden run-off has the potential to impact on the water quality and hydrological and ecological function of receiving watercourses at and downstream of the works in the absence of any mitigation.
- 10.114 Additionally, pollutants such as oils, fuel and cement may be mobilised through mechanical leaks or spillage and carried in surface drainage. Unless managed

appropriately, these pollutants could be washed into watercourses, impacting on freshwater quality and ecological value.

- 10.115 The magnitude of change, prior to mitigation, is considered to be medium, on a medium sensitivity receptor. Therefore, there is potential for a direct, temporary, short-term effect of **moderate adverse** significance prior to implementation of mitigation measures on watercourses and other surface water features.

Changes to Groundwater Flow

- 10.116 As discussed within the Baseline, there is anticipated to be little groundwater at shallow depth beneath the site. It is considered that any shallow groundwater will be limited to perched groundwater within peat deposits, and localised areas of glacial deposits and till containing higher proportions of sand and gravel content. Groundwater within the bedrock is anticipated to be minimal, with flow restricted to fissures and other discontinuities.
- 10.117 Deep excavations will be required to form turbine foundations and borrow pit workings, and shallower excavations will be required to form platforms for the crane pads, substation/battery compound and the temporary construction compound. However, given the anticipated absence of substantial groundwater within the superficial deposits, any changes to groundwater flow would be highly localised.
- 10.118 There is therefore a potential low magnitude impact on a medium sensitivity receptor, resulting in a direct, temporary, short-term effect of **minor adverse** significance in the absence of mitigation.

Removal of and Impact on Peat

- 10.119 Variable thicknesses of peat have been identified across the site. Extensive design iteration work has been undertaken, seeking to avoid siting infrastructure on areas of deep (>1.0m) peat wherever possible, while taking account of other environmental and physical constraints (refer to Chapter 4: Design Evolution). This has resulted in the following:
- 16 of the 20 turbine locations (exc. hardstanding areas) are sited on 'peaty soil' rather than peat, i.e. peat depth less than 0.5 m thick.
 - Three of the 20 turbine locations (exc. hardstanding areas) are sited on peat recorded at depths between 0.5 m and 1.0 m, therefore defined as peat, but not deep peat.
 - The remaining one of the 20 turbines (T18) is sited on peat recorded at depths greater than 1.0m (1.8m) constituting deep peat, however is considered to be a very localised peat deposit given the predominance of peat <1.0m thick in surrounding probe locations. T18 is also restricted by the watercourses to the west and east of the crane pad and the pipeline to the south. Following detailed pre-construction site investigations, there may be an opportunity to micro-site T18 in order to reduce the volume of peat requiring excavation.
 - Localised areas of deeper peat are also noted to have been recorded within turbine hardstanding areas associated with T20 and T15 (on its northern periphery) and within the substation area (localised probe locations).

- All other infrastructure elements (construction compound, , borrow pits) are sited on areas with average peat depth less than 1.0 m.
- Proposed new tracks/turning heads/crane pads are generally sited on areas where peat depth is less than 1.0 m with the exception of some localised thicker peat deposits, including the turning head and section of track either side to south of T5 which had to be relocated due to a bog pool in the vicinity of the turning heads original position to the south. The requirement for peat excavation at these locations will be minimised, via the construction of 2.01km of floating road.

10.120 It is clear that there will be a requirement for excavation of some peat to allow construction of turbine foundations, hardstandings, new track, and other infrastructure elements. Further detail on the estimated volume of peat to be excavated, and the management of excavated peat, is given in Technical Appendix 10.2 Outline Peat Management Plan.

10.121 In the absence of mitigation, there is a potential medium magnitude impact on a high sensitivity receptor, resulting in a direct, permanent effect of **major adverse** significance.

Peat Landslide Impact on Watercourses

10.122 Construction on peat soils, and associated activities, can result in destabilisation of peat deposits on slopes and lead to slope failure, with subsequent potential for peat and soils to reach watercourses downslope and cause pollution/sedimentation and changes to fluvial geomorphology. A detailed assessment of peat landslide risk has been undertaken as presented in Technical Appendix 10.3 Peat Landslide Hazard Risk Assessment. This has identified low peat landslide risk at all proposed turbine, hardstanding and other infrastructure locations.

10.123 It should be noted that proposed turbines and hardstandings would not be constructed on peat, rather any peat within the footprints of turbines and hardstandings would be excavated to allow construction on a suitable founding stratum (i.e. bedrock).

10.124 In the absence of mitigation, the overall potential magnitude of impact from peat landslide resulting from construction activities at the site is assessed as low, on a high sensitivity receptor, resulting in a direct, temporary, short-term effect of **moderate adverse** significance.

Impact on the Integrity of Banking

10.125 Construction activities on or close to the sides of watercourses can detrimentally affect the structural integrity of burn banks, either through direct damage to bankside material or indirect loosening of soil structure thus impacting on the localised morphology and water quality of the watercourse through erosion or even collapse of the banking.

10.126 Permanent new watercourse crossings will be required at fourteen locations. Subject to detailed pre-construction site investigation works, it is anticipated that these new crossings will comprise installation of oversized bottomless arched culverts. Existing watercourse crossings to be upgraded will be required at five locations. Subject to detailed pre-construction site investigation works, it is anticipated that these will comprise upgrade of existing oversized bottomless arched culverts (except at one location where an upgraded

span bridge is required). Further details are provided in EIA Report Volume 4, Technical Appendix 9.1 Outline Watercourse Crossing Schedule whilst EIA Report Volume 2, Figure 3.5 depicts a typical watercourse crossing.

- 10.127 There is potential for a high magnitude impact on medium sensitivity receptors, therefore, there is potential for a direct, permanent effect of **major adverse** significance prior to the implementation of mitigation measures.

Impact on GWDTEs

- 10.128 Unless appropriate mitigation measures are put in place there is the potential for groundwater dependent terrestrial ecosystems (GWDTEs) located in the north-western part of the development area to be impacted by excavation works >1.0m that are likely to be required to be undertaken during construction of T19, T20 and associated infrastructure.
- 10.129 The magnitude of change, prior to mitigation, is medium on a medium sensitivity receptor. Therefore, there is likely to be a direct, temporary, medium-term effect of **moderate adverse** significance on GWDTE's prior to the implementation of mitigation measures.

Direct Discharge of Untreated Foul Drainage

- 10.130 Unless appropriately sited and managed, there is potential for direct discharge of untreated foul sewage from welfare facilities from site compounds during construction.
- 10.131 The magnitude of change, prior to mitigation, is medium on a medium sensitivity receptor. Therefore, there is likely to be a direct, temporary, medium-term effect of **moderate adverse** significance on watercourses prior to the implementation of mitigation measures.

Operational Effects

Surface Water Drainage

- 10.132 The access track, turning heads and crane hardstandings for the wind turbines, and any un-restored areas may result in an increased rate of surface water run-off from the site, increasing downstream flood risk and potentially resulting in soil erosion and silt-laden run-off, which could pollute watercourses, ditches and lochs.
- 10.133 The magnitude of change, prior to mitigation, is high, on a high sensitivity receptor. Therefore, there is potential for a direct, long-term effect of **major adverse** significance prior to the implementation of mitigation measures.

Fluvial Geomorphology

- 10.134 If watercourse crossings are not designed properly to ensure continuous flows, this could potentially adversely affect the geomorphology of the streams by reducing heterogeneity.

- 10.135 The magnitude of change, prior to mitigation, is medium, on a high sensitivity receptor. Therefore, there is potential for a direct, permanent effect of **major adverse** significance prior to the implementation of mitigation measures.

Decommissioning Effects

- 10.136 Potential effects of decommissioning the proposed development are similar to those encountered in the construction phase, however, generally with less magnitude as the level of site activity is lower.
- 10.137 Discussions will be held with The Highland Council and the appropriate Regulatory Authorities prior to decommissioning to agree an appropriate Decommissioning Strategy.

Mitigation Measures and Monitoring

Project Design

- 10.138 The following considerations have been taken into account in the iterative design of the proposed development (note that full details of the project design are provided in Chapter 3: Project Description and the iterative design process is set out in Chapter 4: Design Evolution):
- A 50 m buffer has been maintained around all surface watercourses, except where watercourse crossings are required;
 - Avoiding the placement of turbine foundations in areas of peat greater than 1m in depth (except in the case of T18 where the deep peat is very localised and other constraints prevent it being relocated);
 - Application of appropriate buffers (100m and 250m) around identified GWDTE; and
 - Avoidance of high quality peatland as identified within the NVC and Peatland Condition Assessment presented in Technical Appendix 8.1.
- 10.139 Rigorous construction environmental management procedures will be implemented in line with a Construction Environmental Management Plan (CEMP) (see below) to ensure appropriate protection of the above-noted watercourses, and all other surface water receptors.
- 10.140 Proposed new tracks/turning heads/crane pads are generally sited on areas where peat depth is less than 1.0 m with the exception of some localised thicker peat deposits, including the turning head and section of track either side to south of T5 which had to be relocated due to a bog pool in the vicinity of the turning heads original position to the south. The requirement for peat excavation at these locations will be minimised, via the construction of 2.01km of floating road.
- 10.141 No infrastructure is proposed to be constructed in or near areas of medium or high peat landslide risk. Further detailed investigation will be undertaken pre-construction (see below), to clarify the risks and confirm mitigation or micro-siting to address any risks higher than negligible, as appropriate.

Pre-Construction Site Investigations

- 10.142 To determine ground and groundwater conditions across the site, pre-construction site investigations will be conducted. These investigations will focus on areas where construction is proposed to be undertaken and will allow the turbines and the associated infrastructure to be micro-sited away from any areas considered to be unsuitable, such as areas of contamination (unlikely), areas of deeper peat wherever possible, or where there are significant groundwater flows.
- 10.143 The investigations will also include targeted monitoring and assessment of the groundwater levels and flows beneath the site. This will allow for micro-siting and to assist in the detailed design of infrastructure and selection of appropriate materials for use during the construction process. Investigations within the borrow pit search areas will allow appropriate selection of specific extraction areas, to avoid or minimise any adverse effects associated with quarrying activities.

Construction

Peat

- 10.144 The pre-construction site investigations noted above, and observations during construction, will inform micro-siting, if required and appropriate, to minimise peat slide risk and the volume of peat to be extracted as far as possible.
- 10.145 The borrow pit search areas represent relatively broad zones, within which only a proportion will actually be excavated to win stone for the site's construction. No excavation will occur until further site investigations have been undertaken to assess the suitability of the areas and refine the assessment of peat slide risk. For example, areas of deeper peat, if found to be present within the search areas would be avoided, thereby reducing the peat slide risk. If it is determined that no suitable excavation site within any given search area can be identified, then no excavation will occur at that search area.
- 10.146 If it is not possible to avoid routing tracks over localised areas of deep peat, as is the case for stretches of track, including the turning head and section of track either side to south of T5 which had to be relocated due to a bog pool in the vicinity of the turning head's original position to the south, these would be floated to avoid the requirement for excavation of peat. This would involve placing of a geotextile membrane on existing topsoil and vegetation followed by aggregate layers. Floating roads would be designed to ensure suitability for site traffic during construction and operation as per the NatureScot guidance document Good Practice During Wind Farm Construction, 2019.
- 10.147 Any peat excavated will be re-used on site as set out in the Outline Peat Management Plan (EIA Report Volume 4, Technical Appendix 10.2).

Water Quality

- 10.148 The appointed Contractor will undertake pre-construction baseline water quality sampling and analysis of the principal surface water receptors summarised in 10.87 to 10.94. The Contractor will implement a programme of monthly monitoring and analysis of the water

quality of these watercourses / features during the construction period to ensure that they are not being impacted by the construction works. The full scope of monitoring will be detailed within the CEMP.

Pollution Impact from Sediment Run-off / Transport and / or Chemical Contaminated Run-off

- 10.149 With specific reference to the SEPA guidance document 'Guidelines for Water Pollution Prevention from Civil Engineering Contracts, Special Requirements', the Contractor will produce a CEMP prior to the commencement of construction activities which contains a construction method statement that includes:
- A detailed breakdown of the phasing of construction activities;
 - A pollution risk assessment of the site and the proposed activities;
 - Identification of all water environment receptors that may be affected by the works and temporary discharge points to these watercourses;
 - Planning and design of appropriate pollution control measures during earthworks and construction;
 - Management of the pollution control system, including dewatering of excavations (if required) away from watercourses;
 - Contingency planning and emergency procedures; and
 - On-going monitoring of construction procedures to ensure management of risk is maintained.
- 10.150 All earthmoving works or similar operations will be carried out in accordance with BSI Code of Practice for Earth Works BS6031:1981.
- 10.151 All watercourse crossings and site discharges will be regulated under the CAR licensing regime and all necessary licences will be sought from SEPA prior to the commencement of any operations on site.
- 10.152 While it is acknowledged that best practice to minimise run-off would be to undertake construction and dismantling during the driest period of the year, given the location of the proposed development site, there are likely to be significant periods of rainfall throughout the year. Therefore, site management will check the local weather forecast daily and prime all site staff to ensure that everyone is aware of their responsibilities to maintain the pollution control system during wet weather or suspend sensitive operations during adverse weather conditions.
- 10.153 All fuel and other chemicals will be stored in accordance with best practice procedures, including being kept within a designated fuelling site located at a safe distance from existing watercourses and in appropriate impermeable bunded containers/areas, which will be defined within the outline CEMP. These will be designed to capture any leakage, whether from a tank or from associated equipment such as filling and off-take points, sighting gauges etc., all of which will be located within the bunded area.

- 10.154 Oil booms and soakage pads will be maintained in all work areas and spill kits kept in all vehicles to enable a rapid and effective response to any accidental spillage or discharge. All construction staff will be trained in the effective use of this equipment.
- 10.155 Construction vehicles and plant will be regularly maintained and all maintenance, fuelling and vehicle washing will be undertaken on appropriate impermeable surfaces away from watercourses to minimise risks of leaks to soil and surface waters.
- 10.156 Concrete batching will be undertaken in a designated area within a temporary construction compound. The Contractor will develop a method statement to address the on-site batching of concrete and the transport, transfer, handling and pouring of liquid concrete at foundations. It is likely that water will require to be abstracted to facilitate any on-site batching processes. A separate CAR licence application for any water abstractions required will be made to SEPA at the appropriate point prior to the commencement of construction.
- 10.157 Cement, grout and unset concrete will not be allowed to enter the water environment. No operations involving concrete transfer between vehicles or into vehicles will take place within 30m of watercourses and water bodies.
- 10.158 Any vehicles used for delivery of concrete will only be washed out at locations to be agreed with SEPA. Excess concrete or wash-out liquid will not be discharged to drains or watercourses on site or at compounds. Drainage from washout facilities will be collected and treated or removed to an appropriate treatment point / licensed disposal site.
- 10.159 Where topography dictates that working platforms are needed, these will be formed to ensure that surface water drains away from watercourses.
- 10.160 The requirement for dewatering will be minimised in all locations by timely and efficient excavation of the foundation void and subsequent concrete pouring and backfilling.

Impact on Integrity of Banking

- 10.161 During the construction phase, construction staff will be instructed to maintain a sufficient distance from the watercourses located on site to ensure there is no incursion towards them.
- 10.162 Water crossing designs will follow best practice to prevent impact on the integrity of the banking of watercourses. Detailed design will be included within a Construction Method Statement to be agreed with The Highland Council and SEPA and detailed watercourse crossing designs will be regulated under the CAR licensing regime.

GWDTEs

- 10.163 Robust silt mitigation plans will be put into place in order to minimise the risk of pollution events or sedimentation deposition within the GWDTE areas. Turbine infrastructure and associated access tracks have been sited in locations below the topographical level of the GWDTE's that have been identified, which will ensure that the natural flow of water within the communities is not disrupted. An Ecological Clerks of Works (ECoW) will be also

be employed to ensure that mitigation measures are proactively put in place and maintained to an acceptable standard for the duration of the construction works.

Direct Discharge of Untreated Foul Drainage

- 10.164 Welfare facilities will either connect directly to self-contained storage tanks or to a septic tank, subject to approval from SEPA.
- 10.165 If self-contained or septic tanks are to be used, these will be maintained and emptied on a regular basis by a suitably licensed contractor.

Operation

Surface Water Drainage

- 10.166 The proposed track and hardstanding design principles for the proposed development are presented in Chapter 3: Project Description.
- 10.167 Prior to construction, a detailed Drainage Strategy (DS) will be developed and agreed with SEPA and The Highland Council. The DS will detail the site drainage design, including the type of surface to be used for new access tracks, the soft engineering and habitat enhancement measures proposed to slow surface water flows and any necessary ponds, swales, cross drains and bunds, to ensure that run-off from hard surfaces will be controlled. The DS will also detail the dimensions and final design of proposed watercourse crossings which will be designed to maintain continuous flows.

Fluvial Geomorphology

- 10.168 The detailed design for the watercourse crossings, and the requirements for CAR authorisations or licences, will be agreed with SEPA prior to construction in order to ensure that any potential impacts are minimised.

Decommissioning

- 10.169 Potential effects of decommissioning the proposed development are similar to those encountered in the construction phase, however, generally with less magnitude as the level of site activity is lower.

Residual Effects

Construction

Pollution Impact from Sediment Run-off / Transport and / or Chemical Contaminated Run-off

- 10.170 The committed mitigation measures, including buffering of watercourses, implementation of a suitable CEMP and a surface water monitoring programme during construction, are considered to reduce the magnitude of impact from medium to negligible, resulting in a direct, temporary, short-term residual **minor adverse** effect and not significant in EIA terms.

Changes to Groundwater Flow

- 10.171 The committed mitigation measures, including pre-construction site investigations to inform detailed foundation and infrastructure design and micro-siting, are considered to reduce the magnitude of impact from low to negligible, resulting in a direct, temporary, short-term residual effect of **negligible** significance.

Removal of and Impact on Peat

- 10.172 The committed mitigation measures, including design iteration to avoid deep peat wherever possible (and floating tracks where not possible to avoid), implementation of a Peat Management Plan, and Habitat Management Plan to restore peatland habitat, are considered to reduce the magnitude of impact from medium to low, resulting in a direct, permanent residual **minor adverse** effect and not significant in EIA terms.

Peat Landslide Impact on Watercourses

- 10.173 The committed mitigation measures, including pre-construction site investigations to inform detailed infrastructure design, micro-siting and appropriate geotechnical controls, are considered to reduce the magnitude of impact from low to negligible, resulting in a direct, temporary, short-term residual **minor adverse** effect and not significant in EIA terms.

Impact on the Integrity of Banking

- 10.174 The committed mitigation measures, including appropriate water crossing designs regulated by CAR and agreed with SEPA and The Highland Council and the implementation of a suitable CEMP, are considered to reduce the magnitude of impact from high to negligible, resulting in a direct, permanent residual **minor adverse** effect and not significant in EIA terms.

GWDTEs

- 10.175 The committed mitigation measures, including avoidance through development design, implementation of appropriate surface water drainage and monitoring by an ECoW, are considered to reduce the magnitude of impact from medium to negligible, resulting in a direct, temporary, medium-term residual **negligible adverse** effect and not significant in EIA terms.

Direct Discharge of Untreated Foul Drainage

- 10.176 The committed mitigation measures, including appropriate management of foul drainage to be agreed with SEPA, are considered to reduce the magnitude of impact from medium to negligible, resulting in a direct, temporary, medium-term residual **minor adverse** effect and not significant in EIA terms.

Operation

Surface Water Drainage

- 10.177 The committed mitigation measures, including implementing a suitable detailed Drainage Strategy in agreement with SEPA and The Highland Council, are considered to reduce the magnitude of impact from high to negligible, resulting in a direct, long-term effect of **minor adverse** significance and is therefore not significant in EIA terms.

Fluvial Geomorphology

- 10.178 The committed mitigation measures, including appropriate water crossing designs regulated by CAR and agreed with SEPA and The Highland Council, are considered to reduce the magnitude of impact from medium to negligible, resulting in a direct, permanent residual effect of **minor adverse** significance and is therefore not significant in EIA terms.

Decommissioning

- 10.179 Residual effects of decommissioning the Proposed Development are similar to those encountered in the construction phase, however, generally with less magnitude as the level of site activity is lower.

Cumulative Effects

- 10.180 This assessment has concluded that there will be no significant effects on geological resources associated with the proposed development. As such, no significant cumulative effects on geological resources associated with the proposed development, in combination with other similar local developments currently operational, consented or in planning, are predicted.
- 10.181 In terms of hydrology and hydrogeology, no operational and / or proposed wind energy projects are located within the catchments of the watercourses that flow through or in proximity to the proposed development area. As such, it is considered that the combined effect on hydrology will be minor and no additional mitigation measures over and above those committed to in this chapter are considered necessary to address potential cumulative effects on hydrology or hydrogeology.

Summary

- 10.182 Several watercourses and surface water features are located within the development site. The largest of these is Gleann Giobhre, which runs along the northern site boundary, draining to the east. Allt Chogach, Allt Beinn Name Fitheach, Allt an Torra Dhuinn, Allt a' Chrochadair and Allt Dearg all spring within the northern part of the study area and flow towards the Gleann Giobhre, along with nine unnamed tributaries.
- 10.183 Loch Ballach is located in the central part of the study area, and is connected to Allt an Locha Bhallaich, which flows towards the Breakachy Burn immediately to the southeast of

the study area. Allt Liach flows along the southern extent of the study area towards the Breakachy Burn.

- 10.184 The Gleann Goibhre watercourse was classified by SEPA in 2023 as being in Poor condition, while the Breackachy Burn was classified as being in High condition.
- 10.185 The rock beneath the site predominantly comprises metamorphic rock of the Tarvie Psammite Formation, while rock of the Achnaconeran Striped Formation are recorded to underlie north-eastern parts of the site. Localised igneous intrusions are also noted to be located in the east and south-eastern part of the site. The bedrock is classified as a low productivity aquifer. Superficial deposits largely comprise Till, Hummocky Glacial Deposits, River Terrace Deposits, Alluvium and Peat.
- 10.186 Detailed peat surveys identified variable thicknesses of peat across the site, with a maximum recorded peat depth of 4.07m recorded in the north-eastern part of the site. On the basis of the Phase 2 peat probing data, approximately 74% of the probe locations were found to comprise peaty or organo-mineral soil (i.e. <0.5m thick), while peat conditions (>0.5 - <1.0m) were recorded at around 14% of the probe locations, with the remaining 12% of probes encountering deep peat (>1.0m).
- 10.187 Extensive design iteration works were undertaken to avoid siting turbines or other infrastructure on deep peat. This has resulted in areas of deep peat being avoided in the siting of all turbine with the exception of T18 (which is considered to be very localised and other constraints) and localised areas of deeper peat recorded within hardstanding areas associated with T20 and T15 (on its northern periphery) and within the substation area (localised probe locations).
- 10.188 Proposed new track sections are generally sited on areas where peat depth is less than 1.0 m. Thicker peat deposits have been identified on the proposed route of the access track leading to T5, although care has been taken to avoid the deepest areas of peat on-site. The requirement for peat excavation at these locations will be minimised, via the construction of floating road, where required.
- 10.189 A peat slide risk assessment has identified low risks at all turbine and other infrastructure locations.
- 10.190 Potential construction and operational effects include changes to the groundwater flow regime, the risk of pollution of watercourses resulting in adverse effects on water quality, excavation of peat, impact on GWDTEs, peat slide risk, and effects on the integrity of watercourse banks.
- 10.191 The mitigation measures set out in this chapter will be drawn together into a Construction Environmental Management Plan prior to the commencement of construction activities. These mitigation measures are considered to be robust and implementable and will reduce the potential impacts on peat resources and watercourses which have been identified as medium / high to negligible. As such, the significance of residual effects on geology, surface water and groundwater, following the implementation of these mitigation measures, is considered to be **minor** or **negligible** and therefore **not significant**.

Potential effects, mitigation measures and residual effects are summarised in Tables 10.7 and 10.8.

Table 10.7: Construction Summary Table

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial / Adverse		Significance	Beneficial / Adverse
Pollution from sediment run-off and/or chemical contaminated run-off	Moderate	Adverse	50 m buffer around watercourses wherever possible. Water quality monitoring. CEMP and construction site management.	Minor	Adverse
Changes to groundwater flow regime	Minor	Adverse	Pre-construction site investigation. CEMP and construction site management.	Negligible	Adverse
Removal of and impact on peat	Major	Adverse	Pre-construction site investigation. Avoidance of deep peat. Construction of floating roads where required in areas containing peat deposits >1.0m. Micro-siting infrastructure where required and appropriate, if unexpected deeper peat is identified. Implementation of Peat Management Plan. Implementation of Habitat Management Plan.	Minor	Adverse
Peat landslide impact on watercourses	Moderate	Adverse	Pre-construction site investigation to inform detailed design and geotechnical control measures. Avoidance of deep peat. Micro-siting infrastructure where required and appropriate.	Minor	Adverse
Loss of bank integrity	Major	Adverse	Suitable water crossing design, regulated by CAR.	Minor	Adverse

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial / Adverse		Significance	Beneficial / Adverse
			CEMP and construction site management.		
GWDTEs	Moderate	Adverse	Silt mitigation plans to prevent pollution events or sedimentation deposition. Construction of infrastructure below the topographical level of the GWDTE's to mitigate disruption of the natural flow of water. Ecological Clerks of Works (ECoW) to ensure mitigation measures are employed and maintained.	Negligible	Adverse
Pollution from foul drainage	Moderate	Adverse	50 m buffer around watercourses wherever possible. Water quality monitoring. CEMP and construction site management. Suitable foul drainage management in agreement with SEPA.	Minor	Adverse

Table 8.8: Operation Summary Table

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial / Adverse		Significance	Beneficial / Adverse
Surface water drainage including downstream flood risk	Major	Adverse	50 m buffer around watercourses wherever possible.	Minor	Adverse

			Detailed Drainage Strategy to be developed and agreed with SEPA and The Highland Council. To detail drainage design to slow surface water flows and ensure that run-off from hard surfaces will be controlled. Appropriate design of water crossings to maintain continuous flows.		
Alteration to fluvial geomorphology	Major	Adverse	Appropriately designed drainage and watercourse crossings.	Minor	Adverse

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Ballach Wind Farm

Environmental Impact Assessment Report Volume 1 Chapter 11: Noise

June 2025

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Version Control Sheet

Date	Version	Prepared by	Checked By	Comments
03/06/2025	1.0	Kira Marshall	Merlin Garnett	First Issue
10/06/2025	1.1		Calum Morris	Review
23/06/2025	2.0	Kira Marshall		Minor updates

11 CHAPTER TITLE

Introduction

- 11.1 This chapter considers the potential effects of noise immissions from Ballach Wind Farm (the 'Proposed Development').
- 11.2 Noise impacts could potentially arise during the construction, operational, and decommissioning phases of the proposed development.
- 11.3 The proposed turbine model is the Nordex N163 with a power output rated at 6.7MW and tip heights of 200m and 230m. For the purposes of this assessment, the 7MW variant has been selected to assess the worst-case scenario for noise impacts while still aligning with the project design criteria.
- 11.4 Potential cumulative impacts from nearby operational and consented projects, as well as those under consideration by The Highland Council (THC), have also been evaluated.
- 11.5 The project was assessed using a combination of propagation modelling and ETSU-R-97 noise limits.
- 11.6 This chapter is supported by the following figures as contained within Volume 2: Figures:
- Figure 11.1: Noise Study Area
 - Figure 11.2: Cumulative Noise Study Area
- 11.7 The chapter is also supported by a number of Technical Appendices (as set out within Volume 4: Technical Appendices), comprising:
- Technical Appendix 11.1: Topographic Corrections
 - Technical Appendix 11.2: Cumulative Sound Power Levels
 - Technical Appendix 11.3: Proposed Development Noise Limits
- 11.8 The author of this Chapter, Kira Marshall (BA, MIOA), is a Senior Acoustic Consultant with over 3 years of experience in the production of noise impact assessment for wind turbines across Scotland.
- 11.9 The technical reviewer for this chapter, Merlin Garnett (MSc, MIOA), is a Principal Noise Consultant with more than 12 years of relevant experience in the production of noise impact assessments for wind turbine and hybrid energy projects of all scales across the UK.

Terminology

- 11.10 A brief description of the terminology used within the chapter is provided below:
- The wind speeds referred to in this report are **Standardised 10m wind speeds (v_{10})**. This is calculated from hub height wind speeds translated to 10m height above ground

level assuming a standard roughness length of 0.05m. All turbine sound power levels are quoted with reference to standardised 10m wind speeds.

- **Sound pressure level (SPL)** is a logarithmic measure of the effective sound pressure of a sound relative to a reference value: 20 μPa ¹. It is measured in decibels (dB) above this standard reference level. The SPL descriptors referenced in this report are:
 - **L_{A,eq}** is the A-weighted equivalent continuous sound pressure level measured over a specific time. L_{eq} is the single figure sound level that contains the same acoustical energy as the actual fluctuating sound level.
 - **L_{A90,10min}** is the A-weighted sound pressure level exceeded for 90 percent of the time in the averaging time interval specified – in this case 10 minutes – and is the index most widely used for background noise level measurements.
- **Sound Power Level (LWA)** is the decibel equivalent of the rate of energy (or power) emitted in the form of sound. The sound power level is an inherent property of a sound source. (the reference value for sound power is $1 \times 10^{-12}\text{W}$).
- **Immission** is the propagated sound energy that reaches a receptor.
- **Emission** is another way of describing sound power (see above).

Policy and Guidance

Policy

- 11.11 Chapter 5: Renewable Energy and Planning Policy of the EIA Report sets out the planning policy framework that is relevant to the EIA process and the Proposed Development. The policies set out include those from The Highland Council Local Development Plan (LDP), relevant aspects of NPF4 (National Planning Framework 4) (2023), Planning Advice Notes and other relevant guidance.
- 11.12 The following sources provide guidance on the assessment of wind turbine noise:
- Scottish Government (2022): Onshore Wind Policy Statement
 - Scottish Government (2014): Onshore wind turbines: Planning Advice
 - Planning Advice Note 1/2011 (PAN1/2011): Planning and Noise
 - The Highland Council (2016): Onshore Wind Energy Supplementary Guidance
- 11.13 Onshore wind turbines: Planning advice endorses the use of ETSU-R-97 and the Institute of Acoustics', 'Good Practice Guide' for the assessment of operational wind turbine noise (see below).

Guidance

Construction/Decommissioning Phase Noise

- 11.14 Guidance for the assessment of construction noise is given in:

¹ μPa is the symbol for micropascal.

- BS 5228-1:2009+A1:2014 - Code of practice for noise and vibration control on construction and open sites (British Standards, 2009;2014)

11.15 The standard provides indicative source sound level data for a variety of construction plant for use within the calculations and suggests appropriate fixed noise limits. Assessment of the significance of impacts can be made through comparison of predicted levels with defined criteria.

Operational Phase Noise

11.16 Guidance for assessing operational noise from wind farms is given in:

- The Institute of Acoustics, 'A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise' (The Institute of Acoustics, 2013) (referred to as IoA Good Practice Guide)

11.17 This guidance was developed to standardise the approach to noise assessment of wind farms in the UK. The guidance also provides advice on the form of planning conditions that should be adopted for wind farm projects. The IoA GPG does not address the question of what noise limits should be applied as this has been determined by government.

11.18 The basis for operational wind farm noise limits that have been adopted in the UK is given in:

- The Department of Trade and Industry, 'ETSU-R-97: The Assessment and Rating of Noise from Wind Farms' (The Department of Trade and Industry, 1996) (referred to as ETSU-R-97)

11.19 National planning guidance is clear that the IoA Good Practice Guide and ETSU-R-97 should be followed in the assessment of operational noise from wind farms.

11.20 Supplementary Planning Guidance Note Ref: SPG.12 NLLP Policy EDI.3(A)2, refers to consideration of PAN 1/2011 - Planning and Noise. PAN 1/2011 includes an endorsement of ETSU-R-97 as the overarching assessment framework for wind turbine noise.

11.21 The Highland Council Onshore Wind Energy Supplementary Guidance (2016) endorses the use of both ETSU-R-97 and the IoA Good Practice Guide as representing best practices in the assessment of operational wind turbine noise for turbines with a rotor diameter of 16m and above.

Relevant Standards

11.22 The International Standard ISO 9613, 'Acoustics – Attenuation of Sound During Propagation Outdoors - Part 2' (International Standard, 2024), noise propagation model has been used for the turbine noise calculations.

11.23 The International Electrotechnical Commission's Technical Specification document IEC/TS 61400-14:2005 – 'Part 14: Declaration of apparent sound power level and tonality values' provides a method to derive appropriate sound power level values from a number of independent sources to improve robustness.

Low Frequency Noise

- 11.24 The planning guidance (Scottish Government, 2014) is clear; that there is no empirical evidence that infrasound or low frequency noise (LFN) is an issue at receptor distances from a wind farm and refers to the 2006 study carried out by Hayes McKenzie on behalf of the Department of Trade and Industry (DTI) (Hayes McKenzie, 2006). The report investigates the potential impact of infrasound or low frequency noise arising from wind turbines. The study concluded that infrasound or low frequency noise arising from the operation of wind turbines did not result in adverse health impacts.
- 11.25 A further research study stated the level of infrasound due to wind turbines is low in comparison to other technical and natural sources (Landesanstalt für Umwelt, Messungen und Naturschutz Baden-Württemberg, 2016). The findings concluded "That adverse effects relating to infrasound from wind turbines cannot be expected on the basis of the evidence at hand."
- 11.26 This chapter does not therefore give any further consideration to potential low frequency noise effects.

Vibration

- 11.27 In 2005, the Applied and Environmental Geophysics Research Group at Keele University conducted an extensive study titled 'Microseismic and Infrasound Monitoring of Low Frequency Noise and Vibrations from Windfarms' (Styles, et al., 2005). The study was requested by the Ministry of Defence (MOD), the Department for Trade and Industry (DTI) and the British Wind Energy Association with the aim of establishing an acceptable limit that would not interfere with the detection capabilities of the seismic monitoring site located in Eskdalemuir, Scotland. The results of the investigation found that low levels of vibration and infrasound could be detected, with measurement apparatus, at large distances from the wind turbines included in the survey. The report concluded that a 10km buffer zone could be adopted at Eskdalemuir to protect the site from the interference due to wind turbines.
- 11.28 The outcome of this study has since been misinterpreted as the potential for adverse effects at residential receptors. The authors of the paper have clarified that:
- "The levels of vibration from wind turbines are so small that only the most sophisticated instrumentation and data processing can reveal their presence, and they are almost impossible to detect."*
- 11.29 They also confirmed that the level of vibration measured was not unique to wind turbines:
- "Vibrations at this level and in this frequency range will be available from all kinds of sources such as traffic and background noise - they are not confined to wind turbines." (Renewable UK, 2010)*
- 11.30 A more recent study on the human perception of vibration from wind turbines was published in 2020 (Nguyen, et al., 2020). The paper presents vibration measurements from inside properties at varying distances from a wind farm. The study compares the results against criteria given in the documents AS 2670-1 (1990) (Australian Standards, 1990) and

BS 6472-1 (2008) (British Standards, 2008) and suggests there is a low probability of adverse impact.

- 11.31 Therefore, as current research continues to conclude that vibration due to wind farms is very unlikely to disturb residential amenity, an assessment of vibration is not within the scope of the Noise Impact Assessment (NIA).

Amplitude Modulation

- 11.32 Amplitude Modulation (AM) as an element of turbine noise has been the subject of considerable research in recent years. The University of Salford conducted a study on behalf of the Department for Business, Enterprise and Regulatory Reform to investigate whether noise complaints arising from wind farms were due to the presence of AM. The report found that complaints were highly likely to be caused by AM in 4 out of the 27 wind farms included in the study. However, it concluded, "that the causes of AM are not fully understood, and that AM cannot be fully predicted at current state of the art" (University of Salford, 2007). The findings of the investigation were reconfirmed in 2013 in an updated research report by Renewable UK (Renewable UK, 2013).
- 11.33 The IoA produced 'A Method for Rating Amplitude Modulation in Wind Turbine Noise' (Institute of Acoustics, 2016), in which amplitude modulation is defined as the following:

"Wind turbine amplitude modulation is defined as periodic fluctuations in the level of audible noise from a wind turbine (or wind turbines), the frequency of the fluctuations being related to the blade passing frequency of the turbine rotor(s)."

- 11.34 The report acknowledges that certain levels and/or characteristics of amplitude modulation may lead to disturbance and noise complaints. The guidance does not aim to define the level at which AM could pose an issue but outlines a proposed methodology to assess and rate AM arising from operational wind farms.
- 11.35 The Wind Turbine AM Review - Phase 2 report (WSP | Parsons Brinckerhoff, 2016) went on to propose a penalty scheme that could be applied by planning condition to limit the extent of operational AM, where required.
- 11.36 Currently, there is no established predictive method of assessment for amplitude modulation prior to construction and operation of a wind farm. As such, the assessment of AM is scoped out of the NIA.

Consultation

- 11.37 As part of the Scoping exercise, a consultation exercise was undertaken to inform the design of the proposed development and to seek agreement on potential significant environmental effects that result from the proposed development as well as the scope of any assessment work required as part of this EIA.
- 11.38 The Scoping Opinion was received from The Scottish Government Energy Consents Unit on 28th November 2024 under the reference ECU00005219.

- 11.39 Consultation relevant to the Noise assessment was undertaken with The Highland Council Environmental Health, received 15th October 2024, who commented on aspects of methodology, sources of information, scope of assessment and cumulative development. A summary of these consultation responses is provided in **Table 11.1**.

Table 11.1: Consultation Responses

Consultee	Date Received	Consultation Response	Where and how is this addressed?
The Highland Council	15/10/2024	A construction assessment should be undertaken if: "the applicant intends to undertake noisy work out-with the aforementioned times, they will be required to submit a detailed construction noise assessment for the written approval of the planning authority."	As there were no indications that extended working hours would be required, a construction noise assessment has been scoped out of this study. Under Section 60 of the Control of Pollution Act (1974) the Local Authority has powers to control the impact of construction noise. The developer/contractor will also employ best practicable means to reduce any potential impact from construction work.
The Highland Council	15/10/2024	The applicant will be required to submit a noise assessment with regard to the operational phase of the development. The assessment should be carried out in accordance with ETSU-R-97 "The Assessment and Rating of Noise from Wind Farms" and the associated Good Practice Guide published by the Institute of Acoustics. The target noise levels requested by THC also reference the simplified 35dB LA90 at wind speeds up to 10m/s or a composite standard of 35dB LA90 (daytime) and 38dB LA90 (night time) or up to 5dB above background noise levels at up to 12m/s. The night-time lower limit of 43dB LA90 as suggested in ETSU is not considered acceptable in many areas of the highlands due to very low background levels. These limits would apply to cumulative noise levels from more than one development.	The NIA has been conducted in line with ETSU-R-97 and the loA Good Practice Guide. The simplified 35dB(A) LA90 limit at wind speeds of up to 10m/s has been considered appropriate in this case.

Consultee	Date Received	Consultation Response	Where and how is this addressed?
The Highland Council	15/10/2024	A cumulative noise assessment should be undertaken to assess potential cumulative noise impacts at the nearest sensitive receptors to the proposed development. The noise assessment must take into account predicted and consented levels from such development.	A cumulative noise assessment has been undertaken on this basis. The assessment includes cumulative levels with both predicted and consented levels from third-party developments as requested by THC.
The Highland Council	15/10/2024	If the application includes a proposal for a sub-station or a Battery Energy Storage System, a separate noise assessment may be required.	The proposed substation and 5MW energy storage are located approximately 2.5km from the nearest residential receptor. Given the modest scale and significant setback, it is reasonable to assume that potential noise impacts would not be significant, and so a detailed assessment has been scoped out of the NIA.
The Highland Council	19/05/2025	Additional consultation was conducted to confirm the third-party projects for inclusion within the cumulative assessment. The following sites should be assessed for potential cumulative impacts: • Fairburn Wind Farm • Auchmore • Auchmore 2 Provided Fairburn Extension has not been submitted to planning it was agreed this would not be included in the assessment. Confirmation that instead of assessing consented limits for the existing projects, a margin of 2dB can be added to predictions.	No updates to the cumulative baseline have occurred since this consultation. As such, the following assessment includes: • Fairburn Wind Farm • Auchmore • Auchmore 2

Scope of Assessment

Effects Assessed in Full

11.40 The following effects were considered to be potentially significant in relation to noise at the scoping stage and have been assessed in full within this chapter:

- Operational noise impacts arising from the Proposed Development

- Potential cumulative noise impacts at the nearest sensitive receptors

Effects Scoped Out

- 11.41 The nearest receptor is located approximately 2.5km from the closest turbine and it is understood that construction works will take place during standard working hours. Therefore, a construction noise assessment has been scoped out of the Noise Impact Assessment (NIA).
- 11.42 The proposed substation and 5MW battery storage are located approximately 2.5km from the nearest residential receptor. As such, potential noise impacts would not be significant. Therefore, an assessment of substation and Battery Energy Storage System has been scoped out of the NIA.

Assessment Methodology and Significance

Cumulative Effects

- 11.43 When considering cumulative impact from two or more developments at a given property the IoA Good Practice Guide states:

'If the proposed wind farm produces noise levels within 10dB of any existing wind farm/s at the same location, then a cumulative noise impact assessment is necessary.'

- 11.44 Noise immissions from all wind projects, inclusive of the Proposed Development, deemed to lie within the cumulative search area should be limited to a level that does not exceed the total limits set out in ETSU-R-97.

Study Area

- 11.45 The study area adopted for the identification of Noise Sensitive Receptors (NSR) was the 35dB(A) noise contour as calculated from the Proposed Development. As no properties were identified within 35dB(A) of the Proposed Development, the nearest locations in each direction were selected to assess for cumulative impact.
- 11.46 Where NSRs were located adjacent to each other or readily formed a grouping, a single Noise Assessment Location (NAL) was selected representing the closest of the adjacent receptors to the Proposed Development. NALs were positioned at NSRs, 15m from a dwelling façade in the direction of the nearest Project turbine or as far in that direction as the curtilage would allow.
- 11.47 This approach follows the ETSU-R-97 principle of assessing nearest receptors; focussing on the highest impacts allows for a more concise assessment.
- 11.48 The identified NALs are shown on **Figure 11.1: Noise Study Area** and detailed in **Table 11.6**.

Desk Based Study and Data Sources

Noise Limits

- 11.49 THC request that a lower limit of 35dB(A) for quiet daytime periods and 38dB(A) for night-time periods, or 5dB(A) above the background noise levels, whichever the greater, should be applied. For locations where the resident has a demonstrable financial involvement in the project, a lower fixed limit of 45dB(A) is applicable, or 5dB(A) above the background noise levels, whichever is the greater.
- 11.50 THC Supplementary Guidance states that a night-time lower limit of 43dB(A) suggested in ETSU is not considered acceptable due to the remote nature of many dwellings within the Highlands, resulting in lower background noise levels.

Table 11.2: ETSU-R-97 assessment periods

The quiet daytime periods (amenity hours) are:	
18:00 - 23:00	Monday to Friday
13:00 - 23:00	Saturdays
07:00 - 23:00	Sundays
Night-time periods are: 23:00 – 07:00 every day	

- 11.51 For a project whose noise immission levels are not expected to exceed 35dB(A) at the closest Noise Sensitive Receptors (NSRs), a simplified approach may be taken that allows the project to be approved with a single fixed 35dB(A) noise limit applicable at all times or 45dB(A) where a resident has financial involvement. Where proposed project noise levels exceed 35dB(A), the ETSU-R-97 noise assessment should be undertaken with reference to noise limits derived from background noise levels.
- 11.52 In this case, a simplified 35dB(A) ETSU-R-97 limit was considered sufficient to protect nearby properties from significant operational noise impacts, from the proposed turbines in isolation. As noted in Section 5.5 of the IoA Good Practice Guide, where concurrent applications and/or third-party wind developments are consented to less than the total ETSU-R-97 limits, it would be appropriate to assign an apportioned limit to the proposed individual development. Proposed apportioned limits are provided in **Technical Appendix 11.3**.

Propagation Model

- 11.53 The International Standard ISO 9613, 'Acoustics – Attenuation of Sound During Propagation Outdoors - Part 2', sound propagation model has been used for the turbine immission calculations. L_{Aeq} sound propagation was modelled using WindFarm v5.0.1.2 by ReSoft. Predicted wind turbine immission levels were calculated, inclusive of appropriate allowance for measurement uncertainties.
- 11.54 L_{A90} levels were derived by subtracting 2dB from the L_{Aeq} values as per the ETSU-R-97 guidance and subsequent IoA GPG. The input parameters shown in **Table 11.3** have been used and are consistent with the IoA Good Practice Guide.

Table 11.3: Propagation input parameters

Atmospheric Attenuation Assumptions	
Temperature (°C)	10
Humidity (%)	70
Ground Attenuation Assumptions	
Attenuation factor, G (all regions)	0.5 (semi-soft ground) (0 for areas of water)
Receptor height (m)	4.0

- 11.55 The attenuation of sound as it travels through the air varies with frequency. The atmospheric attenuation coefficients used in the assessment, corresponding to the assumptions in **Table 11.3**, are tabulated in **Table 11.4** below.

Table 11.4: Attenuation coefficients used for the sound propagation model

Octave Band (Hz)	63	125	250	500	1000	2000	4000	8000
Attenuation Coefficient (dB/km)	0.12	0.41	1.04	1.93	3.66	9.66	32.77	116.88

Barrier Effect

- 11.56 Line of sight visibility was checked between proposed turbines and each receptor's assessment position at 4m height. Where a turbine is not visible from any assessment position (at 4m height) a -2dB adjustment to the predicted level from the screened turbine(s) is applicable. Any adjustments are reported in **Technical Appendix 11.1**.

Valley Effect

- 11.57 Certain topographic characteristics have the potential to reinforce the propagation of sound between two locations. The IoA Good Practice Guide refers to these characteristics as a 'valley' to describe a concave topographic profile. Where these criteria are met, a +3dB correction should be added to the predicted noise levels. Any adjustments are reported in **Technical Appendix 11.1**.

Directivity

- 11.58 Where turbine sound propagates from opposing directions relative to an NSR, the result will be a reduction in predicted noise, as the receptor will not experience simultaneous downwind conditions from both directions. Example reductions are given in the IoA Good Practice Guide at section 4.4. No directivity adjustments have been included in the following assessment.

Sound Power Levels

- 11.59 The candidate turbine for the Proposed Development is the Nordex N163 rated with a mix of 200m and 230m tip heights. For the noise assessment the 7MW variant has been assessed. The turbine rotors would be fitted with Trailing Edge Serration (TES), a technology that reduces noise emissions. These reductions are reflected in the sound power values

obtained from the manufacturer's sound power report (Document no: 2017735EN) dated 2023-11-08 as given in **Table 11.5**.

Table 11.5: Octave band sound power level for the N163 7MW

Octave Band (Hz)	V10 wind speed (ms ⁻¹)								
	4	5	6	7	8	9	10	11	12
	Sound Power Level [LWA] for a hub height of 148m [dB(A)]								
63	79.1	84.0	88.3	88.6	88.6	88.6	88.6	88.6	88.6
125	86.7	91.6	95.9	96.2	96.2	96.2	96.2	96.2	96.2
250	88.8	93.7	98.0	98.3	98.3	98.3	98.3	98.3	98.3
500	90.0	94.9	99.2	99.5	99.5	99.5	99.5	99.5	99.5
1000	91.8	96.7	101.0	101.3	101.3	101.3	101.3	101.3	101.3
2000	92.5	97.4	101.7	102.0	102.0	102.0	102.0	102.0	102.0
4000	86.9	91.8	96.1	96.4	96.4	96.4	96.4	96.4	96.4
8000	72.5	77.4	81.7	82.0	82.0	82.0	82.0	82.0	82.0
Total	97.9	102.8	107.1	107.4	107.4	107.4	107.4	107.4	107.4
Uncertainty	2	2	2	2	2	2	2	2	2
LoA Total	99.9	104.8	109.1	109.4	109.4	109.4	109.4	109.4	109.4

- 11.60 In the absence of stated uncertainty, an additional +2dB has been applied to the declared sound power levels to account for uncertainty, as recommended within the IoA Good Practice Guide.
- 11.61 Regarding tonality, the IoA Good Practice Guide States “When such information is available, it should be appropriately applied. It is standard practice to control the potential presence of tones in practice through the use of suitable planning conditions.”
- 11.62 Information regarding tonality were not included in the manufacturer's sound power report. In line with IoA Good Practice Guide, it is proposed that the provision of manufacturer warranties regarding tonality are included within suitable planning conditions.
- 11.63 Sound power details for cumulative projects are given at **Technical Appendix 11.2**.

Field Survey

- 11.64 NSRs were not identified within the 35dB(A) study area. Additionally, no NSRs were identified within a cumulative 35dB(A) contour. As such, a baseline noise survey was not required for the assessment of the Proposed Development, and the simplified ETSU-R-97 limits have been applied.

Assessment of Significance

- 11.65 The assessment of operational noise impacts arising from the Proposed Development takes the form of an ETSU-R-97 assessment following the IoA Good Practice Guide.

- 11.66 Noise impacts from the operation of the Proposed Development have initially been assessed as a singular project; the potential for cumulative effects has then been considered. Where the noise immissions comply with the ETSU-R-97 limits, the development is deemed to be acceptable in terms of noise and any potential impacts would not be significant.

Assumptions and Limitations

- 11.67 When assessing third party wind developments, it has been assumed that the wind farm is operating without mitigation and complies with the consented noise limits.
- 11.68 The operational assessment has been conducted assuming the candidate turbine model of Nordex N163 7MW. Following determination of the Proposed Development the turbine to be installed will be subject to a tendering process. The turbine model chosen will be selected such that predicted immission levels remain compliant with derived noise limits.

Baseline Conditions

- 11.69 The Site is located approximately 4km northwest of Kilmorack within the local authority area of the Highland Council. The present land use is open moorland with scattered individual dwellings and small settlements in the area.
- 11.70 The proposed layout configuration showing turbine positions and nearest NALs is shown in **Figure 11.1: Noise Study Area**. The contours enclose areas predicted to receive an L90 turbine noise level in excess of 35dB(A) from the Proposed Development; given for a v10 wind speed of 7ms⁻¹ (maximum sound power for the candidate turbine in normal operating mode).
- 11.71 **Table 11.6** lists the names, noise assessment location, GPS coordinates and minimum distance to the proposed turbines for each NSR. It should be noted that the nearest NAL is 2370m from the proposed development; this is a relatively large setback distance.

Table 11.6: Details of noise assessment locations

Location	NSR	Easting	Northing	NAL	Easting	Northing	Distance to nearest turbine (m)
Breakachy Farm	NSR 1	246073	844503	NAL1	246058	844520	2525
2 Farley, Beauly	NSR 2	246802	845339	NAL2	246785	845347	2370
6 Farley, Beauly	NSR 3	247469	845726	NAL3	247446	845725	2710
Auchederson	NSR 4	246879	850654	NAL4	246864	850639	3705
Orrin Cottage	NSR 5	245273	852541	NAL5	245268	852523	4760

Cumulative Search Area

- 11.72 **Figure 11.2: Cumulative Noise Study Area** identifies third-party wind turbines that have the potential for cumulative impacts to occur. Three developments were identified and are discussed in turn below.
- 11.73 Fairburn Wind Farm (05/00436/FULRC) is a 20-turbine site that became operational in February 2010. The installed turbine model is the Senvion MM82/2050, providing a total site capacity of 40MW. The site is located approximately 3.5km north of the Proposed Development.
- 11.74 Auchmore (11/03114/FUL) and Auchmore 2 (13/00378/FUL) are two Enercon E48 800kW turbines which became operational in 2013 and 2014 respectively. The site is located approximately 3km northeast of the Proposed Development.

Identification and Evaluation of Key Effects

Operational Effects

Predicted L90 Project Levels

- 11.75 Topographic screening was found to occur between the proposed turbines and the NALs. Concave profiles were not identified between the Proposed Development and the NALs, as such, no valley correction has been applied. All adjustments are detailed in **Technical Appendix 11.1**.
- 11.76 The following predicted L_{A90} immission levels, shown in **Table 11.7**, were calculated using the octave band sound power levels detailed in **Table 11.5** that are inclusive of allowable uncertainty. The assumed level of uncertainty may overestimate actual uncertainty resulting in an overestimate of immission levels.

Table 11.7: Proposed Development immission levels

L90	dB(A)	V10 wind speed (ms ⁻¹)						
Location	Name	4	5	6	7	8	9	10
NAL1	Breakachy Farm	21.3	26.1	30.5	31.1	31.1	31.1	31.1
NAL2	2 Farley, Beauly	21.2	26.1	30.4	31.1	31.1	31.1	31.1
NAL3	6 Farley, Beauly	19.9	24.8	29.1	29.8	29.8	29.8	29.8
NAL4	Auchederson	17.3	22.1	26.5	27.1	27.1	27.1	27.1
NAL5	Orrin Cottage	13.5	18.4	22.7	23.3	23.3	23.3	23.3

- 11.77 **Table 11.8** details the exceedance of proposed development immission levels relative to a simplified 35dB(A) ETSU-R-97 limit.

Table 11.8: Exceedance of a simplified 35dB(A) ETSU-R-97 limit

L90	dB(A)	V10 wind speed (ms ⁻¹)						
Location	Name	4	5	6	7	8	9	10

L90	dB(A)	V10 wind speed (ms ⁻¹)						
NAL1	Breakachy Farm	-13.7	-8.9	-4.5	-3.9	-3.9	-3.9	-3.9
NAL2	2 Farley, Beauly	-13.8	-8.9	-4.6	-3.9	-3.9	-3.9	-3.9
NAL3	6 Farley, Beauly	-15.1	-10.2	-5.9	-5.2	-5.2	-5.2	-5.2
NAL4	Auchederson	-17.7	-12.9	-8.5	-7.9	-7.9	-7.9	-7.9
NAL5	Orrin Cottage	-21.5	-16.6	-12.3	-11.7	-11.7	-11.7	-11.7

- 11.78 All NALs are predicted to receive noise immission levels of less than 32dB(A) from the Proposed Development in isolation. Results in **Table 11.7** show that the Proposed Development is predicted to produce a maximum level of 31.1dB(A) at 7m/s at NAL1 and NAL2.
- 11.79 When assessing the predicted operational immission levels against the simplified 35dB(A) ETSU-R-97 limit (**Table 11.8**), a minimum compliance margin of 3.9dB(A) is shown, demonstrating that immission from the Proposed Development in isolation, would comfortably meet a simplified 35dB(A) ETSU limit at all receptors and is likely to result in a **negligible** level of impact.

Mitigation Measures and Monitoring

Operation

- 11.80 The assessment of operational immission from the Proposed Development assumed that the turbines would operate in their standard mode of operation using rotor blades fitted with trailing edge serration. The results demonstrated that immission from the proposed turbines would be able to meet a simplified 35dB(A) ETSU-R-97 noise limit at all receptors by a comfortable margin.
- 11.81 Therefore, operational noise assessments considering the Proposed Development in isolation demonstrate that no mitigation is required.

Cumulative Effects

Predicted Immission Levels

- 11.82 The review of cumulative wind developments resulted in the identification of three projects for inclusion within the assessment, giving a total of 22 turbines.
- 11.83 **Table 11.9** shows baseline cumulative immission levels applicable for both daytime and night-time periods, assuming simultaneous downwind propagation from all turbines. Full details of applied topography corrections are provided in **Technical Appendix 11.1**. Cumulative contributions at NAL1-3 were greater than 10dB below the Proposed Development. As such, there are no baseline contributions for these locations.

Table 11.9: Baseline cumulative immission levels

L90	dB(A)	V10 wind speed (ms ⁻¹)						
Location	Name	4	5	6	7	8	9	10

L90	dB(A)	V10 wind speed (ms ⁻¹)						
NAL4	Auchederson	16.3	21.4	25.4	27.2	27.8	28.4	28.4
NAL5	Orrin Cottage	18.6	24.1	28.1	28.5	28.5	28.5	28.5

11.84 **Table 11.10** shows the cumulative immission levels inclusive of the Proposed Development.

Table 11.10: Total cumulative immission levels

L90	dB(A)	V10 wind speed (ms ⁻¹)						
Location	Name	4	5	6	7	8	9	10
NAL4	Auchederson	19.9	24.8	29.0	30.1	30.5	30.8	30.8
NAL5	Orrin Cottage	19.7	25.2	29.2	29.6	29.7	29.7	29.7

11.85 Predicted cumulative immission levels, both exclusive and inclusive of the Proposed Development, remain below the simplified 35dB(A) ETSU limit at all assessment locations, with a maximum predicted cumulative noise immission of 30.8dB(A), expected to occur at NAL4. The cumulative total is a theoretical worst case as it assumes simultaneous downwind propagation from all turbines. The cumulative level is likely to be lower in practice and may not exceed background levels at the NSRs.

Consented Levels

11.86 The Highland Council request that the cumulative assessment includes both predictions and consented limits. It was agreed with the EHO that an additional headroom of +2dB would be suitable for the assessment rather than the full consented limit.

11.87 **Table 11.11** shows baseline cumulative immission levels inclusive of the +2dB for each project.

Table 11.11: Baseline cumulative immission levels with consented limits

L90	dB(A)	V10 wind speed (ms ⁻¹)						
Location	Name	4	5	6	7	8	9	10
NAL1	Breakachy Farm	-	-	-	-	-	-	-
NAL2	2 Farley, Beauly	-	-	-	-	-	-	-
NAL3	6 Farley, Beauly	-	-	-	-	-	-	-
NAL4	Auchederson	18.3	23.4	27.4	29.2	29.8	30.4	30.4
NAL5	Orrin Cottage	20.6	26.1	30.1	30.5	30.5	30.5	30.5

11.88 Should the Proposed Development be consented, it is proposed that project specific limits should reference predictions plus a margin of headroom, as is usually requested when undertaking a cumulative assessment. In this case, the Proposed Development predictions have been increased by 2dB.

11.89 **Table 11.12** shows the total immission levels inclusive of the Proposed Development based on proposed and consented limits.

Table 11.12: Total immission levels with consented limits

L90	dB(A)	V10 wind speed (ms ⁻¹)						
Location	Name	4	5	6	7	8	9	10
NAL1	Breakachy Farm	23.3	28.1	32.5	33.1	33.1	33.1	33.1
NAL2	2 Farley, Beauly	23.2	28.1	32.4	33.1	33.1	33.1	33.1
NAL3	6 Farley, Beauly	22.0	26.8	31.1	31.8	31.8	31.8	31.8
NAL4	Auchederson	21.9	26.8	31.0	32.1	32.5	32.8	32.8
NAL5	Orrin Cottage	21.7	27.2	31.2	31.6	31.7	31.7	31.7

11.90 **Table 11.13** demonstrates the level of exceedance with the simplified ETSU-R-97 35dB(A) limit.

Table 11.13: Exceedance of simplified 35dB(A) ETSU-R-97 limit

L90	dB(A)	V10 wind speed (ms ⁻¹)						
Location	Name	4	5	6	7	8	9	10
NAL1	Breakachy Farm	-11.7	-6.9	-2.5	-1.9	-1.9	-1.9	-1.9
NAL2	2 Farley, Beauly	-11.8	-6.9	-2.6	-1.9	-1.9	-1.9	-1.9
NAL3	6 Farley, Beauly	-13.0	-8.2	-3.9	-3.2	-3.2	-3.2	-3.2
NAL4	Auchederson	-13.1	-8.2	-4.0	-2.9	-2.5	-2.2	-2.2
NAL5	Orrin Cottage	-13.3	-7.8	-3.8	-3.4	-3.3	-3.3	-3.3

11.91 All assessment locations are shown to comply with the simplified limit by a minimum margin of 1.9dB for NAL1 and NAL2 at windspeeds greater than 7m/s.

11.92 Based on the foregoing assessment, it is suggested that, should the Proposed Development be consented, an apportioned limit based on predictions plus a 2dB margin of headroom could be accommodated and would allow the Proposed Development to comply cumulatively with the limits. These limits have been tabulated and shown in **Technical Appendix 11.3**.

Residual Effects

Operation

11.93 A cumulative noise impact assessment has been conducted which included predicted and expanded noise immissions from three wind developments in the study area in addition to the Project. Total predicted cumulative noise immissions were shown to remain below 35dB(A), by a minimum margin of 1.9dB.

Summary

11.94 Using the preceding baseline data, a noise modelling exercise was undertaken to assess potential impacts from the Proposed Development.

- 11.95 The operational noise assessment was carried out to assess potential impacts that may arise from the Proposed Development in isolation. Predicted immission from the proposed turbines were found to be below 32dB(A) at all assessment locations, with a maximum predicted level of 31.1dB(A), at NAL1 and NAL2. This resulted in a minimum compliance margin of 3.9dB with the simplified ETSU-R-97 limit of 35dB(A). This suggests that noise impacts would be **negligible** and **not significant**.
- 11.96 A cumulative assessment was conducted with predicted noise levels from both Fairburn and Auchmore Wind Farms and the Project, which demonstrated total predicted immission levels would remain below 35dB(A) by a minimum margin of 4.2dB. When assessing consented levels, all receptors would still comply with the simplified 35db(A) limit. The residual effect was assessed to be negligible as the total levels demonstrated comfortable compliance with the noise limits.

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Ballach Wind Farm

Environmental Impact Assessment Report Volume 1 Chapter 12: Traffic and Transport

July 2025

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Version Control Sheet

Date	Version	Prepared by	Checked By	Comments
19/06/2025	Draft V1	S Cochrane	G Buchan	
09/07/2025	Issue	S Cochrane	G Buchan	

12 TRAFFIC AND TRANSPORT

Introduction

- 12.1 This chapter considers the potential effects of Ballach Wind Farm (the 'proposed development') on receptors along the transport routes as a result of vehicle movements associated with the construction of the proposed development. The specific objectives of the chapter are to:
- Review the relevant policy and legislative framework;
 - Describe the transport baseline conditions;
 - Describe the assessment methodology and significance criteria used in completing the impact assessment;
 - Describe the potential effects, including direct, indirect and cumulative effects;
 - Describe the mitigation measures proposed to address likely significant effects; and
 - Assess the residual effects remaining following the implementation of mitigation.
- 12.2 A high-level overview of the effects of the traffic movements has been considered in accordance with Institute of Environmental Assessment (now Institute of Environmental Management and Assessment (IEMA)) Guidelines for the Environmental Assessment of Road Traffic. The document is referred to as the IEMA Guidelines in this chapter.
- 12.3 This chapter is also supported by the following figures as contained within **Volume 2: Figures**:
- Figure 12.1: Study Area;
 - Figure 12.2: Traffic Count Locations;
 - Figure 12.3: Personal Injury Accident Locations; and
 - Figure 12.4: Abnormal Indivisible Load (AIL) Delivery Route Plan.
- 12.4 The chapter is supported by a number of Technical Appendices (as set out within **Volume 4: Technical Appendices**), comprising:
- Technical Appendix 12.1: AIL Route Survey Report (RSR); and
 - Technical Appendix 12.2: Site Access Junction Layout.
- 12.5 This assessment is based on the proposed development which comprises 20 turbines with a maximum tip height of 230 metres (m) and operational life of 35 years, as described in **Chapter 3: Proposed Development and Construction Methods**.
- 12.6 The author of this Chapter is Stephen Cochrane, an Associate Director within the Traffic and Transport team at Pell Frischmann. He has over 22 years' experience in the traffic and transportation industry and over 17 years' experience in the production of EIA transport chapters (and associated studies) for onshore wind farms and other energy generation and distribution projects in Scotland. Stephen is a Chartered Member of the Chartered

Institute of Logistics and Transport (CMILT) and a Member of the Chartered Institution of Highways and Transportation (MCIHT).

- 12.7 The technical reviewer of the traffic and transport assessment is Gordon Buchan BEng (Hons), MSC, CMILT, FCIHT, Sector Director - Energy of Pell Frischmann. He has over 28 years of undertaking the transport assessments associated with new developments and has worked on renewable energy and energy distribution projects across the UK, Ireland and Northern Europe.

Legislation, Policy and Guidance

Legislation

- 12.8 The assessment has been undertaken in accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. There is no legislation which is specific to Traffic and Transport that is required to be considered as part of this assessment.

Policy

- 12.9 **Chapter 5: Renewable Energy and Planning Policy** of the EIA Report sets out the planning policy framework that is relevant to the EIA process and the proposed development. The policies set out include those from the Highland-wide Local Development Plan (LDP) (2012)), The Inner Moray Firth LDP2 (2024) and relevant aspects of NPF4 (National Planning Framework 4)(2023)
- Highland-wide LDP's Policy 56 relates to Travel and notes that development proposals that results in travel generation must include sufficient information with the application to allow the Council to consider any onsite and offsite transport implications.
 - The Inner Moray Firth LDP seeks to deliver defined outcomes for communities, employment, connectivity and the environment but with particular emphasis on post-pandemic economic recovery and addressing the Climate and Ecological Emergency. This Plan supports the area to maximise local and Scotland-wide benefits from investment in renewable energy and place the Highlands at the heart of the drive towards net-zero.
 - NPF4's Policy 11 relates to Energy and makes specific reference to the how project design and mitigation will address the impacts of construction traffic on the road network associated with renewable energy projects.

- 12.10 This assessment undertaken as part of this EIA Report has taken cognisance of the above policies and has provided appropriate mitigation, where necessary.

Guidance

- 12.11 This assessment has been undertaken in accordance with guidance outlined in the following documents:

- Institute of Environmental Management and Assessment, Environmental Assessment of Traffic and Movement (2023);
- Institute of Environmental Assessment, Guidelines for the Environmental Assessment of Road Traffic (1993);
- Institution of Environmental Management and Assessment (IEMA) 'Guidelines for Environmental Impact Assessment' (2005);
- LA104, Environmental assessment and monitoring, the Design Manual for Roads and Bridges (DMRB) (2020);
- Table 2.2 of Volume 11, Section 2, Part 5 of the Design Manual for Roads and Bridges (DMRB) (2008);
- Design Manual for Roads and Bridges, Volume 15, Part 5 "The NESMA Manual" (2013);
- Transport Assessment Guidance (2012);
- Planning Advice Note 75 – Planning for Transport (2005); and
- Onshore Wind Turbines, Online Renewables Planning Advice (2014).

Consultation

- 12.12 As part of the Scoping exercise, consultation was undertaken to inform the design of the proposed development and to seek agreement on potential significant environmental effects that result from the proposed development as well as the scope of any assessment work required as part of this EIA.
- 12.13 The Scoping Opinion was received from the Scottish Government Energy Consents Unit / Scottish Ministers on 28 November 2024.
- 12.14 Consultation relevant to the traffic and transport assessment was undertaken with The Highland Council (THC), as local roads agency, and Transport Scotland (TS), as trunk road agency, who commented on aspects of methodology, sources of information, scope of assessment and cumulative development. The British Horse Society also provided a scoping response. A summary of these consultation responses is provided in **Table 12.1**.

Table 12.1: Consultation Responses

Consultee	Date Received	Consultation Response	Where and how is this addressed?
The Scottish Government Energy Consents Unit	28 th November 2024	<u>Transport – abnormal loads</u> The Scottish Ministers recommend that the Company discuss and agree the scope of the Abnormal Loads Assessment with Transport Scotland prior to it being undertaken.	A Route Survey Report (RSR) is provided as part of Technical Appendix 12.1 which outlines the proposed AIL delivery routes to the Site. An Electronic Service Delivery for Abnormal Loads (ESDAL) search was undertaken as part of the RSR to help identify any vulnerable locations. Any changes to the road network to facilitate the delivery of AIL to Site will be agreed with the appropriate authority and appropriate consents will be sought.

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		<u>Transport – construction traffic management plan.</u> The Scottish Ministers recommend that the Company discuss and agree the scope of the construction traffic management plan with the Highland Council and Transport Scotland. Local communities which will be impacted by the proposed Development's construction traffic should also be involved in such discussions. With regards to the assessment of traffic and transport, it should be noted by the Company that the Environmental Assessment of Traffic and Movement (2023) guidelines have replaced the Environmental Assessment of Road Traffic (IEMA)(1993) guidelines.	An outline Construction Traffic Management Plan (CTMP) is provided in the Mitigation Measures and Monitoring section. It is agreed that the preparation of a detailed CTMP should form a suitably worded planning condition. Comment noted. Comment noted.
The Highland Council Transport Planning Team	12 th November 2024	A Transport Assessment (TA), Construction Traffic Management Plan (CTMP) and an Abnormal Load Assessment will be required within the EIAR. The Transport Assessment Methodology below sets out what the Council requires and further information is provided in our published Roads and Transport Guidelines for New Developments. When establishing a scope for the assessment consideration should be given to the use of the public roads in this area can be influenced significantly by tourist traffic.	Details generally contained within a Transport Assessment (TA) are provided as part of this chapter, as well as an outline CTMP. An AIL RSR is provided as Technical Appendix 12.1. Annual Average Daily Traffic (AADT) from the Department for Transport (DfT) database which capture tourist traffic volumes.
		We noted the intention for the assessment of environmental impacts from the predicted traffic associated with the construction of this development will follow the principles set out in the Institute of Environmental Management and Assessment (IEMA) Guidelines for the Environmental Assessment of Traffic and Movement. The document references the edition published in 1993, which we understand	Comment noted, the assessment has been undertaken in line with the relevant guidelines as set out by the IEMA.

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		has now been superseded. Any such use of the above should adhere with the latest published version of that document. The approach set out in the IEMA does not include any requirement to assess the existing local public road networks condition and capability to physically and safely accommodate the predicted traffic impacts, whilst remaining safe for other road users. This will be required and should be done for all construction and operational traffic, not just abnormal loads (ALs). Such an approach should be contained within a supporting additional Transport Assessment (TA) document.	The Applicant is willing to enter into a formal Wear & Tear agreement. This will form a suitably worded planning condition.
		Regarding quantifying the scale of traffic impacts and the intention in the EIA to use Rule 1 (30% increase in all and HGV traffic) and Rule 2 (10% increase in all and HGV traffic at high sensitivity locations) from the IEMA Guidelines, we will require any single-track roads with passing places impacted by this proposed development to be identified as high sensitivity as defined by Rule 2. This reflects the sensitivity of such routes to changes in the quantum and nature of traffic flows along them.	No section of single track road with passing places fall within the study area.
		The A831, which would need to provide connection to the proposed point of access for the development, is not formally recognised as a route capable in its current form of physically or safely accommodating quantities of large heavy commercial goods vehicles, or abnormal loads (ALs). The Timber Transport Forum has designated the route as a "Consultation Route" meaning that the route is not up to agreed standards to be used for transporting timber. This would also be the case for the large standard commercial goods	Comment noted. The Applicant is willing to enter into a formal Wear & Tear agreement. This will form a suitably worded planning condition. An outline CTMP is included within the chapter and an ALL RSR is provided as Technical Appendix 12.1 which details necessary mitigation measures for the A831 and other roads affected by the movement of ALs.

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		vehicles and AILs that this proposed development would generate. Therefore, any assessment of that route will need to recognise that physical improvements will be required alongside suitable traffic management measures. Also, the nature of the A831 changes along its length, with the southern section being less suited to accommodating larger commercial goods vehicles. We would therefore expect any submission to demonstrate their intention to avoid routing commercial goods vehicles associated with this development from the south via Cannich.	Comment noted. The study area does not include the A831 west / south-west of the proposed Site access junction, where the A831 carriageway reduces to a single track road with passing places.
		Whilst there is reference to the port of entry for turbine components being Invergordon, the report says that this is still to be clarified, as is the routing of such loads between the port and the Site. It should be noted that no AIL's should be routed across the Lovat Bridge carrying the A862 over the River Beauly until suitable detailed inspections and structural assessments have been undertaken and accepted by Highland Council Structures Team. It's our understanding that such inspections will need to include diving surveys of the existing bridge piers and foundations within the river to check for scour damage.	Comment noted. A number of Ports are currently under consideration at this time. Following confirmation of the Port of Entry (PoE), the relevant assessment will be undertaken on all affected structures on the proposed access route. It is considered that this can be secured via an appropriately worded planning condition.
		When considering the routing of AIL's to this development Site, we recommend that early engagement is had with our Structures Team. They can be contacted through the generic Email address structures@highland.gov.uk . Similarly, early engagement should be had with The Councils Abnormal Load Team. Again, they can be contacted through the generic Email address abnormal.loads@highland.gov.uk .	A RSR is included as Technical Appendix 12.1, which includes an ESDAL review in relation to structures on the proposed access route.

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		We noted the intention to gather traffic flow data for existing routes and use that in the environmental assessment to compare changes as a result of the proposed development. Given that the construction working hours and vehicle movements for this development are likely to be between restricted on a typical working day (possibly 07:00 and 19:00), Annual Average Daily Flows (AADF) information should not be used for comparison purposes. 12- hour average flows should be used for the period 07:00 – 19:00. Using AADF would simply lessen the scale of change that the development will be generating during the working day.	The assessment has been undertaken using AADT flow data, in line with all other similar schemes assessed within THC administrative area. Furthermore, the DfT does not provide 12 hour average flow data and as such only those links where project specific traffic surveys have been undertaken would be suitable for this exercise. To ensure a consistent approach, whereby all locations within the study area used the same data sets, using the methodology previously accepted by THC, AADT traffic flows only have been used.
		Any assessment done of the impacts of traffic from this development will need to take into account the cumulative impacts from other developments that may come forward during the proposed construction of this new facility. Highland Council Planning Service will need to clarify what those potential developments could be. When calculating the predicted quantum and profile of construction traffic likely to be generated by the proposed development, this should also include the likely traffic generated by the felling and removal of any trees required for the delivery of this development.	Comment noted. A review of relevant committed development schemes has been undertaken within the Assessment Methodology and Significance section of the chapter. Comment noted. No significant volumes of timber felling is proposed.
		Any assumptions made about the sourcing of materials from borrow pits within or close to the development Site, along with the batching of concrete on Site and the movement of the workforce to and from the development Site should be clearly set out and justified in any submission made. If there is an intention to reduce traffic numbers by suggesting gravel materials can be sourced on	Comment noted. Full construction trip generation detail is included within the chapter.

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		Site, we would expect appropriate ground investigation works to have been done justifying that there are suitable such materials that can be won. If such investigations are not undertaken, we would expect the traffic impacts to have assessed the worst case scenario of such materials needing to be imported.	
		The TA required in support of any application will need to justify the adequacy of any temporary or permanent points of construction and ongoing operational access proposed from the local public road network. This will include justifying the adequacy of visibility splays, which may require traffic speed data for those sections of public road impacted. The layout and construction form of all accesses will also need to be clarified and their suitability justified. We would also expect any submission to justify why each individual new permanent access needs to be retained and if so, in what form.	Comment noted. The proposed site access junction is included as Technical Appendix 12.2. The junction visibility splays provided include both the requirements for the posted speed limit of 60 miles per hour (mph) and the 85th percentile speed limit obtained from site specific traffic surveys, with the speed data available in Table 12.8 within the chapter. The junction works includes the upgrade to the existing access junction, to accommodate both general construction traffic and ALLs. All works required for the junction can be undertaken with land under control of the Applicant.
		The submission suggests that an existing estate access from the A831 near to Erchless Castle will provide the construction and ongoing operational access for this development. This will require careful consideration of achievable visibility splays from that access in both directions along the A831. It is our understanding that visibility splays may be restricted by the local topography and road alignment, with may require extensive improvements. If the requirements from Table 5.5 from our published Roads and Transport Guidelines for New Developments cannot be met from a 4.5m setback within the mouth of the proposed access, using 85 th percentile speed data gathered at that location from suitable traffic count data, then	Comment noted, see previous response.

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		more suitable alternative access arrangements may be required.	
		<u>Transport Assessment Methodology</u> Transport Planning would expect a Transport Assessment to be submitted with any future planning application and a High National Traffic Forecast be applied. The information below is not exhaustive and should be used as a guide to submitting all relevant information in relation to roads, traffic and transportation matters arising from the development proposals.	As noted above, details generally contained within a TA are presented as part of this chapter. A National Road Traffic Forecast (NRTF) high growth factor has been applied to the local road network. Further details are presented within the chapter.
		1. Identify all public roads affected by the development. In addition to transporting major turbine components, this should also include routes to be used by local suppliers and the workforce.	Details of the study area and the assumed distribution of construction trips are outlined within the chapter.
		2. Set out the existing nature and condition of these public roads. This should include: • The road name and number, where applicable. • Road widths, including any pinch points. • The nature of their horizontal and vertical alignments, including any known steep gradients. • The location and condition of existing passing places on single track roads. • An assessment of the carriageway strength including, where necessary, construction depths and road formation where there is likely to be significant proposed impacts. This may include the need for non-destructive testing and sampling as required to determine the carriageway construction and strength. This work should be undertaken by a suitably capable and qualified consulting	Information relevant to the preparation of the chapter in line with the methodology previously agreed and accepted by THC has been included. The assessment has been undertaken in line with the outlined methodology included within the Scoping Report (refer to Technical Appendix 1.1) and detailed within this chapter, relating to assessing potential impacts on traffic and transport. The Applicant is willing to enter into a formal Wear & Tear agreement. This will form a suitably worded planning condition. A framework CTMP is included within the chapter. It is considered that the requirement for a full CTMP can be secured by an appropriately worded condition.

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		engineer acceptable to the Council. - The location and nature of any structures either spanning or supporting the roads, including a description of their nature (e.g. bridge, culvert etc), any width, height or weight restrictions and where necessary, an assessment of their load carrying capability. This work should be undertaken by a suitably capable & qualified consulting engineer acceptable to the Council. - The nature and quantum of properties serviced by the roads. In addition to the quantum of residential properties, specific recognition should be made of any schools, businesses or other community facilities serviced by these roads. - The nature and quantum of existing traffic flows on these roads. This should include reference to how often the roads are used by school or commercial bus services, refuse vehicles and whether the routes are used by pedestrians, cyclists and equestrians.	
		3. Identify the anticipated impacts from the proposed development, including any cumulative impacts from other developments likely to be happening at the same time as your development. These impacts should include: - The quantum of new traffic impacting on these roads. This should cover: - numbers of light and heavy vehicles - numbers of abnormal loads - profiles of anticipated new traffic	Comment noted. Impacts on the roads, road users and local communities has been assessed in line with IEMA Guidelines. Swept path analysis has been undertaken for the delivery of AILs and is presented in Technical Appendix 12.1.

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		movements throughout the duration of the works - Any impacts to existing carriageways, structures, verges or other aspects of these public roads. This should include information on swept paths and gradient analysis where it is envisaged that the passage of traffic could be problematic. - The location of any new or changes to existing accesses off these public roads to be used for accessing this development. This should include the extent of existing visibility from each of these accesses onto the public roads. - Any impacts or restrictions needing to be imposed on existing road users. - Any impacts or restrictions needing to be imposed on adjacent properties or local communities serviced by these public roads.	
		4. Set out the proposed mitigation measures needed to tackle the anticipated impacts set out above. This should include: - The location and nature of any carriageway widening or strengthening. - Visibility improvements at access points and along the public roads forming access routes. - The location and nature of any strengthening or widening needed to existing structures. - The provision of new or enhanced passing places on single track roads. - Road safety measures to manage the impacts of any identified road safety concerns.	Comment noted. Details on proposed mitigation measures are provided within this chapter.

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		Traffic management proposals for the construction and ongoing operation of the facility.	
		5. Any residual effects on the road network and its users following implementation of the proposed mitigation and any actions proposed associated with those residual effects.	Comment noted. Details of residual effects on the roads, road users and local communities has been assessed in line with IEMA Guidelines.
		<u>Construction Traffic Management Plan</u> THC Transport Planning will require any application for planning permission associated with this proposal to submit a CTMP for the approval of the Planning Authority. A CTMP will normally detail the following issues, however this is not an exhaustive list and the CTMP should be tailored to reflect the issues pertinent to this development: - Identification of all Council maintained roads likely to be affected by the various stages of the development, - Predicted volume, type and duration of construction traffic. - Location of Site compound, staff parking and visitor parking. - Proposed measures to mitigate the impact of general construction traffic and abnormal loads on the local road network following detailed assessment of relevant roads. - Details of any traffic management signage required for the duration of the construction period. - Measures to ensure that all affected public roads are kept free of mud and debris arising from the development. - The developer may also be requested to enter into a Section 96 agreement with the Highland Council	An outline CTMP is provided as part of this chapter. A detailed CTMP will be secured via an appropriately worded planning condition. The Applicant is willing to enter into a formal Wear & Tear agreement. This will form a suitably worded planning condition.

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		to cover any abnormal wear and tear to the Council roads. This will include a requirement for pre and post construction surveys to be undertaken and agreed with the Council and for the provision of a suitable bond. If the development involves any abnormal loads a detailed protocol, route and delivery programme will be required and agreed with any interested parties such as Highland Council, the Police, Transport Scotland, and community representatives. The protocol shall identify any requirement for convoy working and/or escorting of vehicles and include arrangements to provide advance notice of abnormal load movements in the local media.	
		<u>Detailed Junction Design</u> Details of any new Site access should be clearly set out on dimensioned drawings related to OS data and include confirmation of geometry, construction form, drainage details to prevent water running out onto the public road and evidence that appropriate visibility splays can be achieved. Vehicle swept paths should also be provided to evidence that the proposed junction form will be suitable for its intended use. Details of reinstatement of any temporary Site access at its junction with the public road, post construction is also required. Appropriate junction arrangements and visibility splay information can be found in THC's published Roads and Transport Guidelines for New Developments.	Comment noted. The proposed site access junction is included as Technical Appendix 12.2. The junction visibility splays provided include both the requirements for the posted speed limit of 60 mph and the 85th percentile speed limit obtained from site specific traffic surveys, with the speed data available in Table 12.8 within the chapter. The junction works includes the upgrade to the existing access junction, to accommodate both general construction traffic and AILs. All works required for the junction can be undertaken with land under control of the Applicant. Swept path analysis has been undertaken for the delivery of AILs and is presented in Technical Appendix 12.1.

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		The scoping report has identified that the following matters should be scoped out: Operational traffic Operational traffic can be scoped out from further assessment. Although the Transport Planning Team have no objection to this approach, they will expect any submission to clarify the likely quantum and profile of operational traffic levels due to be generated by the finished development to justify such an approach.	Comment noted.
The British Horse Society Scotland	30 th October 2024	Access to safe off-road riding routes is vital to the health and wellbeing of horses and their riders. Under the terms of the Land Reform (Scotland) Act 2003, equestrians have the same rights of access to the outdoors as other non-motorised users, such as pedestrians and cyclists. Equestrian use should therefore be included when planning and designing wind farm proposals. Considering all access takers, including equestrians, in the early stages helps to avoid problems down the line and ensures that projects like this are an opportunity to preserve and improve access for all, rather than curtail it or restrict it to certain groups.	Comment noted, relevant mitigation measures are included within the framework CTMP as part of an Onsite Access Management Plan (OAMP).
Transport Scotland	7 th November 2024	It is assumed that the battery energy storage compound and its associated transport and access impacts will also be assessed as part of the EIA.	Full construction trip generation detail is included within the chapter for all elements of the proposed development.
		The Scoping Report does not appear to confirm the anticipated opening year of the proposed development. This shall be confirmed in the EIA.	Comment noted. The estimated year of construction is 2035 and the construction programme is estimated to last in the order of 18 months.
		Count data for the trunk road may be available from Transport Scotland. However, should data not be available then it is acknowledged that new ATC surveys may be commissioned. The location of the counts shall be agreed with Transport	The study area does not include any sections of the Trunk Road network. Details of the count points used are outlined in the Baseline section of this chapter.

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		Scotland in advance of any surveys.	
		Any existing trunk road traffic data that may inform the traffic and transport assessment can be requested via traffic.data@mobiiie.co.uk . Transport Scotland would highlight that Department for Transport (DfT) traffic count data is not an appropriate source of information for the assessment of trunk road traffic impacts. As stated in the DfT website data disclaimer, "traffic estimates for individual road links and small areas are less robust, as they are not always based on up-to-date counts made at these locations. Where other more up-to date sources of traffic data are available (e.g. from local highways authorities), this may provide a more accurate estimate of traffic at these locations. It is the responsibility of the user to decide which data are most appropriate for their purpose, and if DfT road link level traffic estimates are used, to make a note of the limitations in any published material".	The study area does not include any sections of the Trunk Road network. Details of the count points used are outlined in the Baseline section of this chapter.
		Transport Scotland are primarily concerned with trunk road network impacts. The suitability of information informing the assessment of effects on the local road network is regarded as a matter for consideration by the Planning Authority.	Comment noted.
		The baseline traffic data utilised must be representative of typical conditions.	Comment noted.
		The Scoping Report make no reference to traffic accident data. This should be considered within the EIA and trunk road data shall be obtained from Transport Scotland via accidentdatarequests@transport.gov.scot . The extents of the accident assessment study area must be clearly defined, with the end points of assessed road links specified, i.e., the locations beyond which no assessment	The study area does not include any sections of the Trunk Road network. Details of the assessment of traffic accident data are outlined in the Baseline section of this chapter.

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		has been undertaken. A plan should be provided to illustrate these extents, the locations of the accidents identified, and the severity of identified accidents. The assessment should identify whether any accident clusters are present within the study area and whether development traffic is likely to cause or exacerbate any road safety issues. Details of any proposed mitigation measures should also be provided.	
		It is noted that the A832 heads west from Tore Roundabout towards Muir of Ord. The EIA should clarify the proposed route from Tore Roundabout.	Comment noted. Full details of the AIL route will be included within Technical Appendix 12.1 .
		It is the responsibility of the applicant and their agents to justify the proposed access strategy.	Comment noted. This is included within the chapter. Full details of the AIL access route will be included within Technical Appendix 12.1 .
		A full Abnormal Loads Assessment (ALA) shall be submitted as supporting information, to be prepared and submitted alongside the EIA Transport and Access chapter.	Comment noted. An AIL RSR is included as Technical Appendix 12.1 .
		The following aspects should be confirmed in the ALA: • Port of entry for shipping of wind turbine components. • The number and dimensions of abnormal loads and transporting vehicle, i.e., weight limits, length etc. • All trunk roads to be used by abnormal load vehicles. • A route review should be undertaken considering the horizontal and vertical alignment of the preferred route(s), defining locations where a detailed swept path assessment is required. • Swept paths analysis are required for turbine blades and turbine tower sections,	Comment noted. An AIL RSR is included as Technical Appendix 12.1 .

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		and associated drawings must be provided. • Key organisations to be consulted along the proposed routes should be identified. • Initial consideration of: The maximum axle loading on structures in consultation with the relevant roads agencies; clear heights in consultation with utility providers and transport agencies; roadworks or closures that could affect the passage of the loads; underground services on the proposed route; satisfaction of Police Scotland and local authority to the proposed route(s); lay-by areas that can be utilised for temporary parking; and lay-bys that can be used to let traffic pass slow moving abnormal loads. • Any other obstructions that may restrict transportation of abnormal loads. • Details of measures to mitigate the impacts of abnormal load movements. • Drawings providing details of proposed mitigation measures. • Geometry and visibility at access point(s) to / from trunk road. • Abnormal Loads Management Plan introducing measures that could help reduce the impact of abnormal load convoys. The ALA must consider the full extent of the proposed abnormal loads route between the Port of Entry and the proposed development.	
		The methodology shall be based on the guidance defined in the IEMA guidelines for 'Environmental Assessment of	Impacts on the roads, road users and local communities has been assessed in line with IEMA Guidelines.

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		Traffic and Movement' published in July 2023.	
		The following potential environmental effects should be assessed: • Severance of communities • Road vehicle driver and passenger delay • Non-motorised user delay and amenity • Fear and intimidation on and by road users • Road user and pedestrian safety • Hazardous / large loads	Comment noted. The assessment has been undertaken in line with the outlined methodology.
		A commitment to preparing a Construction Traffic Management Plan should be made in the EIA.	A framework CTMP is provided as part of this chapter. A detailed CTMP can be secured via an appropriately worded planning condition.
		Any further Scoping Discussions with Transport Scotland shall consider any impact on any part of the trunk road network. It is noted that preceding paragraphs of Chapter 10 of the Scoping Report also reference the A835(T).	Comment noted. Further consultation will be undertaken at the appropriate time.
		It is noted that the Scoping Report does not confirm anticipated assessment assumptions, e.g., the volume / percentage of construction material required to be transported to the development Site. Full details of these must be provided in the EIA, supported by appropriate justification. Regarding the volume of material required to be transported to Site, Transport Scotland would advise that a worst-case scenario shall be assessed.	Comment noted. Full construction trip generation details are included within the chapter.
		The EIA chapter shall detail the potential number of daily, weekly, and total delivery numbers for the proposed development, providing confirmation of: estimated construction employee trips, the number, size, and weight of construction deliveries, and the	Comment noted. Full construction trip generation details are included within the chapter.

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		anticipated schedule for deliveries.	
		The proposed construction traffic distribution and assignment shall be fully justified in the EIA chapter.	Comment noted. Full construction trip generation details including distribution are included within the chapter.
		Anticipated operating hours and any associated restrictions must also be confirmed in the EIA.	Comment noted. The proposed construction operating hours are included within the chapter.
		Transport Scotland would advise that the anticipated schedule for deliveries should set out construction traffic volumes per month throughout the construction period.	Comment noted. Full construction trip generation detail is included within the chapter.
		The study area road links must be clearly defined, with the points beyond which the effects of development traffic would likely be diluted also clearly specified. A plan should be provided to clearly illustrate the study area extents.	Comment noted, the study area can be seen in Figure 12.1 and further details on this are included within the chapter.
		As highlighted in OBSERVATION 13, the methodology shall be based on the guidance defined in the IEMA guidelines for 'Environmental Assessment of Traffic and Movement' published in July 2023.	Comment noted.
		The Institute of Highways and Transportation (1994) Guidelines for Traffic Impact Assessment were superseded by Transport Scotland's 'Transport Assessment Guidance' published in 2012.	Comment noted.
		Confirmation should be sought regarding committed developments that may need to be considered. Full details of cumulative impacts should be set out, including a programme indicating the worst-case combined trip generation and associated percentage impact relative to baseline traffic levels, both in terms of total traffic and the percentage increase in HGVs. Should impacts exceed assessment thresholds, full assessment of effects should be undertaken.	Comment noted. A review of relevant committed development schemes has been undertaken within the Assessment Methodology and Significance section of the chapter.

Consultee	Date Received	Consultation Response	Where and how is this addressed?
		Transport Scotland would advise that the EIA chapter should identify primary, secondary and / or tertiary mitigation relied upon in the assessment of significant environmental effects.	Noted. A detailed CTMP and an AIL TMP will be provided post-consent and will be secured through an appropriately worded planning condition. A framework CTMP and AIL TMP are provided as part of this chapter.
		The traffic and transport assessment should assess residual impacts associated with the proposed development.	Details of residual effects on the roads, road users and local communities has been assessed in line with IEMA Guidelines.

Assessment Methodology and Significance

Scope of Assessment

Effects Assessed in Full

12.15 The following effects were considered to be potentially significant in relation to traffic and transport at the scoping stage and have been assessed in full within this chapter:

- Direct effects during construction on traffic flows in the surrounding study area;
- Direct effects upon local road users; and
- Effects upon local residents due to an increase in construction traffic.

12.16 Where the effects meet the criteria set out in the IEMA guidance, a review of the effects on severance, driver delay, pedestrian delay, non-motorised user amenity, fear and intimidation, road safety, road safety audits and large loads has been undertaken.

Effects Scoped Out

Operational Effects

12.17 The traffic effects during the operational phase of the proposed development are likely to be insignificant as expected traffic flows will be less than two vehicle movements per week, far below the recognised thresholds for triggering a formal transport assessment and significantly below daily variations in baseline traffic flows. As such, the effects during operational phase are scoped out of the assessment.

Decommissioning Effects

12.18 The traffic effects during the decommissioning phase can only be fully assessed closer to that period, 35 years on from the completion of the Site. As elements of the development are likely to remain in-situ (such as cable trenches, access tracks, etc), the traffic flows associated with the decommissioning works will be lower than those associated with the construction phase. The construction phase therefore represents a worst case assessment

and as such, no further assessment of the decommissioning phase has been considered at this point in time and has been scoped out of the assessment.

Cumulative Effects

- 12.19 A review of THC's online planning application portal and Scottish Government's Energy Consents Unit portal was undertaken to identify any consented developments which would generate significant traffic along the proposed development's study area. For the purposes of the assessment those schemes within 40 kilometres (km) have been considered.
- 12.20 TA guidance advises that only those projects with extant planning permission or local development plan allocations within an adopted or approved plan (i.e. committed development) require to be included in any assessment. Those projects in scoping or not yet determined should not be included in cumulative assessments as they have yet to be determined. When considering traffic impacts specifically in relation to the construction phase of a project, the potential traffic impact is highly speculative and as such, cannot be included in the assessment.
- 12.21 Projects in scoping or not yet determined cannot be included in the cumulative assessment as they have yet to be determined and accordingly there is insufficient certainty on the likely transport impacts.

Local Wind Farms

- 12.22 The details of these significant applications are detailed below with their current status in **Table 12.2**.

Table 12.2: Committed Development Schemes – Wind Farms

Reference	Wind Farm	Distance	No. of turbines	Current Status
19/01861/S36	Kirkan	≈ 10km	17	Consented
21/02985/FUL	Lochluichart Extension II Redesign	≈ 10km	5	Consented
21/04080/S36	Bhlaraidh Extension	≈ 20km	15	Consented
22/02442/FUL	Strathrory Redesign	< 40km	7	Consented
21/00101/S36	Corriegarth 2	< 40km	14	Consented

- 12.23 Kirkan Wind Farm located to the north-west of the proposed development and accessed directly from the A835. The development comprises 17 wind turbines and associated infrastructure and was granted planning permission in July 2023. Information contained within the EIA transport submissions, advises that construction will take place over an 18 month period and that some sections of the same access routes will be used as those identified for the proposed development. Planning Condition 2 attached to the consent stipulates that construction must commence within five years from the date of consent, meaning that construction must have started by July 2028. Given that the proposed

development is not expected to commence construction until 2035, there is no potential for the construction phases to overlap and as such there is no requirement to include Kirkan Wind Farm within the cumulative assessment.

- 12.24 Lochluichart Extension II Redesign Wind Farm located to the north-west of the proposed development and accessed directly from the A835. The development comprises five wind turbines and associated infrastructure and was granted planning permission in January 2023. Information contained within the EIA transport submissions, advises that construction will take place over an 11 month period and that some sections of the same access routes will be used as those identified for the proposed development. Planning Condition 27 attached to the consent stipulates that construction must commence within three years from the date of consent, meaning that construction must have started by January 2026. Given that the proposed development is not expected to commence construction until 2035, there is no potential for the construction phases to overlap and as such there is no requirement to include Lochluichart Extension II Redesign Wind Farm within the cumulative assessment.
- 12.25 Bhlaraidh Extension Wind Farm located to the south of the proposed development and accessed directly from the A887. The development comprises 15 wind turbines and associated infrastructure and was granted planning permission in August 2022, with a time limit on the commencement of the development of six years. Information contained within the EIA transport submissions, shows that there are no shared sections of the respective study areas, and as such there is no requirement to include Kirkan Wind Farm within the cumulative assessment.
- 12.26 Strathrory Wind Farm Re-Design located to the north of the proposed development and accessed via the B9176. The development comprises seven wind turbines and associated infrastructure and was granted planning permission in August 2023, with a time limit on the commencement of the development of five years. Information contained within the EIA transport submissions, shows that there are no shared sections of the respective study areas, and as such there is no requirement to include Strathrory Wind Farm Re-Design within the cumulative assessment.
- 12.27 Corriegarth 2 Wind Farm located to the south-east of the proposed development and accessed via the B862. The development comprises 14 wind turbines and associated infrastructure and was granted planning permission in December 2023, with a time limit on the commencement of the development of five years. Information contained within the EIA transport submissions, shows that there are no shared sections of the respective study areas, and as such there is no requirement to include Corriegarth 2 Wind Farm within the cumulative assessment.

Local Committed Developments

- 12.28 In addition to wind farm developments, other energy related consented schemes were also considered as cumulative development. The findings of the review are summarised in **Table 12.3**, including the estimated traffic generation of each scheme.

Table 12.3: Committed Development Schemes – Other Energy Related Schemes

Reference	Name	Distance	Details	Current Status
21/04988/FUL	Beaully Substation - Reinforcement and Extension	≈ 10km	Extension of 132kV substation, including decommissioning and replacement of key equipment including provision of three new transformers with noise enclosures, associated platform extension and GIS building, access, landscaping and ancillary works.	Consented
24/02831/FUL	Kilmorack Substation – Replacement substation	<10km	Construction and operation of a 132kV replacement substation, platform, plant and machinery, access, laydown/work compound area(s), drainage, landscaping, and other ancillary works.	Consented
24/01235/FUL	Deanie Substation – Replacement substation	≈ 10km	Construction and operation of a 132kV replacement substation, platform, plant and machinery, access, laydown/work compound area(s), drainage, landscaping, and other ancillary works	Consented
24/01234/FUL	Culligran	<10km	Construction and operation of a 132kV replacement substation, platform, plant and machinery, access, laydown/work compound area(s), drainage and landscaping	Consented

- 12.29 Beaully Substation extension located to the south-east of the proposed development and accessed via the A831. The development comprises an extension to the 132kV substation, including decommissioning and replacement of key equipment including provision of three new transformers with noise enclosures, associated platform extension and GIS building, access, landscaping and ancillary works. The scheme was granted planning permission in July 2022, with a time limit on the commencement of the development of five years. Information available on both THC planning portal and project website advises that construction of the scheme is currently in progress and will be complete prior to the commencement of the proposed development. As such, there is no requirement to include the Beaully Substation extension within the cumulative assessment.

- 12.30 Kilmorack Substation replacement is located to the east of the proposed development, to the west of Wester Balblair and accessed via an unclassified road that links to the A83. The development comprises the construction and operation of a 132kV replacement substation, platform, plant and machinery, access, laydown/work compound area(s), drainage, landscaping, and other ancillary works. The scheme was granted planning permission in June 2025. Information contained within the transport submissions, advises that construction will take place over a 12 to 18 month period and that some sections of the same access routes will be used as those identified for the proposed development. Planning Condition 1 attached to the consent stipulates that construction must commence within five years from the date of consent, meaning that construction must have started by June 2030. Given that the proposed development is not expected to commence construction until 2035, there is no potential for the construction phases to overlap and as such there is no requirement to include Kilmorack Substation within the cumulative assessment.
- 12.31 Deanie Substation replacement is located to the west of the proposed development, and accessed via Glen Strathfarrar, which is accessed from the A831 to the north of Struy. The development comprises the construction and operation of a 132kV replacement substation, platform, plant and machinery, access, laydown/work compound area(s), drainage, landscaping, and other ancillary works. The scheme was granted planning permission in June 2025. Information contained within the transport submissions, advises that construction will take place over an 18 to 24 month period and that some sections of the same access routes will be used as those identified for the proposed development. Planning Condition 1 attached to the consent stipulates that construction must commence within five years from the date of consent, meaning that construction must have started by June 2030. Given that the proposed development is not expected to commence construction until 2035, there is no potential for the construction phases to overlap and as such there is no requirement to include Deanie Substation within the cumulative assessment.
- 12.32 Culligran Substation replacement is located to the south-west of the proposed development, and accessed via Glen Strathfarrar, which is accessed from the A831 to the north of Struy. The development comprises the construction and operation of a 132kV replacement substation, platform, plant and machinery, access, laydown/work compound area(s), drainage and landscaping. The scheme was granted planning permission in June 2025. Information contained within the transport submissions, advises that construction will take place over an 18 to 24 month period and that some sections of the same access routes will be used as those identified for the proposed development. Planning Condition 1 attached to the consent stipulates that construction must commence within five years from the date of consent, meaning that construction must have started by June 2030. Given that the proposed development is not expected to commence construction until 2035, there is no potential for the construction phases to overlap and as such there is no requirement to include Culligran Substation within the cumulative assessment.
- 12.33 In addition to the above, a review of local online planning applications, which were non-energy related, has been undertaken on THC planning applications website to determine other committed developments which should be considered within this assessment. The review examined consented developments whose trips are considered significant in scale

(i.e., has associated traffic impact of over 10% on the road network). The review did not identify any other significant traffic generating developments in the study area.

- 12.34 Based on the above, there are no consented schemes that require to be included within a cumulative assessment at this time. Should other renewable energy developments located close to the proposed development be consented (over and above those in **Table 12.2** and **Table 12.3**), any crossover of traffic with the proposed development flows could be addressed via an overarching Traffic Management and Monitoring Plan (TTMP).

Study Area

- 12.35 The Site is located approximately 4km north-west of Kilmorack and 10km west of Beaully. The Site currently comprises open moorland with limited forestry found within the Site boundary.
- 12.36 The study area is shown in **Figure 12.1** and indicates local roads that are expected to experience increased traffic flows associated with the construction phase of the proposed development. The geographic scope was determined through a review of Ordnance Survey (OS) plans and an assessment of the potential origin locations of construction staff and supply locations for construction materials.
- 12.37 The Site will be accessed via an upgraded access junction on the A831 which will facilitate construction traffic, AIL deliveries and ongoing operational access to the proposed development. All works in relation to the junction can be accommodated within land under control of the Applicant. The proposed junction arrangement can be seen in **Technical Appendix 12.2**.
- 12.38 Strategic access to the A831 corridor is available from the A82 trunk road network to the southeast and from the A9 trunk road network to the northeast via the B9169 and A862.
- 12.39 Routing for construction materials would primarily be from the A831 to the east, with materials routing via the A862 from the north or north-east and from the A833 to the south. Where feasible, materials will be sourced from local suppliers which will avoid traffic impacting on local communities as far as practicable.
- 12.40 A number of PoE options are currently under consideration for the proposed development in relation to delivering the AILs associated with turbine components, including the Port of Nigg, the Port of Cromarty Firth (Invergordon) and the Port of Inverness. Additional information on the routes from the PoE options is described in later sections of the chapter.
- 12.41 The AIL RSR is provided in **Technical Appendix 12.1**. This provides further detail of the routes that the delivery vehicles will take from the PoE to the Site, as well as detailing constraint points and proposed mitigation measures along the routes. Note at this time the AIL RSR only considers the full route from the Port of Nigg and the Port of Inverness. The route from the Port of Cromarty Firth would share the majority of the route as that from the Port of Nigg, with the route section between the port and the A9 following a proven AIL route which has been used by other wind farm and energy developments in the area.

12.42 The study area for this assessment is as follows:

- The A831 between its junction with the A862 and the proposed Site access junction;
- The A862 between Muir of Ord and Inverness; and
- The A833 between its junction with the A862 and its junction with the A831.

12.43 Note that the study area chosen relates to those roads likely to be subject to the biggest increase in construction traffic i.e. those closest to the Site for which their users could experience significant effects and does not include all roads used in the movement of construction materials and AIL traffic.

12.44 Effects associated with construction traffic generated by the proposed development would be most pronounced in close proximity to the Site and on the final approaches to the Site. As vehicles travel away from the proposed development, they would disperse across the wider road network, thus diluting any potential effects. It is therefore expected that the effects relating to construction traffic are unlikely to be significant beyond the study area identified above.

Desk Based Study and Data Sources

12.45 The desk study included reviews and identification of the following:

- Review of relevant transport planning policy;
- Consideration of potential origin locations of construction staff and potential supply locations for construction materials to inform the extent of local area roads network to be considered in the assessment;
- Collection of existing traffic flow information;
- Review of the relevant roads hierarchy;
- Review of personal injury accident (PIA) data;
- Identification of sensitive locations within the study area (as defined by IEMA such as settlements, schools, tourist attractions etc.) using freely available online mapping;
- Identification of any other traffic sensitive receptors in the area (Core Paths, routes, communities, etc.) using freely available online mapping and relevant agency websites;
- Review of OS plans;
- Review of cumulative development information – THC planning portal and the Scottish Government's Energy Consents Unit portal; and
- Identification of constraints to the movement of AILs through a Route Survey including swept path assessments – OS plans, video footage and Google Streetview.

Field Survey

12.46 The following field surveys were carried out to inform the assessment:

- The collection of traffic flows and speed data was undertaken between 27 November and 3 December 2024 to establish a baseline on the local road network.

Assessment of Significance

- 12.47 The Institute of Environmental Management and Assessment (IEMA) 'Guidelines for Environmental Impact Assessment' (2005) notes that the separate IEMA Guidelines should be used for characterising the environmental traffic and transport effects (offsite effects) and the assessment of significance of major new developments. More recent guidance published by the IEMA, namely 'Environmental Assessment of Traffic and Movement' (2023) provides an update to the previously used guidance, 'Guidelines for the Environmental Assessment of Road Traffic' (1993) document, which should be used to characterise the environmental traffic and transport effects (offsite effects) and the assessment of significance of major new developments. The guidelines intend to complement professional judgement and the experience of trained assessors.

Sensitivity

- 12.48 In terms of traffic and transport impacts, the receptors are the users of the roads within the study area and the locations through which those roads pass.
- 12.49 The IEMA Guidelines include guidance on how the sensitivity of receptors should be assessed. Using that as a base, professional judgement was used to develop a classification of sensitivity for users based on the characteristics of roads and locations. This is summarised in **Table 12.4**.

Table 12.4: Classification of Receptor Sensitivity

Receptor	Sensitivity			
	High	Medium	Low	Negligible
Users of Roads	Where the road is a minor rural road, not constructed to accommodate frequent use by HGVs. Includes roads with traffic control signals, waiting and loading restrictions, traffic calming measures	Where the road is a local A or B class road, capable of regular use by HGV traffic. Includes roads where there is some traffic calming or traffic management measures	Where the road is Trunk or A-class, constructed to accommodate significant HGV composition. Includes roads with little or no traffic calming or traffic management measures	Where roads have no adjacent settlements. Includes new strategic trunk roads that would be little affected by additional traffic and suitable for AILs and new strategic trunk road junctions capable of accommodating AILs.
Users/ Residents of Locations	Where a location is a large rural settlement containing a high number of community and public services and facilities	Where a location is an intermediate sized rural settlement, containing some community or	Where a location is a small rural settlement, few community or public facilities or services	Where a location includes individual dwellings or scattered settlements with no facilities

Receptor	Sensitivity			
		public facilities and services		

- 12.50 Where a road passes through a location, users are considered subject to the highest level of sensitivity defined by either the road or the location characteristics.

Magnitude

- 12.51 Magnitude of change has been assessed in accordance with the following rules which are outlined in the 2023 IEMA Guidelines, and are used to inform a screening exercise to determine which links within the study area are to be considered for detailed analysis in the assessment:

- Rule 1 – Include highway links where traffic flows will increase by more than 30% (or where the number of heavy goods vehicles (HGVs) is predicted to increase by more than 30%); and
- Rule 2 – Include any other specifically sensitive areas where total traffic flows are predicted to increase by 10% or more.

- 12.52 Examples of sensitive areas are presented in the 2023 IEMA Guidelines as hospitals, churches, schools, historical buildings and tourist attractions etc. These locations are to be assessed in relation to “Rule 2”.

- 12.53 The 2023 IEMA Guidelines identify the key impacts that are most important when assessing the magnitude of traffic impacts from an individual development; the impacts and levels of magnitude are discussed below:

- Severance – the IEMA Guidance advises that, “The Department for Transport has historically set out a range of indicators for determining the significance of severance. Changes in traffic flow of 30%, 60% and 90% are regarded as producing ‘slight’, ‘moderate’ and ‘substantial’ changes in severance respectively. Although these thresholds no longer appear in Department for Transport guidance, they have not been superseded by subsequent changes to guidance and are established through planning case law. However, caution needs to be observed when applying these thresholds as very low baseline flows are unlikely to experience severance impacts even with high percentage changes in traffic.” (Para 3.16). The Guidelines acknowledge that changes in traffic flows should be used cautiously, stating that “the assessment of severance should pay full regard to specific local conditions, e.g. sensitivity of adjacent land uses, prevalence of vulnerable people, whether or not crossing facilities are provided, traffic signal settings, etc.” (Para 3.17).
- Driver delay – the IEMA Guidelines note that these delays are only likely to be “significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system” (Para 3.20).
- Pedestrian delay (incorporating delay to all non-motorised users) – the IEMA Guidance advises that “pedestrian delay and severance are closely related effects and can be grouped together. Changes in the volume, composition or speed of traffic may affect the ability of people to crossroads. In general, increases in traffic

levels are likely to lead to greater increases in delay. Delays will also depend on the general level of pedestrian activity, visibility and general physical conditions of the development Site." (Para 3.24). Furthermore, the guidance advises that "...it is not considered wise to set down definitive thresholds. Instead it is recommended that the competent traffic and movement expert use their judgement to determine whether pedestrian delay constitutes a significant effect." (Para 3.26).

- Non-motorised user amenity - the IEMA Guidance advises that, "The 1993 Guidelines suggest that a tentative threshold for judging the significance of changes in pedestrian amenity would be where the traffic flow (or HGV component) is halved or doubled. Although these thresholds no longer appear in Department for Transport guidance, they have not been superseded by subsequent changes to guidance and are established through planning case law." (Para 3.30).
- Fear and intimidation – there are no commonly agreed thresholds for estimating levels of fear and intimidation, from known traffic and physical conditions. However, as the impact is considered to be sensitive to traffic flow, changes in traffic flow of 30%, 60% and 90% are regarded as producing minor, moderate and substantial changes respectively in the guidelines. (Para 2.19). As such, this has been used to assess the potential impacts associated with construction activities around fear and intimidation on people in close proximity to the proposed development.
- Road safety – professional judgement would be used to assess the implications of local circumstances, or factors which may elevate or lessen risks of accidents. In line with the IEMA Guidance, those areas of collision clusters would be subject to detailed review.
- Road safety audits – It would be proposed to undertake any necessary Road Safety Audits (RSA) post consent and it is considered that this can be secured via a planning condition.
- Large loads – The movement of the ALLs associated with the construction of the proposed development have been considered in full, within a separate route survey assessment (see **Technical Appendix 12.1: AIL Route Survey (EIA Volume 4)**), which identifies physical mitigation measures required to accommodate the predicted loads. Additional mitigation in terms of addressing potential impacts on sensitive receptors are included as standard within **Mitigation Measures and Monitoring** section.

- 12.54 While not specifically identified, as more vulnerable road users, cyclists and equestrian users are considered in similar terms to pedestrians.
- 12.55 It is not anticipated that any vehicle movements will be carrying hazardous loads (with the exception of small amounts of fuel for the construction plant and compound generators) to or from the Site during the construction phase.
- 12.56 Table 3.7 of LA104 Environmental Assessment Methodology of the Design Manual for Roads and Bridges (DMRB) sets out four levels against which the magnitude of these impacts should be assessed – major, moderate, minor and negligible. The impacts and levels of magnitude are discussed below in **Table 12.5**.

Table 12.5: Magnitude of Effect

Magnitude	Criteria
Major	These effects are considered to be material in the decision-making process.
Moderate	These effects may be important but are not likely to be material factors in decision making. The cumulative effects of such factors may influence decision-making if they lead to an increase in the overall adverse effect on a receptor.
Minor	These effects may be raised as local factors. They are unlikely to be critical in the decision-making process but are important in improving the subsequent design of the project.
Negligible	No effects or those that are imperceptible.

Significance of Effects

- 12.57 The predicted significance of the effect was determined through a standard method of assessment based on professional judgement, considering both sensitivity and magnitude of change as detailed in **Table 12.6** below.

Table 12.6: Significance of Effects Matrix

	Sensitivity			
Magnitude	High	Medium	Low	Negligible
Major	Large	Large/Moderate	Moderate/Slight	Slight
Moderate	Large/Moderate	Moderate	Slight	Slight
Minor	Moderate/Slight	Slight	Slight	Slight/Neutral
Negligible	Slight	Slight/Neutral	Slight/Neutral	Neutral

- 12.58 In terms of the EIA Regulations, effects would be considered of significance where they are assessed to be **Large** or **Moderate**. Where an effect could be one of **Large / Moderate** or **Moderate / Slight**, professional judgement would be used to determine which option should be applicable.

Assumptions and Limitations

- 12.59 The following assumptions have informed the assessment of effects in this chapter:
- A construction programme of 18 months has been assumed;
 - While it is anticipated that 100% of the aggregate requirements will be sourced from the onsite borrow pits, as a worst-case assessment, it has been assumed that 50% of the aggregate material requirements will be imported to the Site.
 - 100% of concrete will be batched onsite meaning only raw materials to prepare the concrete i.e. cement powder, water, sand and aggregates will be imported;
 - For the purposes of estimating traffic movements, it was assumed that 40% of staff would be transported by minibus and 60% would arrive by car (single car occupancy was assumed as the worst case at this stage with potentially fewer movements through car sharing); and

- The year of construction is assumed to be 2035 and has been used for the basis of the assessment within this chapter. This represents a very optimistic scenario, and given ongoing grid reform, the actual date is not currently known.

12.60 Limitations to the assessment are as follows:

- The assessment is based upon average traffic flows in one month periods. During the month, activities at the Site may fluctuate between one day and another. It is not possible to fully develop a day-by-day traffic flow estimate as no Balance of Plant (BoP) contractor has been appointed, and external factors can impact upon activities on a day by day basis (weather conditions, availability of materials, time of year, etc).
- Assumptions on the original points for materials have been made to provide a worst-case assessment scenario. Should these origin points change, the effects on the study area may alter to those presented in the assessment.
- Construction material estimates are based on past experience of what is likely to be required for a project of this size and are considered to be appropriate for enabling a robust assessment of effects to be made.

12.61 It is considered that there is sufficient information to enable an informed decision to be taken in relation to the identification and assessment of likely significant environmental effects on Traffic and Transport.

Baseline Conditions

Pedestrian and Cycle Networks

12.62 There are limited pedestrian facilities in the immediate vicinity of the Site, or along the A831 which will be used by construction traffic to access the Site, reflecting the rural nature of the area.

12.63 Further away from the proposed development Site in the wider study area, there are pedestrian facilities within settlements, including Wester Balblair, Beauly, Muir of Ord and Kirkhill, where there are footways on one side or both sides of the carriageways. In the larger settlements, there are also dedicated pedestrian crossing facilities, by way of signal controlled crossings. The level of pedestrian infrastructure is commensurate with the scale of the local settlements and their relative rural setting.

12.64 There are no Core Paths recorded by THC within the Site boundary or within the immediate vicinity of the proposed Site access junction. The closest Core Path to the Site is provided below:

- Glen Strathfarrar road (path reference: IN26.01) is 27km in length and is located approximately 1.5km south-west of the proposed Site access junction. This path routes from close to the A831 to Loch Monar.

12.65 In addition, there are a number of Core Paths in the vicinity of the roads or tie into roads within the study area. These are provided below:

- War Memorial to Black Bridge by Balblair Wood (path reference: IN03.03) is 1.07km in length and is located at the junction between the A831 and A862 at Wester Balblair. The path links the aforementioned junction with Core Path IN03.04 at Balblair Wood;
- Lovat Bridge to Black Bridge (path reference: IN03.04) is 5.03km in length and is link between the junction between the A831 and A862 at Wester Balblair and the Kiltarlity Road;
- East Lodge to West Lodge, Beaufort Castle (path reference: IN20.05) is 3.08km in length and ties into the A833 to the south of its junction with the A862. The path runs in a broadly east / west direction towards Beaufort Castle and links to Core Paths IN20.06 and IN20.11;
- A831 to A833 by Achmony (path reference: IN13.07) is 2.48km in length and is located in Milton to the south of the proposed development. The path provides a link around the outskirts of the town, linking the A833 and A831; and
- Cnoc na Rath path (path reference: IN03.03) is 700m in length located within the settlement of Beauly, linking the A862 with the local primary school.

- 12.66 All other Core Paths are set back a sufficient distance from roads within the study area to be unaffected by construction traffic associated with the proposed development.
- 12.67 A review was undertaken of the Sustrans' National Cycle Network (NCN) map which showed that there are no NCN routes within the vicinity of the proposed development.
- 12.68 With regards to other cycle routes within the study area, there is the Beauly Firth loop route, which was promoted by the Muir of Ord Community Council and funded by THC's Carbon Clever Fund. The route runs from Inverness to North Kessock, around the Beauly Firth, and for the most part is an on-road route, however there are sections where there are segregated sections, either by way of a shared footway / cycleway or shared track / path. Within the study area, the route follows the A862 from Beauly to Inverness and on the A862 from Beauly to Muir of Ord.

Road Links

- 12.69 Access to the Site would be taken directly from the A831 via an upgraded access junction which will facilitate all construction traffic, including AILs and operational traffic requirements.
- 12.70 The A831 for the most part is a two-way single carriageway road of approximately 45km in length which runs from Drumnadroichit to its junction with the A862 south of Beauly. There are sections where the carriageway width reduces and operates with passing places in place. In the vicinity of the proposed development however there is one lane operating in each direction and can accommodate two-way vehicular movements. It is generally subject to a 60mph speed limit, reducing within settlements, for example Wester Balblair to the east of the proposed development, where it reduces to 40mph. At other locations for example Stury and Cannich it reduces to 40mph and 30mph respectively. The road is maintained by THC and appears to be in a generally reasonable condition.
- 12.71 The A862 is a two-way single carriageway road of approximately 38km in length which runs from Inverness to Arduilie Roundabout. It is generally subject to a 60mph speed limit

outwith settlements, through more rural locations. Within local settlements, for example Beauly to the north, it reduces to 30mph through the southern section of the town, before reducing further to 20mph through the town centre to the north. Muir of Ord to the north, on approach to the town the speed reduces to 40mph initially before reducing further to 30mph and 20mph as the road passes through the town. The road is maintained by THC and appears to be in a generally reasonable condition.

- 12.72 The A833 connects Balchraggan to Milton, bypassing Inverness and is approximately 15km in length. The road is a two-way single carriageway road with a 60mph speed limit in place. The road is maintained by THC and appears to be in a generally reasonable condition.
- 12.73 A number of the roads within the study area form part of the agreed route network used for the extraction of timber and are therefore, regularly used by HGV traffic, similar to the type used in the construction of the proposed development. The Agreed Timber Route Map has been developed by The Timber Transport Forum who are a partnership of the forestry and timber industries, local government, national government agencies, timber hauliers and road and freight associations. One of the key aims of the forum is to minimise the impact of timber transport on the public road network, on local communities and the environment and a way of achieving this is to categorise the roads leading to forest areas in terms of their capacity to sustain the likely level of timber haulage vehicles i.e., HGVs. The routes are categorised into four groups, namely; 'Agreed Routes', 'Consultation Routes', 'Severely Restricted Routes' and 'Excluded Routes'.
- 12.74 'Agreed Routes' are categorised as routes used for timber haulage without restriction as regulated by the Road Traffic Act 1988. A-roads are classified as 'Agreed Routes' by default unless covered by one of the other road classifications. Those links classed as 'Consultation Routes' are categorised as a route which is key to timber extraction, but which are not up to 'Agreed Route' standard. Consultation with the local authority is required, and it may be necessary to agree limits of timing, allowable tonnage etc. before the route can be used. B-roads are classified as 'Consultation Routes' by default unless covered by one of the other classifications. 'Severely Restricted Routes' are not normally to be used for timber transport in their present condition. These routes are close to being Excluded Routes. Consultation with the local authority is required prior to use. Finally, 'Excluded Routes' should not be used for timber transport in their present condition. These routes are either formally restricted, or are close to being formally restricted, to protect the network from damaging loads.

- 12.75 Within the study area, the A862 and the A833 are listed as an Agreed Routes and the A831 is listed as a Consultation Route.

Existing Traffic Conditions

- 12.76 In order to assess the impact of construction traffic on the study area, baseline traffic data has been used from a combination of Automatic Traffic Counts (ATCs) undertaken for the proposed development and from the DfT database, with 2023 data utilised.
- 12.77 The traffic count sites used were as follows:

- A831, east of the Site access junction (Commissioned ATC Survey, 2024);

- A862, Station Road, within Beauly (Commissioned ATC Survey, 2024);
- A862, east of the A831 (Commissioned ATC Survey, 2024);
- A833, south of Allarburn Drive (DfT Count Site: 10933, 2023);
- A862, west of Drumchardine (DfT Count Site: 80011, 2023); and
- A862, west of Inverness (DfT Count Site: 80331, 2023).

12.78 The traffic data allowed the traffic flows to be split into vehicle classes. The data was summarised into Cars/Lights and HGVs (all goods vehicles >3.5 tonnes gross maximum weight and buses). The locations of the traffic counters are shown in **Figure 12.2**.

12.79 In order to estimate 2025 flows, the 2023 traffic data that was obtained from the DfT and the 2024 traffic data from the ATC surveys were estimated by applying NRTF High growth factors. The High growth factor for 2023 to 2025 is 1.024 and for 2024 to 2025 is 1.012. The estimated 2025 flows can be seen in **Table 12.7**.

Table 12.7: Average Daily Traffic Flows (2025)

Ref No.	Survey Location	Source	Cars / Lights	HGV	Total
1	A831, east of the Site access junction	Commissioned ATC	309	93	401
2	A862, Station Road, within Beauly	Commissioned ATC	4,748	699	5,447
3	A862, east of the A831	Commissioned ATC	4,036	660	4,695
4	A833, south of Allarburn Drive	DfT	1,688	99	1,787
5	A862, west of Drumchardine	DfT	4,201	93	4,295
6	A862, west of Inverness	DfT	5,332	78	5,410

* Variances may occur due to rounding

12.80 The ATC sites used to provide traffic volume data were also used to collect speed statistics. The two-way seven-day average and 85th percentile speeds observed at the count locations are summarised in **Table 12.8**.

Table 12.8: 2025 Speed Summary

Site Ref.	Survey Location	Source	Mean Speed (mph)	85th %ile Speed (mph)	Speed Limit (mph)
1	A831, east of the Site access junction	Commissioned ATC	39.9	46.2	60
2	A862, Station Road, within Beauly	Commissioned ATC	23.2	30.7	30
3	A862, east of the A831	Commissioned ATC	41.6	48.8	60

Speed data obtained for 2024 for all sites

- 12.81 The speed information indicates that for the most part, speed limits are being adhered to within the study area, with the exception of the 85th percentile on the A862 within Beauly, where it is marginally over the posted speed limit by 0.7mph. The average (mean) speeds on all sites are below the speed limit of 60mph.
- 12.82 Specifically in relation to the A831 in the immediate vicinity of the proposed Site access junction, both the mean and 85th percentile speeds are significantly below the posted speed limit of 60mph, at 39.9mph and 46.2mph respectively.

Accident Data

- 12.83 Road traffic accident data for the five-year period commencing 1 January 2019 through to the 31 December 2023 was obtained from the online resource crashmap.co.uk which uses data collected by the police about road traffic crashes occurring on British roads where someone is injured.
- 12.84 TA Guidance requires an analysis of the PIA on the road network in the vicinity of any development to be undertaken for at least the most recent three year period, or preferably a five year period, particularly if the Site has been identified as being within a high accident area. Whilst the area has not been identified as a high accident area, a five-year review has been undertaken for robustness.
- 12.85 The statistics are categorised into three categories, namely "Slight" for accidents where a minor injury is recorded, "Serious" for more serious injury accidents and "Fatal" for accidents that result in a death. A summary of the incidents is presented in **Table 12.9**, and the locations of the accidents are presented in **Figure 12.3**.

Table 12.9: Personal Injury Accident Summary

Road Link	Slight	Serious	Fatal	HGV
A831	0	0	0	0
A862	6	1	1	1
A833	3	4	0	1
Total	9	5	1	2
Percentage of total accidents	60%	33%	7%	13%

- 12.86 A summary analysis of the incidents along the study area indicates that:

Road Link: the A831

- There were no accidents recorded on the A831 in the study area within the most recent five-year period recorded.

Road Link: the A862

- A total of eight accidents were recorded over the five-year period along the A862 within the study area. Of those eight, six were categorised as "Slight", one was categorised as "Serious", and one fatality was recorded;

- The fatal accident occurred east of Rhinduie involving a single car and resulting in one fatality. The accident took place at 13:30 and involved the vehicle leaving the carriageway;
- There was one accident involving an HGV, which occurred on the High Street section of the A862 within Beauly. This accident involved four vehicles and was categorised as being "Slight", resulting in one casualty;
- There was one accident involving a bus which occurred on the Station Road section of the A862 within Beauly. This accident involved two vehicles and was categorised as being "Serious", resulting in two casualties. This accident also involved a young driver (under 25);
- There were a total of two accidents involving a young driver (under 25). The second accident in addition to the one previously highlighted occurred on the A862 east of its junction with the A833 and was a single car accident. This accident was categorised as being "Slight";
- A total of four of the accidents recorded on the A862 occurred in winter months (November – March) when poor weather conditions may have exacerbated the risk of an accident occurring. Two of these accidents involved a single vehicle;
- There were no accidents involving a motorcycle or cyclist; and
- There were no accidents resulting in a child or pedestrian casualty.

Road Link: the A833

- There were a total of seven accidents recorded over the five-year period along the A833 within the study area. Of those seven, three were categorised as being "Slight", four were categorised as being "Serious", and there were no fatalities;
- There were a total of three accidents involving a motorcycle. Of these three, one was categorised as being "Slight" and two as being "Serious". Two of these accidents were single vehicle accidents and one involved both a motorcycle and a car;
- There was one accident recorded on the A833 involving an HGV, which occurred north of the A833 junction with the A831. This accident involved both an HGV and a car and was categorised as being "Slight";
- A total of three of the accidents recorded on the A833 occurred in Winter months (November – March) when poor weather conditions may have exacerbated the risk of an accident occurring;
- There were no accidents involving a young driver or cyclist; and
- There were no accidents resulting in a child or pedestrian casualty.

PIA Summary

- 12.87 There were a total of 15 accidents recorded within the study area in the most recent five-year period recorded. Of these, nine were categorised as being "Slight" (60%), five were categorised as "Serious" (33%), and one was "Fatal" (7%).
- 12.88 There were no clusters observed within the study area within the most recent five-year period. Furthermore, there were no recorded accidents in the vicinity of the proposed Site access junction on the A831.

- 12.89 Based on the information available, it has been established that there are no specific road safety issues within the immediate vicinity of the Proposed Development that currently require to be addressed or would be exacerbated by construction activities associated with the Proposed Development.

Future Baseline Flows

- 12.90 Construction of the project is anticipated to commence during 2035, if consent is granted.
- 12.91 To assess the likely effects during the construction phase, base year traffic flows were determined by applying a NRTF High growth factor to the traffic flows.
- 12.92 The NRTF High growth factor for 2025 to 2035 is 1.127. This factor was applied to the 2025 traffic data shown in **Table 12.7** to estimate the 2035 Base traffic flows shown in **Table 12.10**.

Table 12.10: Average Daily Traffic Flows (2035)

Ref No.	Survey Location	Cars / Lights	HGV	Total
1	A831, east of the Site access junction	348	104	452
2	A862, Station Road, within Beauly	5,351	788	6,138
3	A862, east of the A831	4,548	743	5,292
4	A833, south of Allarburn Drive	1,902	112	2,014
5	A862, west of Drumchardine	4,735	105	4,840
6	A862, west of Inverness	6,009	88	6,097

* Variances may occur due to rounding

- 12.93 It should be noted that if the proposed development did not proceed, or proceeded later than currently predicted, traffic growth will occur and the links within the study area will experience increased traffic flows resulting from other development pressures, tourism traffic and population growth. Accordingly, the assessment represents a worst case as the contribution of the proposed development in relative terms would decrease in the future.

Receptor Sensitivity

- 12.94 A review of sensitive receptors has been undertaken within the study area. **Table 12.11** details the receptors and their sensitivities for use within the following assessment. A justification for the sensitivity has been provided, based upon the details contained in **Table 12.4**.

Table 12.11: Receptor Sensitivity Summary

Receptor	Sensitivity	Justification
Users of A831	Medium	Where the road is a local A or B class road, capable of regular use by HGV

Receptor	Sensitivity	Justification
		traffic. Note this refers to the section of the A831 within the study area.
Users of A862	Medium	Where the road is a local A or B class road, capable of regular use by HGV traffic.
Users of A833	Medium	Where the road is a local A or B class road, capable of regular use by HGV traffic.
Residents of A831 (outwith towns / villages)	Negligible	Where a location includes individual dwellings or scattered settlements with no facilities
Residents of A862 (outwith towns / villages)	Negligible	Where a location includes individual dwellings or scattered settlements with no facilities
Residents of A833 (outwith towns / villages)	Negligible	Where a location includes individual dwellings or scattered settlements with no facilities
Residents in Beauly	High	Where a location is a large rural settlement containing a high number of community and public services and facilities
Residents in Muir of Ord	High	Where a location is a large rural settlement containing a high number of community and public services and facilities
Residents in Wester Balblair	Low	Where a location is a small rural settlement, few community or public facilities or services
Residents in Kilmorack	Negligible	Where a location includes individual dwellings or scattered settlements with no facilities
Residents in Inchmore	Low	Where a location is a small rural settlement, few community or public facilities or services
Residents in Rhinduie	Negligible	Where a location includes individual dwellings or scattered settlements with no facilities
Residents in Bunchrew	Negligible	Where a location includes individual dwellings or scattered settlements with no facilities
Residents in Ardendrain	Negligible	Where a location includes individual dwellings or scattered settlements with no facilities

12.95 As previously noted in the '**Criteria for Assessing Magnitude of Change**' section, examples of sensitive areas are presented in the IEMA Guidelines as locations which include hospitals, churches, schools, historical buildings tourist attractions for example. Based on these indicators which are stated within the IEMA Guidelines, the following locations within the study area have been identified as sensitive areas in this assessment:

- Beauly (church, schools, tourist attractions, community centre and health centre);
- Muir of Ord (church, schools, tourist attractions, community centre and health centre);
- Wester Balblair (Church and tourist attraction); and
- Teanassie Primary School on the A831; and
- Tourist attractions / tourist accommodation on the A831.

- 12.96 These locations are therefore subject to 'Rule 2' of the IEMA Guidelines which requires a full assessment of effects if the locations are subject to a total traffic increase of 10% or more. All other locations within the study area are subject to 'Rule 1' and are assessed if total traffic flows (or HGV flows) on highway links increase by more than 30%.
- 12.97 All other receptors within the study area are subject to 'Rule 1' and are assessed if total traffic flows (or HGV flows) on highway links increase by more than 30%.

Identification and Evaluation of Key Effects

Construction Effects

- 12.98 The assessment is based upon the construction effects that may occur within the study area. In order to assess the effects, it is necessary to determine the likely traffic generation associated with the proposed development.
- 12.99 During the assumed 18 month construction period, the following traffic would require access to the Site:
- Staff transport, either cars or staff minibuses;
 - Construction equipment and materials, deliveries of machinery and supplies such as concrete raw materials;
 - ALLs consisting of the wind turbine components and heavy lift crane(s); and
 - Escort vehicles for ALL deliveries.
- 12.100 It should be noted that there may be variances in the following calculations due to rounding errors. These are not considered significant.

Construction Staff

- 12.101 Staff would arrive in non-HGV vehicles and where possible will be encouraged to car share. The workforce onsite will depend on the activities undertaken; however, it is assumed that a maximum workforce of up to 60 staff per day is to be expected.
- 12.102 For the purposes of estimating traffic movements, it was assumed that 40% of staff would be transported by minibus and 60% would arrive by car (single car occupancy was assumed as the worst case at this stage with potentially fewer movements through car sharing).

- 12.103 Based on these assumptions, staff transport cars and light vehicles would account for a maximum of approximately 78 vehicle movements (39 inbound trips and 39 outbound trips) per day during the peak period of construction.

Abnormal Indivisible Load Deliveries

- 12.104 The turbines are broken down into components for transport to the Site. The nacelle, blade and tower sections are classified as AILs due to their weight, length, width and height when loaded. For the purposes of the report, the 'worst case' numbers of components requiring transport are illustrated in **Table 12.12**.

Table 12.12: Turbine Components

Component	Number of Components per Turbine
Rotor Blades	3
Tower Sections	6
Nacelle	1
Hub	1
Drive Train	1
Nose Cone	1
Transformer	1
Ancillary	1
Site Parts	0.2

- 12.105 In addition to the turbine deliveries, two high capacity erection cranes would be needed to offload a number of components and erect the turbines. The cranes are likely to be mobile cranes with a capacity up to 1,000 tonnes that are escorted by boom and ballast trucks to allow full mobilisation onsite. Smaller erector cranes would also be present to allow the assembly of the main cranes and to ease the overall erection of the turbines.
- 12.106 Escort vehicles would accompany the AIL convoys to support the traffic management measures. Up to three vehicles would be deployed and it is assumed that three AIL turbine component loads would be delivered per convoy. This would result in 81 convoys on the network (including cranes), with a total of approximately 484 escort vehicle movements (242 inbound trips and 242 outbound trips).
- 12.107 Wind turbine components that do not classify as AILs, would be delivered in addition to these, resulting in a further approximate 130 vehicle movements (65 inbound trips and 65 outbound trips). All of these deliveries are expected to occur over a period of approximately four months depending on weather conditions.
- 12.108 The escort vehicles have been assumed to be police cars and LGVs. Motorcycles may be deployed, depending upon police resources.

General Deliveries

- 12.109 Throughout the construction phase, general deliveries will be made to the Site by means of HGV. These would include fuel, Site office and staff welfare. At the height of

construction, it is assumed that up to 40 journeys to Site are made (20 inbound and 20 outbound) per month.

Material Deliveries

- 12.110 Various materials will need to be delivered to Site to form the site-based infrastructure. At the outset, HGV deliveries will deliver plant and initial material deliveries to the Site to enable the formation of the Site compound and to delivery construction machinery.
- 12.111 The proposed development in terms of scale and the onsite infrastructure requirements is large enough to warrant onsite batching of concrete. All turbine and substation foundation concrete will be mixed onsite, with deliveries of cement powder, water (if not sourced from Site), sand and aggregates being delivered by HGV from local suppliers.
- 12.112 The estimated total volume of concrete required onsite is 16,600m³, based upon expected wind turbine foundation, substation foundation and miscellaneous uses across the proposed development. The individual deliveries associated with the raw materials for the production of concrete have been estimated and detailed in **Table 12.13** below.

Table 12.13: Concrete Materials

Element	Volume / Installation (m ³)	Inbound Trips	Total Movements
Cement	4,390	37	74
Water	6,321	211	422
Sand	1,938	173	346
Aggregates	3,951	353	706

- 12.113 Reinforcement required in the foundations across the Site are detailed in **Table 12.14** below.

Table 12.14: Steel Reinforcement Deliveries

Element	Weight / Installation (t)	Total Weight (t)	Lorry Capacity (t)	Inbound Trips	Total Journeys
Turbine Foundation	90	1,800	30	60	120
Substation Foundation	20	20	30	1	2

- 12.114 The proposed access track widths will vary onsite but will generally be in the order of 6m in width and would be designed to accommodate 13 tonne axle loads. In addition to the access tracks, crane hardstands will be constructed to enable the wind turbine erection process.
- 12.115 While it is anticipated that 100% of the aggregate requirements will be sourced from onsite borrow pits, as a worst-case assessment, it has been assumed that 50% of the aggregate material requirements will be imported to the Site from local quarries, to allow for a suitably robust assessment scenario.

- 12.116 The estimate of imported material (i.e. 50% of the total volume of required material) is detailed in **Table 12.15**.

Table 12.15: Track Material Deliveries

Element	Volume / Installation (m³)	Total Weight (t)	Lorry Capacity (t)	Inbound Trips	Total Journeys
Aggregate	71,655	157,640	20	7,882	15,764

- 12.117 Geotextile will be delivered to Site in rolls. A total of 100 large rolls may be required at Site and would be delivered by HGV which would result in a total of 22 vehicle movements (11 inbound trips and 11 outbound trips).
- 12.118 Cables will connect each wind turbine to the substation compound. Trip estimates for the cable materials are provided below in **Table 12.16** and **Table 12.17**. Three cables are to be provided within each cable trench and will be backfilled with cable sand.

Table 12.16: Cable Trip Estimate

Element	Total Cable Length (m)	Length per Drum (m)	Number of Drums	Inbound Trips	Total Journeys
Cables	12,000	500	72	8	16

Table 12.17: Cable Sand Trip Estimate

Element	Total Volume (m³)	Total Weight (t)	Lorry Capacity (t)	Inbound Trips	Total Journeys
Cable Sand	4,050	6,480	20	324	648

- 12.119 Ducting will be used to shield the trench and ducting will be used to protect the cable when it runs under roadways, with ten vehicle movements predicted for ducting materials (five inbound trips and five outbound trips).
- 12.120 One substation building will be constructed on the Site. This will require deliveries of building materials and structural elements and will result in 250 vehicle movements (125 inbound trips in and 125 outbound trips).
- 12.121 Battery storage deliveries will result in a further ten HGV vehicle movements for battery, inverter and cabin / building deliveries etc (five inbound trips in and five outbound trips).
- 12.122 The resulting traffic generation estimates have been plotted onto indicative construction programme to illustrate the peak journeys on the road network. **Table 12.18** illustrates the trip generation throughout the construction programme for each month, showing two-way construction vehicle movements, i.e. an inbound and outbound trip. Note, variances may occur due to rounding and the programme assumes 22 working days in a month.

Table 12.18: Construction Traffic Profile (two-way trips)

Activity	Class	Month																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Site Establishment & Remediation	HGV	60	40															60	40
Plant Deliveries	HGV	40	30															40	30
General Site Deliveries	HGV	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Bulk Material Deliveries	HGV		2,627	2,627	2,627	2,627	2,627	2,627											
Concrete Batching Deliveries	HGV						387	387	387	387									
Reinforcement	HGV					61		61											
Cable & Ducting Deliveries	HGV					26													
Cabling Sand	HGV						162	162	162	162									
Geotextile Deliveries	HGV		11	11															
Substation	HGV													83	83	83			
BESS Elements	HGV													10					
AIL Cranage	HGV										20					20			
AIL Deliveries	HGV										122	122	122	122	122				
AIL Escorts	Car/LGV										97	97	97	97	97				
Fit Out, Commissioning & Testing	Car/LGV															60	60	60	40
Staff	Car/LGV	880	880	1,320	1,320	1,716	1,716	1,716	1,716	1,716	1,716	1,716	1,716	1,716	1,716	1,716	1,320	880	880
Total HGV		140	2,750	2,680	2,668	2,756	3,216	3,278	590	590	182	162	162	256	246	144	40	140	110
Total Cars / LGV		880	880	1,320	1,320	1,716	1,716	1,716	1,716	1,716	1,814	1,818	1,818	1,818	1,814	1,776	1,380	940	920
Total Movements		1,020	3,630	4,000	3,988	4,472	4,932	4,994	2,306	2,306	1,996	1,980	1,980	2,072	2,060	1,920	1,420	1,080	1,030
Total HGV per Day		8	126	122	122	126	148	150	28	28	10	8	8	12	12	8	2	8	6
Total Cars / LGV per Day		40	40	60	60	78	78	78	78	78	84	84	84	84	84	82	64	44	42
Total per Day		48	166	182	182	204	226	228	106	106	92	90	90	96	94	88	66	50	48

Variances may occur due to rounding. Assumes 22 working days in a month.

- 12.123 The peak of construction occurs in Month 7 when there will be a total of 4,994 vehicle movements, which equates to 228 vehicle movements per day (78 Car / LGV and 150 HGV movements).
- 12.124 This would equate to approximately 19 two-way total vehicles movements or 12 two-way HGV movements per hour, across a typical 12-hour day, assuming a flat traffic profile i.e. vehicles distributed evenly across the day.
- 12.125 This has been based on the assumption that 50% of aggregate materials are brought to the Site from nearby quarries, when in fact this would not be the case, with the onsite borrow pits being sufficient to provide the necessary aggregate materials.
- 12.126 In the actual scenario whereby the onsite borrow pits are used to provide the onsite aggregate materials, with the exception of sand and aggregates to be used within the concrete batching, the peak of construction activity would still occur in Month 7, when there will be a total of 2,366 vehicle movements, which equates to 108 vehicle movements per day, comprising 30 two-way HGV movements and 78 two-way car / LGV movements.
- 12.127 While it is anticipated that the above scenario whereby up to 100% of aggregates materials will be sourced from the onsite borrow pits, the scenario where 50% of aggregate will be imported to the Site has been used for the following assessment, to allow for a suitably robust assessment scenario.

Distribution of Construction Trips

- 12.128 The distribution of development traffic on the network would vary depending on the types of loads being transported. The assumptions for the distribution of construction traffic during the peak months would be as follows:
- Deliveries associated with the delivery of aggregate material for tracks, crane pads and compounds would be from the north via the A862 and A831, from the closest suitable quarry, which is located to the west of Strathpeffer (note, the closest quarry to the east at Beauly does not supply the required materials).
 - For the purpose of this assessment, it is assumed that deliveries associated with onsite concrete batching including cement, water, sand and aggregates would be delivered from suppliers located off the A9 to the south of Inverness and via the A862 and A831.
 - The BoP contractor will confirm final quarry and material sourcing with THC in the CTMP for all materials.
 - HGV deliveries associated with the HV electrical installation, BESS, control buildings etc. would be delivered from suppliers located to the east, travelling from Inverness via the A862 and A831.
 - General Site deliveries will be via the A862 from the east and A831.
 - Staff working at the Site are likely to be based locally. It is assumed that 80% will come from the Inverness area and 20% from Site from Muir of Ord, Beauly and the surrounding area from the A862 from the north.

- 12.129 As previously highlighted, a number of PoE options are currently under consideration for the proposed development, including the Port of Nigg, the Port of Cromarty Firth (Invergordon) and the Port of Inverness. The final selection would be confirmed post consent and following confirmation on the selected wind turbine manufacturer.
- 12.130 The AIL RSR is provided in Technical **Appendix 12.1** and provides a review of the route options from the Port of Nigg and the Port of Inverness. These route options are provided below for information.
- 12.131 With regards to the Port of Cromarty Firth, whilst this is not included within the AIL RSR or the route descriptions below, this would share the majority of the route as that from the Port of Nigg. The section between the port and the A9 would follow a proven AIL route which has been used by other wind farm and energy developments in the area. The location where the route from the Port of Cromarty Firth would join the common route with the Port of Nigg is highlighted in the route description below.

Port of Nigg (*and Port of Cromarty Firth*)

- 12.132 There are a number of routing options within the route from the Port of Nigg through to the proposed development Site access, which are as follows:

Route Option 1

- For Route Option 1, the loads would exit the Port of Nigg and join the B9175 northbound;
- Loads would take the first exit at Nigg Roundabout to join the A9 heading southwest;
- *Loads using the Port of Cromarty First would join the A9 at this location at Tomich;*
- Loads would take the first exit at Ardullie Roundabout to continue on the A9 southbound;
- Loads would take the third exit at Tore Roundabout to join the A832 heading southwest;
- Loads would turn off A832 to join the B9169 southbound;
- Loads would turn off B9169 to join the A862 southbound;
- Loads would turn off A862 to join A831 heading southwest; and
- Loads would continue on the A831 westbound to the proposed Site access location.

Route Option 2

- 12.133 The proposed Route Option 2 access route to site is detailed below:

- For Route Option 2, the loads would use the same route as detailed for Route Option 1 from the Port, until the Tore Roundabout, where they will take the fourth exit at to join the A835 heading northwest;
- Loads would take the first exit at Maryburgh Roundabout to join the A862 heading south;
- Loads would join the A832; and
- Loads would turn right at the A832 / B9169 Junction to rejoin Route Option 1, continuing through to the proposed Site access location on the A862 and A831.

Route Option 3

12.134 The proposed Route Option 3 access route to site is detailed below:

- For Route Option 3, the loads would use the same route as detailed for Route Option 2, but rather than travel through to the Maryburgh Roundabout at the north of Conon Bridge, they will turn left onto the B9163 heading southwest;
- At the B9163 / B9162 / School Road Roundabout, they will take the third exit and continue southwest bound on School Road; and
- Loads would then turn left joining the A862 to rejoin Route Option 2 and then Route Option 1, continuing through to the proposed Site access location on the A862 and A831.

Port of Inverness

12.135 There is only one route option currently being considered from the Port of Inverness, which is as follows:

- Loads would exit the harbour onto Stadium Road eastbound;
- Loads would travel straight on at Longman Roundabout to join the A82 westbound;
- Loads would turn right at Telford Roundabout to join the A862 westbound;
- Loads would then continue on the A862 to its junction with the A831 at Wester Balblair; and
- Loads would continue on the A831 westbound to the proposed Site access location.

12.136 The AIL access route options are shown in **Figure 12.4**.

12.137 The peak traffic flows have been developed and are shown in **Table 12.19**.

Table 12.19: Peak Construction Traffic (Month 7)

Survey Location	Cars & Lights	HGVs	Total
A831, east of the Site access junction	78	150	228
A862, Station Road, within Beauly	16	120	136
A862, east of the A831	62	30	92
A833, south of Allarburn Drive	-	-	-
A862, west of Drumchardine	62	30	92
A862, west of Inverness	62	30	92

Please note minor variances due to rounding may occur.

12.138 Note, where road links show no construction traffic, this is due to those road links not being used during the peak month of construction activity.

Predicted Construction Effects

12.139 To estimate the total trips through the study area during the peak of the construction phase, traffic was distributed through the network and combined with the 2035 Baseline

traffic data. The resulting figures were compared with the weekday 2035 Baseline traffic to provide a percentage change in movements and are demonstrated in **Table 12.20**.

Table 12.20: Traffic Impact Summary

Survey Location	Cars & Lights	HGVs	Total	Cars & Lights % Increase	HGVs % Increase	Total Traffic % Increase
A831, east of the Site access junction	426	254	680	22.42%	143.59%	50.40%
A862, Station Road, within Beauly	5,367	908	6,274	0.30%	15.24%	2.22%
A862, east of the A831	4,610	773	5,384	1.37%	4.04%	1.75%
A833, south of Allarburn Drive	1,902	112	2,014	0.00%	0.00%	0.00%
A862, west of Drumchardine	4,797	135	4,932	1.32%	28.57%	1.91%
A862, west of Inverness	6,072	118	6,189	1.04%	34.20%	1.52%

Please note minor variances due to rounding may occur.

- 12.140 The total traffic movements are predicted to increase by a maximum of 50.40% on the A831 to the east of the Site access junction, which would be used by all construction traffic. Whilst the increase could be considered high, it is caused by the low level of vehicles using the road. To put the increase into perspective, the road will see an additional 228 total vehicle movements per day or approximately 19 vehicle movements per hour over the course of a typical 12-hour shift. This is not considered significant in terms of overall traffic flows.
- 12.141 On the rest of the study area, the total increase is below 3% on all of the assessed roads, which is below the daily variations in traffic.
- 12.142 **Table 12.20** shows that highest HGV traffic movements increase will also occur A831 to the east of the Site access junction, which would be used by all construction traffic. At this location, it is estimated to increase by 143.59%. Whilst this increase could be considered statistically high, this is due to the relatively low level of HGVs currently using this road (104 HGVs per day). To put the increase into perspective, the road will see an additional 150 HGV movements per day or on average of 12 HGV movements per hour, or one HGV every five minutes, over the course of a typical 12-hour shift. This is not considered significant in terms of overall traffic flows.
- 12.143 The next highest increase in HGV movements would occur on the A862 to the west of Inverness. At this location it would increase by 34.20%. On all other roads within the study area the increase is below 30%.
- 12.144 A review of existing theoretical road capacity has been undertaken for Scenario 1 using The NESMA Manual, formerly part of the Design Manual for Roads and Bridges, Volume 15, Part 5. The theoretical road capacity has been estimated for each of the road links for a 12-hour period that makes up the study area. The results are summarised in **Table 12.21**.

Table 12.21: 2035 Daily Traffic (12hr) Capacity Review Summary

Survey Location	2035 Baseline Flow	2035 Base + Development	Theoretical Road Capacity (12hr)	Spare Road Capacity %
A831, east of the Site access junction	452	680	3,360	79.8%
A862, Station Road, within Beauly	6,138	6,274	28,800	78.2%
A862, east of the A831	5,292	5,384	21,600	75.1%
A833, south of Allarburn Drive	2,014	2,014	21,600	90.7%
A862, west of Drumchardine	4,840	4,932	21,600	77.2%
A862, west of Inverness	6,097	6,189	21,600	71.3%

Please note minor variances due to rounding may occur.

- 12.145 Based on the criteria for estimating the theoretical road capacity over the 12 hour period when construction traffic would be travelling to and from the Site, it can be seen from **Table 12.21** that there is significant spare capacity available. As such, the results indicate there are no road capacity issues with the addition of construction traffic associated with the proposed development and significant spare capacity exists within the road network to accommodate all construction phase traffic.
- 12.146 This is not to say that any change that may occur on a road where the existing level of usage is low, will go unnoticed by existing users and residents, but it does go to show that the road can satisfactorily accommodate the predicted level of traffic.
- 12.147 In accordance with the IEMA Guidelines Rules 1 and 2, detailed assessment is required on the following identified sensitive receptors included in **Table 12.11** or the specifically sensitive locations highlighted in **Section 12.92**.
- A831 Road Users (Medium Sensitivity);
 - A862 Road Users (Medium Sensitivity);
 - Residents along the A831 (Negligible Sensitivity);
 - Residents along the A862 (Negligible Sensitivity);
 - Residents of Wester Balblair (Low Sensitivity);
 - Residents of Kilmorack (Negligible Sensitivity);
 - Residents of Inchmore (Low Sensitivity);
 - Residents of Rhinduie (Negligible Sensitivity);
 - Residents of Bunchrew (Negligible Sensitivity);
 - Teanassie Primary School on the A831 (Low Sensitivity); and
 - Tourist attractions / tourist accommodation on the A831 (Low Sensitivity).

12.148 The significance of the potential effects on the above receptors has been determined using the rules and thresholds previously outlined in the Assessment of Significance section. **Table 12.22** summarises the significance on the receptors for the construction phase.

Table 12.22: Overall Construction Phase Effects Assessment

Receptors	Severance	Driver Delay	Pedestrian Delay	Non-motorised User Amenity	Fear & Intimidation	Road Safety	Large Loads
A831 Road Users	Moderate	Slight	Slight	Moderate	Moderate	Slight	Large / Moderate
A862 Road Users	Slight	Slight / Neutral	Slight	Slight	Slight	Slight	Large / Moderate
Residents along the A831	Slight	Slight Neutral	Slight / Neutral	Slight	Slight	Slight / Neutral	Slight
Residents along the A862	Slight	Slight Neutral	Slight / Neutral	Slight	Slight	Slight / Neutral	Slight
Residents of Wester Balblair	Slight	Slight	Slight	Slight	Slight	Slight	Moderate / Slight
Residents of Kilmorack	Slight	Slight / Neutral	Slight / Neutral	Slight	Slight	Slight / Neutral	Slight
Residents of Inchmore	Slight	Slight / Neutral	Slight	Slight	Slight	Slight	Large / Moderate
Residents of Rhinduie	Slight / Neutral	Neutral	Slight / Neutral	Slight / Neutral	Slight / Neutral	Slight / Neutral	Large / Moderate
Residents of Bunchrew	Slight / Neutral	Neutral	Slight / Neutral	Slight / Neutral	Slight / Neutral	Slight / Neutral	Large / Moderate
Teanassie Primary School on the A831	Slight	Slight	Slight	Slight	Slight	Slight	Moderate / Slight
Tourist attractions / tourist accommodation on the A831	Slight	Slight	Slight	Slight	Slight	Slight	Moderate / Slight

12.149 The assessment of significance suggests that the following receptors are considered likely to experience **Significant** effects in accordance with the EIA Regulations, prior to the application of mitigation measures. Note as detailed in **Paragraph 12.55**, where effects are **Large / Moderate** or **Moderate / Slight**, professional judgement has been used to determine which option should be applicable:

- A831 Road Users;
- A862 Road Users;
- Residents of Wester Balblair;
- Residents of Inchmore;
- Residents of Rhinduie;

- Residents of Bunchrew;
- Teanassie Primary School on the A831; and
- Tourist attractions / tourist accommodation on the A831.

12.150 As before, it should be noted that the impacts relate solely to the peak of construction activities and that the construction period is short lived (18 months) and the effects transitory in nature. Whilst it is acknowledged that other months within the construction programme may cause significant effects, these would be less than those assessed and for which mitigation measures have been proposed.

Operational Effects

12.151 It is predicted that during the operational phase of the wind farm there would be up to two vehicle movements per week for maintenance purposes associated with the proposed development. Also, there may be occasional AIL movements to deliver replacement components to the wind farm Site in the unlikely event of a major failure.

Decommissioning Effects

12.152 The decommissioning phase would result in fewer trips on the road network than the construction phase as it is considered likely that the majority of the proposed access track would be left in place for wider estate access.

12.153 Prior to decommissioning of the Site, a traffic assessment would be undertaken, and appropriate traffic management procedures followed.

Mitigation Measures and Monitoring

Pre-Construction

Road Upgrade Works

12.154 On narrow sections of the A831, there will be a requirement to upgrade sections of the road to accommodate AIL traffic associated with the wind turbine components.

12.155 There will be a requirement to widen any straight sections of the road that are currently below the required running width of 4.5m and at any locations where the vertical or horizontal alignment of the carriageway requires additional widening, to allow the AILs to negotiate the road in a safe and efficient manner. All road improvement works would be undertaken in full consultation with THC, with a specialist traffic management contractor employed to minimise the potential impact on existing road users as far as practicable.

12.156 It is considered that the works on the A831 and the mitigation works / traffic management required to construct it can be secured by a suitably worded planning condition with THC.

Construction Traffic Management Plan

- 12.157 During the construction period, a project website, blog or X (previously Twitter) feed would be regularly updated to provide the latest information relating to traffic movements associated with vehicles accessing the Site. This would be agreed with THC.
- 12.158 The following measures would be implemented during the construction phase through the detailed CTMP, which would form a planning condition of the consent:
- Agree AIL route modifications and improvements with THC, TS and other relevant stakeholders. Works which will be required to facilitate turbine deliveries are outlined in the RSR, which is presented in **Technical Appendix 12.1**;
 - Where possible, the detailed design process will minimise the volume of material to be imported to Site to help reduce HGV numbers;
 - A Staff Travel Plan, including transport modes to and from the worksite (including pick up and drop off times);
 - A Transport Management Plan for AIL deliveries;
 - All materials delivery lorries (dry materials) should be sheeted to reduce dust and stop spillage on public roads;
 - Specific training and disciplinary measures should be established to ensure the highest standards are maintained to prevent construction vehicles from carrying mud and debris onto the carriageway;
 - Wheel cleaning facilities may be established at the Site entrance, depending on the views of THC;
 - Normal Site working hours will be limited to between 0700 and 1900 Monday to Friday and 0700 and 1300 on Saturdays though component delivery and turbine erection may take place outside these hours i.e. depending on when police escort is available;
 - Appropriate traffic management measures will be put in place on the A831 leading through to the Site, to avoid conflict with general traffic, subject to the agreement of THC. Typical measures will include HGV turning and crossing signs and / or banksmen at the Site access and warning signs;
 - Provide construction updates on the project website, social media feeds and a newsletter to be distributed to residents within an agreed distance of the Site;
 - Adoption of a voluntary reduced speed limits, for example on the A831 in the vicinity of the Site access junction and at other locations to be agreed with THC;
 - All drivers will be required to attend an induction to include:
 - A toolbox talk safety briefing;
 - The need for appropriate care and speed control;
 - Highlighting the presence of pedestrian and cyclists on the study area, in particular on the A831;
 - A briefing on driver speed reduction agreements (to slow site traffic at sensitive locations, for example along the A831, in particular on narrower sections;); and
 - Identification of the required access routes and the controls to ensure no departure.

Road Condition Survey

- 12.159 It is anticipated that THC will require an agreement to cover the cost of abnormal wear and tear on the A831.
- 12.160 Video footage of the pre-construction phase condition of the abnormal loads access route and the construction vehicles route would be recorded to provide a baseline of the state of the road prior to any construction work commencing. This baseline would inform any change in the road condition during the construction stage of the proposed development. Any necessary repairs would be coordinated with THC. Any damage caused by traffic associated with the proposed development, during the construction period that would be hazardous to public traffic, would be repaired immediately.
- 12.161 Any damage to road infrastructure caused directly by construction traffic would be made good, and street furniture that is removed on a temporary basis would be fully reinstated.
- 12.162 There would be a regular road edge review and any debris and mud would be removed from the public carriageway to keep the road clean and safe during the initial months of construction activity, until the construction junction and immediate access track works are complete.

Abnormal Indivisible Loads

AIL Transport Management Plan

- 12.163 An AIL Transport Management Plan will be developed. All AIL deliveries would be undertaken at appropriate times (to be discussed and agreed with THC, TS and Police Scotland) with the aim of minimising the effects on the road network. It is likely that the abnormal load convoys would travel in the early morning periods before peak times while general construction traffic would generally avoid the morning and evening peak periods.
- 12.164 The majority of potential conflicts between construction traffic and other road users will occur with abnormal load traffic. Potential conflicts between the abnormal loads and other road users can occur at a variety of locations and circumstances.
- On sections of single carriageway road or narrow road sections;
 - At locations where there are significant changes in the horizontal alignment of the carriageway, requiring the loads to use the full carriageway width;
 - Where traffic turns at a road junctions, requiring other traffic to be restrained on other approach arms; and
 - In locations where high speeds of general traffic are predicted.
- 12.165 Advance warning signs would be installed on the approaches to the affected road network. This signage will assist in helping improve driver information and allow other road users to consider alternative routes or times for their journey (where such options exist).
- 12.166 The location and numbers of signs would be agreed post consent and would form part of the wider Traffic Management Proposal for the project.

12.167 The Abnormal Load Transport Management Plan would also include:

- Procedures for liaising with the emergency services to ensure that police, fire and ambulance vehicles are not impeded by the loads. This is normally undertaken by informing the emergency services of delivery times and dates and agreeing communication protocols and lay over areas to allow overtaking;
- A diary of proposed delivery movements to liaise with the communities to avoid key dates and times;
- A protocol for working with local businesses and residents to ensure the construction traffic does not interfere with deliveries or normal business traffic; and
- Proposals to establish a construction liaison committee to ensure the smooth management of the project / public interface with the Applicant, the construction contractors, the local community, and if appropriate, the police forming the committee. This committee would form a means of communicating and updating on forthcoming activities and dealing with any potential issues arising.

Public Information

12.168 Information on the wind turbine convoys will be provided to local media outlets such as local papers and local radio to help assist the public.

12.169 Information will relate to expected vehicle movements from the PoE at Nigg or Inverness through to the Site access junction. This will assist residents in understanding the timing of the convoy movements and may help reduce any potential conflicts.

12.170 The Applicant will also ensure information is distributed through its communication team via the project website, local newsletters, and social media.

Convoy System

12.171 A police escort will be required to facilitate the delivery of the predicted AILs. The police escort will be further supplemented by a civilian pilot car to assist with the escort duty. It is proposed that an advance escort will warn oncoming vehicles ahead of the convoy, with one escort staying with the convoy at all times. The escorts and convoy will remain in radio contact at all times where possible.

12.172 The AIL convoys will be no more than three AILs vehicles long, or as advised by the police, to permit safe transit along the delivery route, and to allow limited overtaking opportunities for following traffic where it is safe to do so.

12.173 The times in which the convoys will travel will be agreed with Police Scotland who have sole discretion on when loads can be transported.

Outdoor Access Management Plan

12.174 Consideration has been given to pedestrians, cyclists and equestrians alike due to potential interactions between construction traffic and users of path / tracks and public roads. If required, a Path Planning Study will be conducted post consent and will be

secured through a planning condition. Findings from the study will be used to formulate a set of measures into an Outdoor Access Management Plan (OAMP).

- 12.175 Users of the paths etc. will be separated from construction traffic wherever possible. Crossing points will be provided where required, with path users having right of way and temporary diversions will be provided where necessary. Appropriate Traffic Signs Manual Chapter 8 compliant temporary road signage will be provided to assist at these crossings for the benefit of all users.
- 12.176 The Principal Contractor will ensure that speed limits are always adhered to by their drivers and associated subcontractors. This is particularly important within close proximity to the paths and at crossing points. Advisory speed limit signage will also be installed on approaches to areas where path users may interact with construction traffic.
- 12.177 Signage will be installed on the Site exits that makes drivers aware of local speed limits and reminding drivers of the potential presence of pedestrians, cyclists and equestrians in the area. This will also be emphasised in the weekly toolbox talks.
- 12.178 The British Horse Society has provided comment on the potential for interaction between horses and construction traffic. As such those measures implemented on similar schemes will be given consideration as part of the proposed development. These measures are predominantly focused on the interactions between HGV traffic and horses. Horses are normally nervous of large vehicles, particularly when they do not often meet them. Horses are flight animals and will run away in panic if really frightened. Riders will do all they can to prevent this but, should it happen, it could cause a serious accident for other road users, as well as for the horse and rider.
- 12.179 The main factors causing fear in horses in this situation are:
- something approaching them, which is unfamiliar and intimidating;
 - a large moving object, especially if it is noisy;
 - lack of space between the horse and the vehicle;
 - the sound of air brakes; and
 - anxiety on the part of the rider.
- 12.180 The British Horse Society has previously recommended the following actions that will be included in the site training for all HGV staff:
- on seeing riders approaching, drivers must slow down and stop, minimising the sound of air brakes, if possible;
 - if the horse still shows signs of nervousness while approaching the vehicle, the engine should be shut down (if it is safe to do so);
 - the vehicle should not move off until the riders are well clear of the back of the HGV;
 - if drivers are wishing to overtake riders, please approach slowly or even stop in order to give riders time to find a gateway or lay by where they can take refuge and create sufficient space between the horse and the vehicle. Because of the position of their eyes, horses are very aware of things coming up behind them; and

- all drivers delivering to the site must be patient. Riders will be doing their best to reassure their horses while often feeling a high degree of anxiety themselves.

Staff Travel Plan

12.181 A Staff Travel Plan will be deployed where necessary, to manage the arrival and departure profile of staff and to encourage sustainable modes of transport, especially car-sharing. A package of measures could include:

- appointment of a Travel Plan Coordinator (TPC);
- provision of public transport information;
- mini-bus service for transport of site staff;
- promotion of a car sharing scheme; and
- car parking management.

Operational Phase Mitigation

12.182 The Site entrance will be gated, well maintained and monitored during the operational life of the proposed development. Regular maintenance will be undertaken to keep the Site access track drainage systems fully operational and the road surface in good condition and to ensure there are no adverse issues affecting the public road network.

12.183 The Site entrance gate would allow for access to the Site area for walkers, cyclists and horse riders. Details of the proposed gate and access arrangement would be provided post consent.

Residual Effects

12.184 An evaluation of the potential effects of the increase in traffic on the study area roads used for construction traffic was undertaken for the proposed development. The summary of these assessments is provided in **Table 12.23**.

12.185 No road capacity issues are predicted within the study area during the construction phase.

12.186 **Significant** effects were identified for the following receptors prior to the implementation of mitigation measures:

- A831 Road Users;
- A862 Road Users;
- Residents of Wester Balblair;
- Residents of Inchmore;
- Residents of Rhinduie;
- Residents of Bunchrew;
- Teanassie Primary School on the A831; and
- Tourist attractions / tourist accommodation on the A831.

- 12.187 These effects can be mitigated against through the introduction of a combination of mitigation measures, including a CTMP, AIL TMP and OAMP. These effects would be reduced to **Not Significant** following the introduction of the proposed mitigation measures.
- 12.188 It should be acknowledged that the assessment has focussed on the peak in construction traffic activities and that the percentage increases in particular on the A831 are statistically high, however this is due to the existing low level of total and HGV traffic.
- 12.189 The construction period is transitory in nature and all impacts would be short lived and temporary. No significant residual effects are predicted during construction.
- 12.190 The assessment confirms the effects would be **Minor** in nature and they would be **Not Significant**. The traffic effects are transitory in nature. No long-lasting detrimental transport or access issues are associated with the construction phase of the proposed development.

Construction Residual Effects

- 12.191 This section considers the assessment of traffic effects following the incorporation of the mitigation measures identified above. Effects during the operational and decommissioning phases were scoped out of the assessment, which therefore only considers those arising during the construction phase.
- 12.192 **Table 12.23** summarises the assessment of residual effects identified in the evaluation with mitigation in place.

Table 12.23: Summary of Residual Effects

Receptor and Summary of Predicted Effect	Significance	Mitigation Measures	Residual Impact
A831 Road Users			
Severance	Significant	Implementation of CTMP, provision of construction traffic road signage and provision of localised road improvement works.	Not significant (Slight)
Non-motorised User Amenity	Significant	Implementation of CTMP, provision of construction traffic road signage and provision of localised road improvement works.	Not significant (Slight)
Fear & Intimidation	Significant	Implementation of CTMP, provision of construction traffic road signage and provision of localised road improvement works.	Not significant (Slight)
Large Loads	Significant	AIL TMP, convoy escorts for AIL movements, provision of localised road improvement works.	Not significant (Slight)
A862 Road Users			
Large Loads	Significant	AIL TMP, convoy escorts for AIL movements, provision of localised road improvement works.	Not significant (Slight)
Residents of Wester Balblair			

Receptor and Summary of Predicted Effect	Significance	Mitigation Measures	Residual Impact
A831 Road Users			
Large Loads	Significant	AIL TMP, convoy escorts for AIL movements, provision of localised road improvement works.	Not significant (Slight)
Residents of Inchmore			
Large Loads	Significant	AIL TMP, convoy escorts for AIL movements, provision of localised road improvement works.	Not significant (Slight)
Residents of Rhindue			
Large Loads	Significant	AIL TMP, convoy escorts for AIL movements, provision of localised road improvement works.	Not significant (Slight)
Residents of Bunchrew			
Large Loads	Significant	AIL TMP, convoy escorts for AIL movements, provision of localised road improvement works.	Not significant (Slight)
Teanassie Primary School on the A831			
Large Loads	Significant	AIL TMP, convoy escorts for AIL movements, provision of localised road improvement works.	Not significant (Slight)
Tourist attractions / tourist accommodation on the A831			
Large Loads	Significant	AIL TMP, convoy escorts for AIL movements, provision of localised road improvement works.	Not significant (Slight)

Summary

- 12.193 The proposed development would lead to a temporary increase in traffic volumes on the study road network during the construction phase. Traffic volumes would decrease considerably outside the peak period of construction.
- 12.194 The peak of construction activity is expected to occur in Month 7 when there will be a total of 4,994 vehicle movements, which equates to 228 vehicle movements per day (78 Car / LGV and 150 HGV movements). This would equate to approximately 19 two-way total vehicles movements or 12 two-way HGV movements per hour, across a typical 12-hour day, assuming a flat traffic profile i.e. vehicles distributed evenly across the day.
- 12.195 This has been based on the assumption that 50% of aggregate materials are brought to the Site from nearby quarries, when in fact this would not be the case, with the onsite borrow pits being sufficient to provide the necessary aggregate materials. In the actual scenario whereby the onsite borrow pits are used to provide the onsite aggregate materials, with the exception of sand and aggregates to be used within the concrete batching, the peak of construction activity would still occur in Month 7, when there will be a total of 2,366 vehicle movements, which equates to 108 vehicle movements per day, comprising 30 two-way HGV movements and 78 two-way car / LGV movements.

- 12.196 In addition, a review of the theoretical road capacity was undertaken for the study area which showed that with the addition of construction traffic associated with the proposed development, there was significant spare capacity within the road network.
- 12.197 With the implementation of appropriate mitigation, no **Significant** residual effects are anticipated in respect of traffic and transport issues. The residual effects are all assessed to be slight and will occur during the construction phase only, they are temporary and reversible.
- 12.198 Traffic levels during the operational phase of proposed development will be up to two vehicles per week for maintenance purposes. Traffic levels during the decommissioning of the proposed development are expected to be lower than during the construction phase as some elements are likely be left in situ and others broken up onsite.
- 12.199 The movement of AIL traffic would require small scale and temporary remedial works at a number of locations along identified delivery route which is presented in **Technical Appendix 12.1**.
- 12.200 AIL mitigation works can be designed to be temporary in nature to enable restoration to their original condition (if required by THC and TS).

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Non-Technical Summary – Text

Introduction

- 12.201 This chapter considers the potential effects of the proposed development on Traffic and Transport during the construction phase, including both general construction traffic and abnormal indivisible loads (AILs) associated with the transportation of turbine components to the Site.
- 12.202 The methodology adopted in this assessment involved the following key stages:
- Review the relevant policy and legislative framework;
 - Describe the transport baseline conditions;
 - Describe the assessment methodology and significance criteria used in completing the impact assessment;
 - Describe the potential effects, including direct, indirect and cumulative effects;
 - Describe the mitigation measures proposed to address likely significant effects (if required); and
 - Assess the residual effects remaining following the implementation of mitigation (if required).
- 12.203 The Site will be accessed via an upgraded access junction on the A831 which will facilitate construction traffic, AIL deliveries and ongoing operational access to the proposed development. All works in relation to the junction can be accommodated within land under control of the Applicant.

Baseline

- 12.204 Strategic access to the A831 corridor is available from the A82 trunk road network to the south-east and from the A9 trunk road network to the north-east via the B9169 and A862. Routing for construction materials would primarily be from the A831 to the east, with materials routing via the A862 from the north or north-east and from the A833 to the south. Where feasible, materials will be sourced from local suppliers which will avoid traffic impacting on local communities as far as practicable.
- 12.205 A number of Port of Entry (PoE) options are currently under consideration for the proposed development in relation to delivering the AILs associated with turbine components, including the Port of Nigg, the Port of Cromarty Firth (Invergordon) and the Port of Inverness.
- 12.206 The study area for this assessment is as follows:

- The A831 between its junction with the A862 and the proposed Site access junction;
- The A862 between Muir of Ord and Inverness; and
- The A833 between its junction with the A862 and its junction with the A831.

- 12.207 Baseline traffic data was obtained from a combination of Automatic Traffic Count Surveys (ATCs) and existing information from the UK Department for Transport (DfT) database.
- 12.208 There are limited pedestrian facilities in the immediate vicinity of the Site, or along the A831 which will be used by construction traffic to access the Site, reflecting the rural nature of the area.
- 12.209 Further away from the proposed development Site in the wider study area, there are pedestrian facilities within settlements, including Wester Balblair, Beauly, Muir of Ord and Kirkhill, where there are footways on one side or both sides of the carriageways. In the larger settlements, there are also dedicated pedestrian crossing facilities, by way of signal controlled crossings.
- 12.210 There are no Core Paths or formal cycle routes recorded within the Site boundary or within the immediate vicinity of the proposed Site access junction.
- 12.211 A review of the last five-year Personal Injury Accident (PIA) data was undertaken, which did not show any existing accident trends in the vicinity of the proposed development or proposed access routes that currently require addressing or would be exacerbated by the construction of the proposed development.
- 12.212 A review of relevant consented developments was undertaken as part of the baseline assessment and found that there were nine consented developments which could potentially impact the roads within the study area. The review however highlighted that the respective construction programmes would not overlap with that of the proposed development, and as such these were not required to be considered within a combined sensitivity review.

Construction Effects

- 12.213 The proposed development would lead to a temporary increase in traffic volumes on the study road network during the construction phase. Traffic volumes would decrease considerably outside the peak period of construction.
- 12.214 The peak of construction occurs in Month 7 when there will be a total of 4,994 vehicle movements, which equates to 228 vehicle movements per day (78 Car / Light Goods Vehicle (LGV) and 150 Heavy Goods Vehicle (HGV) movements).
- 12.215 This would equate to approximately 19 two-way total vehicles movements or 12 two-way HGV movements per hour, across a typical 12-hour day, assuming a flat traffic profile i.e. vehicles distributed evenly across the day.
- 12.216 This has been based on the assumption that 50% of aggregate materials are brought to the Site from nearby quarries, when in fact this would not be the case, with the onsite borrow pits being sufficient to provide the necessary aggregate materials.

- 12.217 In the actual scenario whereby the onsite borrow pits are used to provide the onsite aggregate materials, with the exception of sand and aggregates to be used within the concrete batching, the peak of construction activity would still occur in Month 7, when there will be a total of 2,366 vehicle movements, which equates to 108 vehicle movements per day, comprising 30 two-way HGV movements and 78 two-way car / LGV movements.
- 12.218 No road capacity issues are expected on any of the roads within the study area due to the additional construction traffic movements associated with the proposed development as background traffic movements are considered low.
- 12.219 The assessment of significance suggests that the following would experience overall **Significant** effects in accordance with the EIA Regulations, prior to the application of mitigation measures:
- A831 Road Users;
 - A862 Road Users;
 - Residents of Wester Balblair;
 - Residents of Inchmore;
 - Residents of Rhinduie;
 - Residents of Bunchrew;
 - Teanassie Primary School on the A831; and
 - Tourist attractions / tourist accommodation on the A831.

Operation Effects

- 12.220 The operational phase is restricted to maintenance operations which generate significantly lower volumes of traffic that are not considered to be in excess of daily traffic variation levels on the road network.

Mitigation

- 12.221 A number of mitigation measures have been proposed, that can be secured by appropriately worded planning conditions. These include a Construction Traffic Management Plan (CTMP), AIL Transport Management Plan (TMP) and an Onsite Access Management Plan (OAMP).
- 12.222 The movement of AIL traffic would require small scale and temporary remedial works at a number of locations along identified delivery route, including along narrower sections of the A831, which are presented in **Technical Appendix 12.1**.
- 12.223 AIL mitigation works can be designed to be temporary in nature to enable restoration to their original condition (if required by The Highland Council and Transport Scotland).

Residual Effects

- 12.224 The construction period is transitory in nature and all impacts would be short lived and temporary. No significant residual effects are predicted during construction.

The assessment confirms the effects would be **Minor** in nature and they would be **Not Significant** following the implementation of mitigation measures. The traffic effects are transitory in nature. No long-lasting detrimental transport or access issues are associated with the construction phase of the proposed development

Ballach Wind Farm

Environmental Impact Assessment Report Volume 1 Chapter 13: Socio-economics, Recreation and Tourism

July 2025

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13 SOCIO-ECONOMICS, RECREATION AND TOURISM

Introduction

- 13.1 This chapter considers the potential effects of Ballach Wind Farm (the 'Proposed Development') on Socio-economics, Recreation and Tourism.
- 13.2 This chapter should be read in conjunction with the description of the Proposed Development presented in **Chapter 3: Project Description** and with respect to relevant parts of other technical chapters, such as **Chapter 6: Landscape and Visual**, **Chapter 11: Noise** and **Chapter 12: Traffic and Transport** as well as the respective figures for those assessments.
- 13.3 The author of this chapter, Maeve Rees BSc (Hons), is a registered EIA Practitioner with the Institute of Environmental Management and Assessment (GIEMA) with relevant experience in the preparation of EIA Reports in the energy sector, including a selection of wind farms across Scotland. The Technical Reviewers of this chapter were Sara Jarrett (BA hons) with 17 years of experience in socio-economic impact assessment and Neil Marlborough (BA (Hons), DipTP, MRTPI, with 20 years of experience of socio-economic assessment for onshore wind farms). The assessment has been informed by the other associated topic assessments within the EIA. The competence of those assessors is set out in each of the relevant chapters.

Legislation, Policy and Guidance

Legislation

- 13.4 There is no legislative requirement that specifically details the requirements of a socio-economic impact assessment.
- 13.5 The legislative response to the climate emergency, as has been declared by the Scottish Government in April 2019, is essential context when assessing the socio-economic impacts of the proposed development. The Climate Change (Emissions Reductions Targets) (Scotland) Act 2019 amended the Climate Change (Scotland) Act 2009 and strengthens Scotland's climate change targets for the reduction or emission levels from an 80% reduction by 2050 (as set out in the Climate Change (Scotland) Act 2009), to 100% by 2045 (net zero).
- 13.6 The Land Reform (Scotland) Act 2003 (as Amended 2016) ⁱ provides a right of access for walkers, horse-riders, and cyclists to most land and inland water. These legal rights are based on the principle of responsible access, with obligations both on the access users and on the managers of the land.
- 13.7 The legislation also states that local authorities should develop a Core Paths plan to establish and designate a network giving the public reasonable access throughout their area. Such a system of paths may include footways, footpaths, cycle tracks and

bridleways. Rights of access and Core Paths are considered as part of the recreation and tourism assessment within this chapter.

Policy

- 13.8 **Chapter 5: Renewable Energy and Planning Policy** of the EIA Report sets out the planning policy framework that is relevant to the EIA process and the Proposed Development. Relevant policies such as the Highland Council Local Development Plan (LDP) are set out below.

Fourth National Planning Frameworkⁱⁱ

- 13.9 The Fourth National Planning Framework (NPF4) is the national spatial strategy for Scotland. It sets out Scotland's spatial principles, regional priorities, national developments and national planning policy. The revised draft NPF4 and associated regulations were formally adopted by the Scottish Government in February 2023.
- 13.10 The NPF4 (National Planning Framework 4) (2023) policies of relevance to the Socio-economics, Recreation and Tourism assessment are:
- Policy 21: Play, Recreation and Sport;
 - Policy 25: Community Wealth Building;
 - Policy 26: Business and Industry; and
 - Policy 30: Tourism

Scotland's Economic Action Plan (2019/20) ⁱⁱⁱ

- 13.11 The Scottish Government's Economic Action Plan for 2019/20 outlines the Scottish Government's plans to improve productivity and competitiveness in Scotland with the aim of making Scotland a leader in technological and social innovations. Additionally, the plan sets out how Scotland will transition to a carbon neutral economy while utilising the economic opportunities for Scotland presented by the transition.
- 13.12 The main outcome of the action plan is sustainable inclusive growth in Scotland, which would combine the goal of increasing prosperity with improving equity.

The Highland Council Local Development Plan 2^{iv}

- 13.13 The Local Development Plan sets out a strategy for the growth of all communities across the Highland Council area, whilst placing an emphasis on sustainability. The plan recognises the tourism sector's significant contribution to the Highland Council economy and considers tourism-related and business development throughout.
- 13.14 The Local Development Plan policies of relevance to the Socio-economics, Recreation and Tourism assessment are:
- Policy 43: Supporting the Sustainable Development of Our Tourism. This policy promotes the safeguarding, and promotion of responsible access, interpretation and effective management or enhancement of natural, built and cultural heritage features.

- Policy 44: Tourism Accommodation: This policy supports the development of tourist accommodation within settlement boundaries and in the countryside, provided it does not adversely affect the landscape or heritage features.
- Policy 67: Renewable Energy Developments: In addition to socio-economic impacts, this policy also considers the impact on tourism and recreation interests, ensuring that renewable energy developments do not negatively affect these sectors.

Guidance

Onshore Wind Energy Supplementary Guidance (2016)

- 13.15 The Onshore Wind Energy Supplementary Guidance expresses the importance of tourism and recreation in the Highland economy. It describes the factors the Council will consider surrounding tourism and recreation for onshore wind developments:
- Relevant research into the potential effects of wind farms on tourism and recreation;
 - The potential for socio-economic benefits to be derived from development proposals, for example, evidence of community benefit discussions;
 - The potential for effects on industries for which Highland's landscape is important – for example tourism and recreation; and,
 - The potential for secondary effects for tourism and recreation, such as a change in land use that causes adverse effects, or where there are potential benefits like improved public access in the area.
- 13.16 There is no specific guidance available on approaches to assessing the impacts of a proposed onshore windfarm development on socio-economics, tourism and recreation. The methodology used has been based on professional experience, accepted practice, and draws upon industry reports on the sector.

Consultation

- 13.17 As part of the Scoping exercise, consultation was undertaken to inform the design of the Proposed Development and to seek agreement on potential significant environmental effects that result from the Proposed Development as well as the scope of any assessment work required as part of this EIA.
- 13.18 The Scoping Opinion was received from the Scottish Ministers on behalf of the Highland Council on the 28th of November 2024.
- 13.19 Consultation relevant to the Socio-economics, Recreation and Tourism assessment was undertaken with the Highland Council who commented on aspects of methodology, sources of information, scope of assessment and cumulative development. A summary of these consultation responses is provided in Table 13.1.

Table 13.1: Scoping Opinion Responses

Consultee	Date Received	Scoping Opinion Response	Where and how is this addressed?
The Highland Council	12/11/2024	<i>"We consider that Socio-Economic, Tourism and Recreational impacts should be considered even if this is separate to the EIAR to ensure that these matters are appropriately addressed."</i>	This chapter, Chapter 13: Socio-economics, Recreation and Tourism makes up a part of the EIAR and reports on the matters of socio-economics, recreation and tourism.
The Highland Council	12/11/2024	<i>"The assessment should estimate who may be affected by the development, in all or in part."</i>	This chapter contains the identification of socio-economic, recreation, and tourist receptors through a desk-based review of available accommodation, attractions and other facilities.
The Highland Council	12/11/2024	<i>"The application should include relevant economic information connected with the project, including the potential number of jobs, and economic activity associated with the procurement, construction, operation and decommissioning of the development."</i>	This chapter assesses employment effects by way of FTE job generation during the construction and operation phase.
The Highland Council	12/11/2024	<i>"This should set out the impact on the regional and local economy, not just the national economy."</i>	This chapters assessment of employment effects is conducted at a local economy scale.
The Highland Council	12/11/2024	<i>"Any mitigation proposed should also address impacts on the regional and local economy."</i>	This mitigation proposed in this chapter includes a Community Benefit Fund, relevant at the local and regional scale.
The Highland Council	12/11/2024	<i>"While the Scoping Report and an eventual EIA may include impacts on elements of outdoor access assessed under other headings, THC's Access Officer considers that all the impacts on outdoor access should all be brought together here in a comprehensive assessment of the proposals visual and physical impacts on outdoor access during the preparatory, construction, operational and post-operational phases."</i>	This chapter contains an assessment of public access during the operation phase. This will be covered by an Access Management Plan at the planning condition stage.
The Highland Council	12/11/2024	<i>"Those impacts, along with the mitigation measures, will inform an Access</i>	This chapter contains an assessment of public access during the operation phase.

Consultee	Date Received	Scoping Opinion Response	Where and how is this addressed?
		<i>Management Plan which is required to be submitted as part of the EIAR and an assessment of the development's impact on public access included within this Socio Economic section of the EIAR as per the requirements of HwLDP Policy 77 Outdoor Access."</i>	This will be covered by an Access Management Plan at the planning condition stage.
The Highland Council	12/11/2024	<i>"As a point to note, any retained or planned gates should have a pass gate installed by them to accommodate walkers, cyclists and horse riders with an internal width of at least 1.5m – kissing gates are unacceptable."</i>	This will be covered by an Access Management Plan at the planning condition stage.

Assessment Methodology and Significance

Scope of Assessment

- 13.20 There is no established guidance for conducting a socio-economic assessment as part of the EIA process. It is therefore proposed that the assessment uses desk-based information sources to assess the likely scale of effects, supplemented by consultation with local stakeholders. Cross reference would be made to other technical assessments to consider potential effects on recreational assets and other leisure and tourism attractions in the surrounding area, for example due to visual impact, traffic, and noise.

Effects Assessed in Full

- 13.21 The following effects were considered to be potentially significant in relation to socio-economics, recreation and tourism at the scoping stage and have been assessed in full within this chapter:

- There is potential for significant positive socio-economic effects both in construction and operation. A socio-economic assessment would be included.
- Potential effects upon tourism and recreation would be considered as would potential effects on land management practices.
- There is also potential for significant effects in relation to tourism and recreation during operation of the Proposed Development, and therefore both are scoped into the assessment.

Effects Scoped Out

- 13.22 Human health would not be directly affected by the Proposed Development during construction or operation given the nature of the Proposed Development and its rural location. Factors indirectly associated with human health such as visual impact or noise would be dealt with in the respective chapters as already outlined.

Cumulative Effects

- 13.23 Cumulative effects resulting from the combination of the effects of the Proposed Development and other approved and Proposed Developments within the study area have been considered below.

Study Area

- 13.24 There are no recognised standards or methodologies for assessing the socio-economic, recreation and tourism effects of windfarms, and the Study Areas have been defined based on professional judgement.

Economic Effects

- 13.25 Assessment of economic effects has considered the study areas of the administrative area of the Highlands as well as Scotland as a whole.

Tourism and Recreation Effects

- 13.26 The tourism and recreation assessments focus on a 15km Study Area, in order to capture the receptors most likely to be affected by the Proposed Development. The Study Area is based on the receptors found in **Chapter 6: Landscape and Visual Impact Assessment**, **Chapter 11: Noise** and **Chapter 12: Traffic and Transport**.

Desk Based Study and Data Sources

- 13.27 The assessment includes an extensive review of information sources to establish the socio-economic status of the local population, and to identify current tourism and recreation businesses and resources as well as tourism and recreational activities in the Study Area. The assessment uses standard socio-economic and demographic data from available datasets, including the 2011 census and 2021 census, NOMIS (the Office for National

Statistics website), standard sources of tourist and visitor data found on Visit Scotland's website, and other individual research reports.

Assessment Methodology and Significance Criteria

- 13.28 The generic project-wide approach to the assessment methodology is set out in **Chapter 2: EIA Methodology**. However, whilst this has informed the approach that has been used in this socio-economic, recreation and tourism assessment, it is necessary to set out how this methodology has been applied, and adapted as appropriate, to address the specific needs of this socio-economic, recreation and tourism assessment.
- 13.29 This socio-economic, recreation and tourism assessment follows the approach set out in the Scoping Report submitted in August 2024 and conforms with the subsequent Scoping Opinion issued by Scottish Ministers (November 2024). In doing so, it takes into consideration associated consultation responses from statutory and other consultees.

Assessment of Significance

Sensitivity

- 13.30 Sensitivity criteria in terms of employment, economy and land use are shown in **Error! Not a valid bookmark self-reference.** below.

Table 13.2: Sensitivity Criteria

Sensitivity	Definition and Examples
Very High	Employment – Where there is the requirement for very technical specialist input, which is difficult to source at a national level and/or there is very low labour or skills at a local level. Economy and land use – Where the economy or land uses have no realistic capacity to manage adverse changes to their operations. Tourism/recreation: Where the receptor or resource is defined as being of National (UK) status.
High	Employment — Where there is some requirement for technical specialist input, which is difficult to source at a national level and / or where there is limited labour or skills available at the local level. Economy and land use – Where the economy or land uses have little capacity to manage adverse changes to their operations. Tourism/recreation: Where the receptor or resource is defined as being National (Scotland) status.
Medium	Employment – Where there is limited requirement for very technical specialist input, which is difficult to source at a national level, and or where there are some constraints to the availability of labour or skills at the local level. Economy and land use – Where the economy or land uses have capacity to manage adverse changes to their operations. Tourism/recreation: Where the receptor or resource is defined as being of regional status.
Low	Employment — Where there no requirement for technical specialist input, and / or where there is a readily available labour force and skills. Economy and land use – Where the economy or land uses have substantial capacity to manage adverse changes to their operations.

Sensitivity	Definition and Examples
	Tourism/recreation: Where the receptor or resource is defined as being of local status.

Magnitude

- 13.31 The definitions describing the magnitude of change are shown in **Error! Not a valid bookmark self-reference.** below.

Table 13.3: Magnitude of Effect

Magnitude	Criteria
Very High	An impact that would be very adverse/beneficial and is very likely to affect the operations of businesses, tourist attractions or existing land or recreational users.
High	An impact that would be adverse/beneficial and is likely to affect the operations of businesses, tourist attractions or existing land or recreational users.
Medium	An impact that would be adverse/beneficial and that may have some effect on the operations of businesses, tourist attractions or existing land or recreational users.
Low	An impact that is anticipated to have a slight effect on (either adversely or beneficially) and is unlikely to have any effect on the operations of businesses, tourist attractions or existing land or recreational users.

Significance of Effects

- 13.32 Major effects are considered significant in EIA terms. Moderate, minor and negligible effects are not considered significant in EIA terms. In addition, if no effects are found, this will be stated and will also be not significant.
- 13.33 **Error! Not a valid bookmark self-reference.** below shows how magnitude of change and sensitivity criteria are considered together to determine significance.

Table 13.4: Significance Evaluation Matrix

Sensitivity	Magnitude of Change			
	Very High	High	Medium	Low
Very High	Major (Significant)	Major (Significant)	Moderate (Not significant)	Minor (Not significant)
High	Major (Significant)	Major (Significant)	Moderate (Not significant)	Minor (Not significant)
Medium	Major (Significant)	Major (Significant)	Moderate (Not significant)	Minor (Not significant)
Low	Moderate (Not significant)	Moderate (Not significant)	Minor (Not significant)	Negligible (Not significant)

Assumptions and Limitations

- 13.34 To ensure transparency within the EIA process, the following limitations and assumptions have been identified:
- Baseline data has been collected through desk-based study using publicly available sources; and
 - Information presented in this EIA Report has been based on the project information that was available at the time of writing.
- 13.35 FTE job creation has been based on experience of previous similar developments and could vary depending on the final procurement and construction processes.
- 13.36 Identification of tourist receptors has been through a desk-based review of available accommodation, attractions and other facilities. It may be that there are some additional receptors, for example those that are let privately. However, if this is the case then the assessments made on the identified receptors should also be relevant for any other receptors.
- 13.37 Any further assumptions and limitations encountered during the assessment process will be set out in the EIA Report.

Baseline Conditions

- 13.38 This section sets out the current baseline for this socio-economic assessment and the key receptors against which the Proposed Development has been assessed. These subjects considered within the baseline conditions are:
- Employment and Economy; and
 - Tourism and Recreation.
- 13.39 Information is also provided in this baseline section about the renewables industry and public attitudes to wind farms in relation to tourism and recreation.

Renewable Energy Industry

Manufacturing & Supply Chain

- 13.40 There are currently no operational manufacturing plants in Scotland which specialise in the production of onshore turbine towers or major turbine components, with the most likely location for turbine manufacturing coming from elsewhere in northern Europe. The turbines will be shipped into either Nigg or Invergordon (both to the northeast), subject to which port has availability.
- 13.41 There are also businesses across Scotland that are involved in developing secondary components for wind turbines, however these components are not required solely for wind turbines. Therefore, it is not possible to identify with any precision, the presence or absence

of such businesses in the Highlands and whether any such businesses would directly benefit from the Proposed Development.

Employment & Investment

- 13.42 The Onshore Wind Policy Statement^v produced by the Scottish Government in 2017 indicated that the onshore wind sector is a “vital component of the huge industrial opportunity that renewables more generally create for Scotland”.
- 13.43 In September 2019, as part of the Scottish Renewable Energy Festival^{vi}, Scottish Renewables released a document which set out the contribution of renewable energy to innovation, jobs, communities, climate and the rural economy. The report revealed that in 2017, the renewable energy sector employed 17,700 people in Scotland, including 5,800 jobs in the onshore wind sector.
- 13.44 In October 2022, Scottish Renewables, with the Fraser of Allander Institute, published ‘The Economic Impacts of Scotland’s Renewable Energy Sector – 2022’^{vii}. This outlined the economic impacts of Scotland’s renewable energy industry, estimating that “the renewable energy industry supports over £5.6 billion of output, over £2.5 billion of GVA and over 27,000 FTE Employment across the Scottish economy”. The report defined onshore wind as supporting the most FTE employment at 10,120 FTE. These values have been recently updated as in May 2025, Strathclyde University’s Fraser of Allander Institute reported that onshore wind supports 16,865 roles, and generates £6.4 billion of output across the Scottish economy^{viii}.
- 13.45 The 9,300 FTE increase in renewable energy from 2017 to 2022 highlights a trend predicted by the Committee on Climate Change, as they calculated that Scotland must significantly increase the amount of electricity it produces to meet its net-zero target^{ix}.
- 13.46 A report on UK Onshore Wind, the Direct & Wider Economic Impacts, concludes that 98% of development, 45% of construction, and 90% of operation and maintenance expenditure currently occurs in the UK^x.
- 13.47 The BEIS report, Electricity Generation Costs 2020^{xi} estimates that by 2025, total capital costs for onshore wind farms will be around £1m per MW installed, and there will be operating expenditure of around £25,900 per year, per MW installed.
- 13.48 The Onshore Wind Industry Prospectus by RenewableUK published a report in 2021 outlining the benefits to employment and reduced electricity costs from the deployment of onshore wind^{xii}. Scaling up to 30GW of onshore wind by 2030 could create 27,000 high-quality jobs across the UK, and an additional 30,000 jobs during the operational phase of wind farms. This expansion could add £45bn to the UK economy and cut household bills by £25 per year.
- 13.49 This report notes that the Committee on Climate Change (CCC) recently recommended that the UK government adopt a net zero emissions target by 2050, which would require a significant acceleration of onshore wind deployment. This recommendation was accepted by the UK Government and Parliament has now legislated to set the 2050 net zero target through the Climate Change Act 2008 (2050 Target Amendment) Order 2019.

- 13.50 Onshore wind is the cheapest low-carbon generation technology available. In order to reach net zero greenhouse gas emissions at least by 2050, the UK could need up to 35GW of onshore wind capacity by 2035^{xii} (with 27-29GW set to be deployed before 2030^{xiii}). This would require the deployment of 1.4GW of onshore wind annually, a significant increase on the modest 0.5GW deployed in 2023. Beyond reducing emissions, accelerating deployment in line with CCC net zero recommendations would result in a series of socioeconomic benefits to the UK, including:
- 7% reduction in electricity costs, saving households £50 per year;
 - £360m in exports annually by 2035;
 - 14,000 direct jobs and 17,000 indirect jobs; and
 - Productivity uplift throughout the UK.
- 13.51 The 14,000 jobs referenced above would be an increase from current levels. Operations and maintenance jobs are expected to increase steadily to around 3,000 in 2035 as the expenditure needed to operate and maintain onshore wind farms increases with deployment levels. To a lesser degree, these increases are driven by an increase in UK wind farm content from 66% today to a target of 70% by 2030. Jobs from exports could reach 3,700 by 2035 as the UK lifts exports from £53m in 2019 to £360m in 2035^{xiii}.
- 13.52 This report also notes that the onshore wind industry could support up to 31,000 direct and indirect jobs by 2035. The ONS estimates that each direct onshore wind job supports 1.24 indirect jobs, and that the onshore wind industry supports 12,200 direct and indirect jobs. Deploying 35GW by 2035 could increase direct and indirect jobs steadily to 2030, followed by more modest job growth between 2030 and 2035. This modest jobs growth is driven by a deceleration in onshore wind capacity additions in the EU27 (the 27 European countries), a key export market.
- 13.53 The Economic Impact of Scotland's Renewable Energy Sector^{xiv} was commissioned by Scottish Renewables in June 2021. The report notes that the true economic impact of the renewables industry is not just the activity of the industry itself but also includes the activity that it generates in its supply chains. The report finds that Scotland's renewables sector has a turnover of £2.8billion and 6,440 FTE employment.
- 13.54 The report surmises that, including spillover effects, such as employees spending their wages in the Scottish economy, Scotland's renewable activities support £5.2bn of output, £2.3bn of GVA and 22,660 FTE employment in the Scottish economy.

Employment and Economy

- 13.55 **Error! Not a valid bookmark self-reference.** below shows Economic Activity Rates in the Highlands^{xv} compared to the rest of Scotland and Great Britain. 81.5% of those of working age are economically active, which is higher than the equivalent figure for Scotland as a whole (77.0%) and Great Britain (78.6%). The proportion of females who are economically active is higher than the proportion of males, which is inconsistent with Scotland and Great Britain as a whole. As a consequence of the high levels of economic activity, the unemployment rates are lower, for both males and females.

- 13.56 The proportion of economically active males is higher in the Highlands than in Scotland (by 1.1%), but lower than that of Great Britain (by 1.0%). Females are more economically active in the Highlands (82.0%) than in both Scotland (74.1%) and Great Britain (75.0%).

Table 13.5: Economic Activity Rates in the Highlands

	Highland (Numbers)	Highland (%)	Scotland (%)	Great Britain (%)
All People				
Economically Active	125,500	81.5	77.0	78.6
In Employment	124,100	80.5	74.5	75.5
Employees	105,000	70.6	66.1	66.0
Self-Employed	18,800	9.9	8.1	9.3
Unemployed	2,800	2.2	3.2	3.8
Males				
Economically Active	67,300	81.1	80.0	82.1
In Employment	67,300	81.1	77.0	78.8
Employees	55,800	69.9	66.1	66.5
Self-Employed	11,100	Sample size too small	10.5	12.1
Unemployed	N/A	N/A	3.8	4.0
Females				
Economically Active	58,200	82.0	74.1	75.0
In Employment	56,900	79.9	72.1	72.3
Employees	49,200	71.4	66.2	65.5
Self-Employed	7,700	Sample size too small	5.7	6.6
Unemployed	N/A	N/A	2.6	3.6

- 13.57 **Error! Not a valid bookmark self-reference.** below shows that the biggest employment category in the Highlands is professional occupations which accounts for 19.5% of those in employment, followed by elementary occupations (12.6%) and then skilled trade occupations (11.5%). Professional occupations make up a lower percentage of the workforce in the Highlands than Scotland as a whole (25.2%).

Table 13.6: Employment by Occupation in the Highlands

	Highland (Numbers)	Highland (%)	Scotland (%)	Great Britain (%)
Soc 2020 Major Group 1-3	46,200	37.7	48.5	53.4
1 Managers, Directors And Senior Officials	10,400	8.4	8.6	11.1
2 Professional Occupations	24,200	19.5	25.2	26.9

	Highland (Numbers)	Highland (%)	Scotland (%)	Great Britain (%)
3 Associate Professional & Technical	11,600	9.3	14.5	15.3
Soc 2020 Major Group 4-5	27,300	22.2	19.6	18.0
4 Administrative & Secretarial Occupations	13,000	10.4	9.8	9.3
5 Skilled Trades Occupations	14,300	11.5	9.7	8.6
Soc 2020 Major Group 6-7	20,400	16.6	16.1	14.3
6 Caring, Leisure And Other Service Occupations	14,100	11.4	9.6	8.4
7 Sales And Customer Service Occupations	Sample size too small	Sample size too small	6.5	5.9
Soc 2020 Major Group 8-9	28,800	23.5	15.8	14.3
8 Process Plant & Machine Operatives	13,200	10.6	6.2	5.5
9 Elementary Occupations	15,600	12.6	9.6	8.8

- 13.58 **Error! Not a valid bookmark self-reference.** below shows employee jobs by industry. The dominant industries for employment are Human Health and Social Work Activities (17.7%), Wholesale And Retail Trade; Repair Of Motor Vehicles And Motorcycles (14.2%), and then Accommodation and Food Service Activities (13.3%). Accommodation and food service activities in particular is much higher in the Highlands than the equivalent figures for Scotland (8.8%) and Great Britain (8.0%) as a whole. Education and construction activities also provide high numbers of employment.

Table 13.7: Employment by Industry in the Highlands

Employee Jobs by Industry	Highland (Employee Jobs)	Highland (%)	Scotland (%)	Great Britain (%)
B : Mining And Quarrying	400	0.4	1.0	0.1
C : Manufacturing	6,000	5.3	7.0	7.5
D : Electricity, Gas, Steam And Air Conditioning Supply	1,000	0.9	0.8	0.4
E : Water Supply; Sewerage, Waste Management And Remediation Activities	2,500	2.2	0.8	0.7
F : Construction	7,000	6.2	5.1	4.8

Employee Jobs by Industry	Highland (Employee Jobs)	Highland (%)	Scotland (%)	Great Britain (%)
G : Wholesale And Retail Trade; Repair Of Motor Vehicles And Motorcycles	16,000	14.2	13.3	13.7
H : Transportation And Storage	6,000	5.3	4.6	5.0
I : Accommodation And Food Service Activities	15,000	13.3	8.8	8.0
J : Information And Communication	2,250	2.0	3.2	4.6
K : Financial And Insurance Activities	800	0.7	3.3	3.4
L : Real Estate Activities	1,500	1.3	1.4	1.9
M : Professional, Scientific And Technical Activities	6,000	5.3	7.3	9.3
N : Administrative And Support Service Activities	6,000	5.3	7.0	8.7
O : Public Administration And Defence; Compulsory Social Security	6,000	5.3	6.5	4.7
P : Education	9,000	8.0	8.5	8.6
Q : Human Health And Social Work Activities	20,000	17.7	16.2	13.9
R : Arts, Entertainment And Recreation	4,000	3.5	2.8	2.6
S : Other Service Activities	1,500	1.3	1.7	1.9

- 13.59 The level of earnings is an important indicator of the general health of the local economy but also reflects economic activity in the area. In general, higher earnings indicate a prosperous economy comprised of sectors that pay well, whilst low earnings indicate the opposite. Gross weekly pay (median earnings for employees living in the area) in the Highlands is £733.20, lower than that for Scotland (£740.00) but higher than Great Britain (£729.80). Full time male workers receive more weekly pay in the Highlands than females - £741.60 compared to £722.80.
- 13.60 **Error! Not a valid bookmark self-reference.** below shows that 18.5% of the population is economically inactive, lower than for Scotland (23.0%) and Great Britain (21.4%) as a whole. The long term sick and retired make up the majority of those who are economically inactive.

Table 13.8: Economic Inactivity in the Highlands

All People	Highland (Numbers)	Highland (%)	Scotland (%)	Great Britain (%)
Total	26,600	18.5	23.0	21.4
Student	Not available	Not available	23.8	27.0
Looking After Family/Home	Not available	Not available	16.1	18.5
Temporary Sick	Not available	Not available	2.3	2.2
Long-Term Sick	11,200	42.1	33.7	27.9
Discouraged	Not available	Not available	Sample size too small	0.3
Retired	Sample size too small	Sample size too small	15.4	12.9
Other	Sample size is too small	Sample size is too small	8.3	11.1

- 13.61 According to the Scottish Development International, there are around 20,500 people in Scotland employed in the low carbon and renewable energy sector^{xvi}, with many of these being in wind electricity generation.
- 13.62 Scotland's economic strategy does not provide specific numbers for businesses in the energy sector, however, it acknowledges the region's significant involvement in renewable energy projects^{xvii}. The statistics underpinning Scotland Economic Strategy from 2015 show that there were 250 businesses within the energy sector in the Highlands Council area in 2021, an increase from 120 in 2011. These businesses had a turnover in 2021 of £768.4m and a GVA of £354.3m. The statistics also show that there were 3,000 employees in the energy sector in the Highlands in 2019^{xviii}.

Tourism and Recreation

Tourism – Economics

- 13.63 The Scottish Tourism Alliance has produced Scotland Outlook 2030^{xix} which is Scotland's future tourism strategy. This has been developed through an equal partnership between the Scottish Tourism Alliance, Scottish Government, VisitScotland, Scottish Enterprise, Highlands and Islands Enterprise and Skills Development Scotland. This strategy includes the following:
- The Vision – We will be the world leader in 21st century tourism;
 - The Mission – Together we will grow the value and positively enhance the benefits of tourism across Scotland by delivering the very best for our visitors, our businesses, our people, our communities, and our environment;
 - Key Priorities – Our passionate people, our thriving places, our diverse businesses, our memorable experiences; and

- Our Commitments – For each of our key priorities we have an agreed set of commitments. These commitments will ensure that we deliver on our vision to be the world leader in 21st century tourism.

- 13.64 The significance of tourism in the Highlands is high – in 2023 the tourism sector employed 18,000 individuals in the Highlands, making up 14.8% of Total Employment^{xx}. This is the largest employment sector within this local authority. This is much greater than the rest of Scotland where the tourism industry employs 245,000 individuals, which makes up 9.2% of Total Employment^{xxi}. Tourism sustains some of the most remote and rural populations, providing essential employment opportunities and attracting investment.
- 13.65 In 2023, there were 2,285,000 total overnight visits by domestic and international visitors to the Highlands, where 7.64 million total nights were spent in accommodation. The average overnight visitor spent £333^{xxii}.
- 13.66 The COVID-19 pandemic had a significant impact on tourism within the Highland Council area. An FSB Highlands & Islands Tourism and Hospitality Survey report from 2021 states that *“With an average pre-COVID visitor spend of £1.5bn in the region (Highlands and islands), 3,200 registered tourism businesses locally, and with tourism jobs representing up to 43% of the workforce in some areas, tourism is central to Highlands and Islands life. It sustains many of our local, regional and island economies and communities”*. Research found that the visitor spend in the region is likely to have declined by up to £584 million in the financial year 2020 – 2021. However, a following survey conducted in January 2021 by FSB found that 54% of Highland and Island businesses were closed at the time, 45% of which were required to by law. This was significantly higher than 35% nationally and 27% for Edinburgh and Glasgow combined^{xxiii}.
- 13.67 The Scottish tourism industry has shown a strong recovery since the COVID-19 pandemic. In 2023, Scotland saw a total of 109 million tourism visits, including both domestic and international overnight trips and day visits. This is a greater value than 2019 and 2022 and was the first year that international expenditure accounted for over 53% of total overnight expenditure. The sector generated £10.8 billion in total visitor spend^{xxiv}.

Tourism – Visitor Attractions

- 13.68 According to Visit Scotland, the Highland Council Area is most popular among visitors for its hill walking, mountaineering, nature reserves, heritage centres and castle sites. The Highland Council Area is also home to famous trails including the North Coast 500, and the North East 250. Nearest to the Study Area is Beaulieu, a small village containing a salmon river and the historic Beaulieu Priory.
- 13.69 Core paths and other walking routes are important for recreational purposes. No core paths are present within the Study Area, although there may be non-designated paths that are used by tourists within the Study Area. Immediately beyond the southern tip of the Site Boundary, the Glen Strathfarrar road (Path Reference IN26.01) extends to the west towards Loch Monar. To the east of Loch Nan Eun sits Ord Hill (Path Reference RC32.07) which travels south through Rheinndown Wood.

- 13.70 In accordance with the Land Reform (Scotland) Act (2016)^{xxv} walkers, horse-riders and cyclists are able to access most areas within Scotland, including the area within the Site Boundary and wider Study Area. Due to this, wild camping could also occur within the Site Boundary and Study Area.
- 13.71 Deer staking is a century old tradition in the Highlands, attracting visitors throughout the year to hunt various species of deer. There is also potential deer stalking and shooting activity in the area surrounding the Site as well as deer shooting within the Site as part of routine land management activities.

Recreation

- 13.72 The Highlands, including the area around the site, is popular for a wide range of recreational pursuits, including walking, cycling, horse riding, golf, a variety of water sports, fishing and off-road driving. There are also opportunities to undertake parachute diving, flying, rock climbing, snow sports and country sports. Many of these activities also attract tourists, either as part of a wider holiday in the area, or in their own right.
- 13.73 There are no National Cycle Network Routes located within the Study Area.
- 13.74 The Site is subject to the 'right to roam' under the Land Reform (Scotland) Act 2003 such that access for recreation is permitted over the Site.

Energy Security and Fuel Poverty

- 13.75 Scottish island residents are generally more likely to face fuel poverty than the average Scottish resident. Island and rural local authorities generally had the highest proportion of the least energy efficient dwellings. Additionally, almost two-thirds (65%) of rural dwellings are not connected to the gas grid and therefore rely on more expensive heating fuel such as electricity and oil^{xxvi}.
- 13.76 Fuel poverty can fall under a number of indicators, one being that a household needs to spend more than 10% of their income on energy costs. Rates of fuel poverty are generally higher in the island Local Authorities with around a third of residents experiencing fuel poverty in Argyll and Bute (32%), Highland (33%), Orkney Islands (31%) and Shetland Islands (31%) councils and as many as 40% in Na h-Eilean Siar, while the average for Scotland is 24%.

Cumulative Developments

- 13.77 Other Planned and Proposed Developments within the Study Area are detailed below:

Existing Wind Energy Developments:

- Auchmore (3.0km); and
- Fairburn (3.7km).

Consented (but unbuilt) Wind Energy Developments:

- There are no consented wind energy developments within the Study Area.

Application Wind Energy Developments:

- Carn Coire na Muic (7.8km).

Scoping Wind Energy Developments:

- Fairburn Extension (0.9km); and
- Tarvie (9.8km).

- 13.78 These Planned and Proposed Developments are currently in the consenting/developed process and will feature in the Study Area when the Proposed Development is in construction.

Future Baseline

- 13.79 From the information acquired for this assessment, other than the proposed wind farm developments identified above, there is no indication that the baseline is in the process of any significant transition and would be expected to remain largely as described above, without the Proposed Development taking place.

Identification and Evaluation of Key Effects

- 13.80 The predicted construction, operation, and decommissioning effects of the Proposed Development on the socio-economic receptors identified in this assessment are considered in further detail in the sections below.

Economy and Employment Effects – Construction and Decommissioning

- 13.81 Due to the similarities in activities between the construction and decommissioning phases, they are both considered within this section.

Economic Effects

- 13.82 The Review of Renewable Electricity Generation Cost and Technical Assumptions Study Report^{xxvii} estimates the total capital cost of a wind farm in 2020 (construction and infrastructure provision, not pre-development planning, surveys etc.) would be around £1.8m per MW installed (for a high capacity MW scheme). On the basis of 20 turbines with a power output of 134MW, these figures would provide a capital cost for the Proposed Development of around £252m. The BEIS report, Electricity Generation Costs 2020^{xxviii} estimates that by 2025, construction costs for onshore wind will be around £1m per MW. For the Proposed Development, this would equal around £134m. A review of recent wind farm applications made to the Scottish Government (via the Energy Consents Unit) shows that a construction spend figure of around £1m per MW is commonly quoted.

- 13.83 The cost of manufacturing onshore wind turbines accounts for approximately 64% to 84% of the total installation costs. The remaining costs are attributed to grid connection, construction, and other expenses. The Renewable UK (RUK) Report (2015)^{xxix} supports this analysis as it calculates that turbine manufacturing accounts for 64.4% of total capital expenditure, balance of plant contracts account for 28.6% and grid connections account for 7.1%.
- 13.84 Using an expenditure distribution profile of 35% for onsite construction works, the Proposed Development could therefore generate capital expenditure of approximately £46.9 - 88.2m.
- 13.85 The RUK (2015) report states that 12% of the total capital construction costs of an onshore wind farm are typically spent locally (within the local authority area). This would equate to approximately £16.1 - 30.2m to be spent within the Highland Council area.

Wind Farm Decommissioning

- 13.86 There would be further local spend at the stage that the Proposed Development is decommissioned, although these works are not as complex or expensive as construction activities. Once the blades and towers are lowered by specialists, the subsequent breaking up and removal of the towers, blades and other parts is likely to be undertaken by smaller contractors.
- 13.87 Wind farm decommissioning bonds currently estimate costs for decommissioning works and site restoration (leaving tracks in situ) in the order of £15,000 per MW. This would amount to around £2.1m for the Proposed Development.
- 13.88 Decommissioning consultation would usually take place at the end of the Wind Farm's lifetime, although due to the private nature of the land, this will be up to the parties involved at that time.

Employment Effects

- 13.89 The RUK (2015)**Error! Bookmark not defined.** report in Table 6: GVA and Employment Ratios (Construction Phase) estimates that the weighted average shows there is one employee per £137,942 in turnover. If replicated during the construction of the Proposed Development this could result in employment across the Highland Council area ranging at around 122 FTE (£16.8m ÷ £137,942).
- 13.90 In addition to the predicted employment levels calculated above, it is expected that further employment would be sustained or created through induced and indirect economic effects. This would be likely to occur through the supply chain and the impact of wages and salaries on the local economy. This would enable the retention of existing employment related economic benefits in the local economy. Figures from the ONS from 2017^{xxx} identify a multiplier of 2.49 for employment in the onshore wind sector in Scotland. Therefore, every direct job supports 2.49 jobs in total, 1 for the direct job and 1.49 other jobs. The construction phase would support approximately 303 FTE jobs in total in the local (Highland) economy.

Significance Assessment

- 13.91 As noted above, the overall economy of the Highlands has a turnover of around £10,872m per annum and with total employment of 85,600, and could be considered to be of a medium sensitivity. The economic and employment effects from the Proposed Development at the Highland Council level is estimated to result in a Low magnitude of change, which would result in a Minor beneficial effect that is considered to be not significant. Within the energy sector of the Highlands, with a £768.4m annual turnover and with 3,000 employees, the beneficial effects will be more noticeable within this sector, but still of a low magnitude and not significant.

Economy and Employment Effects – Operation

Economic Effects

- 13.92 The Review of Renewable Electricity Generation Cost and Technical Assumptions Study Report^{xxvii} estimates the operating costs of a wind farm in 2020 would be around £93,000 per year, per MW installed for a 50MW+ scheme. On the basis of 20 turbines with a power output of 134MW, these figures would provide an annual operating cost for the Proposed Development of around £13m, and a lifetime operating cost of around £455.7m. The BEIS report, Electricity Generation Costs 2020^{xxxi} estimates that by 2025, operating costs for onshore wind will be around £23,500 per year, per MW installed. As such, for the Proposed Development, this would equal around £3.3m per year, or £115m over the lifetime of the development.
- 13.93 In terms of the geographical distribution of operations and maintenance expenditure, the RUK 2015 report states that 42% of expenditure occurs locally (local authority level). Therefore, it is predicted that the Proposed Development could result in approximately £1.4m in local spend each year (approximately £48.5m over the 35 year lifespan of the Proposed Development).

Employment Effects

- 13.94 There would be potential for both national and local employment for the maintenance of the Proposed Development. It is not anticipated that the Proposed Development would result in any job losses taking account of the current land use within the site and the not significant effect on tourism and recreation receptors as assessed below.
- 13.95 The BiGGAR Economics (2015)^{xxxii} report estimates (Table 9: GVA and Employment Ratios (Operations and Maintenance)) that average total turnover per employee during the operational phase of a wind farm is £121,935. If replicated during the operational phase of the Proposed Development, this could result in total employment of approximately 11 FTE (£1.4m ÷ £121,395) per annum.

Significance Assessment

- 13.96 Overall, the operation of the Proposed Development is predicted to have a low beneficial magnitude of change on the economy and employment at the local Highland Council

level. With the economy of the Highland Council area considered to be of medium sensitivity, this would result in a minor effect, which would be not significant.

Recreation and Tourism Effects – Construction and Operation

- 13.97 There is the potential for temporary adverse effects on the availability and accessibility to recreational destinations, recreational routes and activities during the construction of the Proposed Development. This is because the areas surrounding the construction and maintenance activities would be temporarily restricted and access to the site will be taken utilising the estate track to the south which runs from the A831 at Erchless Castle. In addition, access to recreational destinations and activities may be adversely affected by construction traffic and activities.
- 13.98 The Proposed Development could also have an adverse effect on amenity experienced by users of the recreational destinations, recreational routes and activities during construction and operation.
- 13.99 There is the potential for temporary adverse effects on tourism during the construction and operation of the Proposed Development. The construction and operation of the Proposed Development could affect the accessibility and amenity experienced by users of tourist attractions.
- 13.100 During the operational phase of the Proposed Development, the public would have unrestricted access to the site under the general 'right to roam' enshrined in the Land Reform (Scotland) Act 2003i. Temporary public access restrictions would only apply if it were necessary to undertake intensive maintenance or upgrading to on-site infrastructure including turbines and access tracks, in accordance with the CDM Regulations 2015. Therefore, there is considered to be no change to public access rights.

Significance Assessment

- 13.101 Overall, the construction and operation of the Proposed Development is predicted to have a medium adverse magnitude of change on tourism and recreation within the Study Area. With the tourism and recreation receptors of the Study Area considered to have a medium sensitivity, this would result in a moderate adverse effect, which would not be significant.

Mitigation Measures and Monitoring

Community Benefit Fund

- 13.102 The Applicant has committed to providing local community funding of £5k per MW per annum (index linked, or Scottish Gov equivalent) based on a frozen design of 134MW. This equates to £670,000 annually, during the 35 year operational phase of the Proposed Development. In line with the Scottish Government's Good Practice Principles for Community Benefits from Onshore Renewable Energy Developments (2013, revised 2019), the fund is intended to ensure local communities benefit socio-economically from the Proposed Development. While the Applicant supports all potential uses of the fund, decisions will rest with local communities. Current aspirations include bettering public

transport links in the area, improving broadband/mobile communications, upgrading roads/cycle routes, and building a swimming pool in Beauly.

- 13.103 The community benefit fund will follow current Scottish Government guidelines, with funds made available to local communities and projects. It is anticipated that the Ballach fund will be distributed through established Development Trusts – such as the Beauly Community Trust, Lairg District Community Initiative, and local Community Councils - enabling them to allocate resources based on local priorities. Area Community Plans may guide how the funds are used.
- 13.104 The fund is expected to deliver significant positive impacts within the local community council areas throughout the operational life of the development, with effects assessed as major/moderate and significant locally, though negligible at a broader scale.
- 13.105 The community benefit fund is anticipated to have a significant positive impact at the local level (within the community council areas managing the funds) throughout the operational life of the Proposed Development, affecting a receptor of medium sensitivity. Consequently, the effects will be beneficial, major/moderate, and significant within the covered area.

Skills Enhancement

- 13.106 The Applicant is adhering to progressive employment and recruitment practices. Engaging with education based up-skilling routes, such as internships described below:
- The Applicant has an existing relationship with Glasgow University, Glasgow Caledonian University, and Leeds University;
 - 1 Geography student in Glasgow, and between 4-6 students in Leeds are offered a 1 year paid internship with the Applicant annually;
 - These interns will be recruited back where possible, to progress their skills and knowledge; and
 - 3 full-time members of staff have been appointed in the last 3 years following the internship programme.

Cumulative Effects

Other Planned or Proposed Developments

- 13.107 Ballach windfarm is in close proximity to other developments operated by the Applicant, including Lairg II (consented), Strathory (Consented) and Acheilidh (planning). This increases the potential benefits that include:
- The use of the same local contractors during both construction and operations for all their developments;
 - Having Operations staff working on clusters of projects;
 - Providing multiple community benefits into the same community organisations, helping them leverage match funding on multiple income streams;
 - Sharing of infrastructure upgrades on key transportation routes; and

- Sharing of access route from Port to Site with other developers. At this stage, the Applicant is not permitted to declare the names of the other developers, but is stating that discussions are ongoing.

13.108 The Planned and Proposed Developments within the Study Area have been detailed in the baseline in Section 13.77

13.109 Consideration has been given as to whether any of the socio-economic receptors that have been taken forward for assessment in this chapter are likely to be subject to cumulative socio-economic effects in combination with other developments.

Cumulative Effects for other Aspects

13.110 **Chapter 6: Landscape & Visual Impact Assessment** undertook viewpoint analysis that indicated significant visual effects are likely to affect limited locations within approximately 15km distance from the Proposed Development (subject to a clear view of the proposed turbines). The magnitude of these effects from the Proposed Development, and scenario 2 (Existing, Consented, Applications and the Proposed Development) are detailed in Table 13.9.

Table 13.9: Landscape & Visual Impact Assessment Significant Effects

Receptor	Level of effect (from the Proposed Development)	Combined level of effect
Core Path RC30.01 Orrin Dam track (overlapped with Scottish Hill Track 283)	Substantial to Major (4.7km (RC30.01), 5.5km above Loch Orrin (SHT 283), to Minor to No View	Substantial (Fairburn, Fairburn Ext, PD), to Minor to No View
Core Paths south of Balblair	Major (0.5km – IN03.04), Major to Moderate (0.5km – IN20.05) to No View	Major to Moderate (PD – IN20.05) to No View
Core Paths around Kiltarlity	Major (0.4km – IN20.09), Moderate (1.1km – IN20.02) to No View	Major (PD, Fanellan substation) to No View

Core Paths around Conon Bridge and Maryburgh	Major to Moderate (0.3km – RC31.04), Moderate (RC09.02) to No View	Major to Moderate (PD) to No View
Core Paths around Contin	Moderate (RC10.01) to No View	Moderate (PD, Fairburn Ext) to No View
Core Paths around Strathpeffer	Major to Moderate (RC45.02), Moderate (RC45.01) to No View	Major to Moderate (PD, Fairburn, Fairburn Ext) to No View
Scottish Hill Track 279: Muir of Ord to Struy (Strathglass)	Substantial to No View	Substantial (PD, Fairburn, Fairburn Ext) to No View
Heritage Path A: Old Road to Milton of Redcastle	Major to Moderate (1.7km) to No View	Major to Moderate (PD, Fairburn Ext) to No View
Sustrans Cycle Route 1 – Inverness to Train	Major / Major to Moderate (3.3km – overlap with A835) to No View	Major / Major to Moderate (PD, Fairburn Ext) to No View
North Coast 500 Tourist Route	Major (2km – overlap with A832), Major to Moderate (0.6km – overlap with	Major / Major to Moderate (PD) to No View

	A862) to No View	
Great Glen Way / Loch Ness 360	Major (1km) to No View	Major (PD, Lynemore) to No View
Ord Hill (Cnoc Croit na Maoile)	Substantial to Major	Substantial to Major (Auchmore, Fairburn Ext, PD)
Heights of Brae Monument	Moderate	Moderate (Fairburn, PD)
Beaufort Castle	Major to Moderate, to No View	Major to Moderate (PD), to No View
Belladrum Estate	Moderate to No View	Moderate (PD, Fanellan substation) to No View
Brahan	Major to Moderate, to No View	Major to Moderate (PD, Fairburn Ext), to No View
Beinn a'Bhathaich Ard	Substantial to Major	Substantial to Major (PD and Fairburn Extension)

13.111 The sensitivity, magnitude, and significance of effect on these Socio-economic receptors has been detailed in Table 13.10 . This has taken into account the combined level of effect from the LVIA and how that translates to effects on Socio-economic receptors. The magnitude of effect will differ from LVIA to Socio-economic receptors as whilst they are the same receptor, the magnitude will be felt differently based on what is being assessed. Permanent effects are those that will exist across the operational phase, however will cease to exist during the decommissioning phase.

Table 13.10: Assessment of the identified Visual Receptors

Receptor	Sensitivity of Receptor	Magnitude of Effect	Significance of Effect
Core Path RC30.01 Orrin Dam track (overlapped with Scottish Hill Track 283)	Medium – Core Paths have regional status as tourism and recreational receptors.	Medium – the additional effect of the PD would be Substantial as there are several consented and existing wind farms surrounding the path. However, the PD alone is unlikely to incur a significant reduction in tourism or recreation due to the majority of the route being largely unaffected due to the intermittent nature of the visual effect.	Permanent Moderate adverse (not significant)
Core Paths south of Balblair	Medium – Core Paths have regional status as tourism and recreational receptors.	Medium - the additional effect of the PD would be major to moderate and significant to no view as there would be some visibility of Fanellan and the PD in parts (1km) of the IN03.04 – Lovat Bridge to Black Bridge and IN20.05 – East Lodge to West Lodge, Beaufort Castle routes (totalling 8.11km in length). However, the PD alone is unlikely to incur a significant reduction in tourism or recreation due to the rest of the route being largely unaffected.	Permanent Moderate adverse (not significant)
Core Paths around Kiltarlity	Medium – Core Paths have regional status as tourism and	Medium – the additional effect of the PD would be major	Permanent Moderate adverse (not significant)

	recreational receptors.	and significant to no view as there would be some visibility of Fanellan substation and the PD in parts (1.5km) of the IN20.02 – Belladrum Kennels to Belladrum Farm, IN20.06 – Bruaich Burn to Dounie Burn and IN20.09 – Farm Walk to school (totalling 2.89km in length). However, the PD alone is unlikely to incur a significant reduction in tourism or recreation due to the rest of the routes being largely unaffected.	
Core Paths around Conon Bridge and Maryburgh	Medium – Core Paths have regional status as tourism and recreational receptors.	Medium - the additional effect of the PD would range from major to moderate and significant to no view due to visibility of the PD in parts (0.8km) of RC09.01-05, RC31.01-05, RC13.08 (totalling 13.01km in length). However, the PD alone is unlikely to incur a significant reduction in tourism or recreation due to the rest of the routes being largely unaffected.	Permanent Moderate adverse (not significant)
Core Paths around Contin	Medium – Core Paths have regional status as tourism and recreational receptors.	Medium - the additional effect of the PD would range from moderate and significant to no view due to visibility of the Fairburn Extension and the PD in parts of	Permanent Moderate adverse (not significant)

		RC10.01, RC10.03 and RC10.05 (totalling 6.58km in length). However, the PD alone is unlikely to incur a significant reduction in tourism or recreation due to the rest of the routes being largely unaffected, as the reduced visual amenity is through open scrub and young forestry, which is set to increase over time.	
Core Paths around Strathpeffer	Medium – Core Paths have regional status as tourism and recreational receptors.	Medium – the additional effect of the PD would range from major to moderate and significant to no view due to visibility of Fairburn, the Fairburn Extension and the PD in parts of RC45.01-10 (totalling 14.22km in length). However, the PD alone is unlikely to incur a significant reduction in tourism or recreation due to the rest of the routes being largely unaffected, as the visual amenity is only reduced in gaps in vegetation.	Permanent Moderate adverse (not significant)
Scottish Hill Track 279: Muir of Ord to Struy (Strathglass)	Low – Scottish Hill Tracks have local status as tourism and recreation receptors.	High - the additional effect of the PD would range from substantial and significant to no view due to Fairburn, Fairburn Extension and the Proposed Development.	Permanent Moderate adverse (not significant)
Heritage Path A: Old Road to Milton of Redcastle	Medium – Heritage Paths have regional	Medium - the additional effect of the	Permanent Moderate adverse (not significant)

	status as tourism and recreation receptors.	PD would be major to moderate and significant to no view due to Fairburn Extension and the PD, however the PD alone is unlikely to incur a significant reduction in tourism or recreation due to the rest of the route being largely unaffected (1.7km of the 5km route).	
Sustrans Cycle Route 1 – Inverness to Train	High – Sustrans Cycle Routes have national status as tourism and recreation receptors.	Medium - the additional effect of the PD would range from major and significant to minor and not significant to no view due to Fairburn Extension and the PD). However, the PD alone is unlikely to incur a significant reduction in tourism or recreation due to the rest of the route being largely unaffected (3.3km of the 2,034km route).	Permanent Moderate adverse (not significant)
North Coast 500 Tourist Route	High – whilst the North Coast 500 Tourist route does not have national status, it has significantly boosted tourism in Scotland and will therefore be considered under a higher sensitivity.	Medium - the additional effect of the PD would be major / major to moderate and significant (for 0.6km), moderate and not significant (for 4.7km) to no view due to the PD. The PD alone is unlikely to incur a significant reduction in tourism or recreation due to the rest of the route being largely unaffected	Permanent Moderate adverse (not significant)

		(5.3km of the 830.4km route).	
Great Glen Way / Loch Ness 360	High – The Great Glen Way and Loch Ness 360 have national status as tourism and recreation receptors.	Medium - the additional effect of the PD would be major and significant (for approximately 1km) to no view due to Lynemore and the PD). However, the PD alone is unlikely to incur a significant reduction in tourism or recreation in tourism or recreation due to the rest of the route being largely unaffected (1km of the 120km route).	Permanent Moderate adverse (not significant)
Ord Hill (Cnoc Croit na Maoile)	High – Ord Hill has national status as a tourism and recreation receptor.	Medium - the additional effect of the PD would be substantial to major and significant. However, due to the primary views remaining unaffected, and the main tourist attraction being the prehistoric defensive architecture and domestic settlement, the PD alone is unlikely to incur a significant reduction in tourism or recreation.	Permanent Moderate adverse (not significant)
Heights of Brae Monument	Low – the Heights of Brae Monument has local status as a tourism and recreation receptor.	Medium – the additional effect of the PD would be moderate and significant. However, the monument's recreational/tourist amenity would not be significantly reduced by the PD due to pre-	Permanent Minor adverse (not significant)

		existing wind farms in the panorama.	
Beaufort Castle	High – Beaufort Castle is Grade I listed building and therefore has national status as a tourism and recreation receptor.	Low - the additional effect of the PD would be moderate and significant to no view due to Fanellan substation and the PD. However, due to the primary tourist attraction being the Castle, and this being unaffected by the PD, the PD alone is unlikely to incur a significant reduction in tourism or recreation.	Permanent Minor adverse (not significant)
Belladrum Estate	Medium – Belladrum Estate contains Grade B listed buildings and therefore has regional status as a tourism and recreation receptor.	Medium - the additional effect of the PD would be moderate and significant to no view due to Fanellan substation and the PD. However, due to the primary tourist attraction being the Estate, and this being unaffected by the PD, the PD alone is unlikely to incur a significant reduction in tourism or recreation.	Permanent Moderate adverse (not significant)
Brahan GDL	Low – Brahan GDL has local status as a tourism and recreation receptor.	High - the additional effect of the PD would be major to moderate and significant (open areas to the north and south of the GDL to minor and no view and not significant.	Permanent Moderate adverse (not significant)
Beinn a'Bhathaich Ard	Medium – Beinn a'Bhathaich has regional status as a	Medium - the additional effect of the PD would be substantial to major	Permanent Moderate adverse (not significant)

	tourism and recreation receptor.	and significant. The predicted impact on tourism and recreation receptors would be medium due to the pre-existing developments visible from the viewpoint.	

13.112 Table 13.10 details how the Significance Evaluation Matrix (in Table 13.4) has been used to provide the conclusion that there are no significant impacts on the listed Socio-economic, Tourism and Recreation Receptors within the Study Area.

13.113 **Chapter 11: Noise** concluded that noise impacts would be negligible and not significant due to the minimum compliance margin of 3.9dB with the simplified ETSU-R-97 limit of 35dB(A). A cumulative assessment predicted immission levels would remain below 35dB(A) by a minimum margin of 4.2dB. This residual effect was assessed to be negligible as the total levels demonstrated comfortable compliance with the noise limits. This contributes to the conclusion that there will be no significant cumulative effects in relation to noise from the Proposed Development.

13.114 **Chapter 12: Traffic and Transport** concluded that with the implementation of appropriate mitigation, no Significant residual effects are anticipated in respect of traffic and transport issues. This will therefore not impact Socio-economic, Tourism and Recreation receptors, as they will not be significantly negatively impacted by reduced levels of traffic and transport.

Residual Effects

13.115 The assessments presented in this chapter demonstrate that the Proposed Development would result in beneficial economic and employment effects that are of a minor scale and would not be considered to be significant in EIA terms. Considering the Proposed Development together with existing wind farms nearby, it is considered that the cumulative economic effect would have a moderate and not significant beneficial effect. This chapter demonstrates that the Proposed Development would result in adverse tourism and recreational effects that are of a minor-moderate scale, and would not be considered significant in EIA terms.

Summary

13.116 Table 13.11 summarises the potential residual significance of effects for the receptor groups in the Study Area. Whilst there are minor beneficial and moderate adverse effects, there are no significant effects on Socio-economic, Tourism or Recreational receptors from the Proposed Development. Therefore, the Proposed Development is not anticipated to result in any material changes to the existing socio-economic, recreational, or tourism baseline conditions. As such, no further mitigation or enhancement measures are considered necessary, and the residual effects are assessed as not significant in EIA terms.

This conclusion is supported by the absence of any identified significant beneficial or adverse effects across the assessed receptor groups within the Study Area.

Table 13.11: Summary of each type of receptor group in the Study Area

Receptor	Sensitivity of Receptor group	Magnitude of Impact	Significance of Effect
Employment			
The Highland Council Area	Medium	Low beneficial	Minor beneficial – Not Significant
Economy			
The Highland Council Area	Medium	Low beneficial	Minor beneficial – Not Significant
Tourism			
Study Area (15km)	Medium	Medium adverse	Moderate adverse – Not Significant
Recreation			
Study Area (15km)	Medium	Medium adverse	Moderate adverse – Not Significant

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Ballach Wind Farm

Environmental Impact Assessment Report Volume 1 Chapter 14: Other Issues

July 2025

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14 OTHER ISSUES

Introduction

- 14.1 This chapter considers potential effects and features which have been scoped out of the full assessment but raise pertinent points for the proposed development or link to other areas of assessment contained within Volume 1.
- 14.2 Specifically, the purpose of this chapter is to summarise the relevant subject matters to provide context to other areas of assessment. Topics addressed within this chapter include summaries of:
- Aviation Lighting, which includes a summary of the approach taken and layout agreed with the Civil Aviation Authority (CAA);
 - Results of the carbon calculator exercise to understand and report on the carbon payback of the proposed development, and;
 - Telecommunications.
- 14.3 The chapter is supported by a number of Technical Appendices (as set out within EIA Report Volume 4: Technical Appendices), comprising:
- Technical Appendix 4.1: Scoping Opinion
 - Technical Appendix 6.3: Night-time Assessment;
 - **Technical Appendix 10.4: Carbon Calculator**
 - Technical Appendix 14.1: Aviation Lighting Report
 - Technical Appendix 14.2: Forestry
- 14.4 Other relevant assessments are set out in Volume 1: Main Text and include:
- Chapter 6: Landscape and Visual;
 - Chapter 8: Ecology; and
 - Chapter 10: Geology, Hydrology and Hydrogeology.

Legislation, Policy and Guidance

- 14.5 Chapter 5 of the EIA Report sets out the planning policy framework that is relevant to the EIA process and the proposed development. The policies set out include those from the Highland-wide Local Development Plan (LDP), the Caithness and Sutherland LDP, relevant aspects of Scottish Planning Policy (SPP) (Scottish Government, 2014), Planning Advice Notes and other relevant guidance.
- 14.6 The principal legislation, policies and guidance relevant to this chapter are listed below. They include relevant local and national planning policy and guidance documents as well as technical guidance relating to the specific issues dealt with herein:

- The Highland-wide Local Development Plan (2012)
- Caithness and Sutherland Local Development Plan (2015)
- The National Planning Framework 4 (2023);
- Scottish Government Onshore Wind: Policy Statement (2017);
- Civil Aviation Publication (CAP) 764 Civil Aviation Authority (CAA) Policy and Guidance on Wind Turbines Version 6 (Feb 2016);
- CAA Policy Statement: Lighting of Onshore Wind Turbine Generators in the United Kingdom with a maximum blade tip height at or in excess of 150m Above Ground Level (dated 01/06/17);
- Air Navigation Order (ANO) Article 222;
- Onshore wind turbines: planning advice (2014); and
- Carbon calculator: technical guidance.

Consultation

- 14.7 As part of the Scoping process, a consultation exercise was undertaken to inform the design of the proposed development and to seek agreement on potential significant environmental effects that result from the proposed development as well as the scope of any assessment work required as part of this EIA.
- 14.8 The Scoping Opinion was received from Scottish Ministers on 20th of September 2024 (see Technical Appendix 1.2).
- 14.9 Consultation relevant to the assessment of 'Other Issues' was undertaken with The Highland Council, Defence Infrastructure Organisation (MoD), Highlands and Islands Airports Limited, Joint Radio Company (JRC), BT and NATS Safeguarding who all commented on aspects of methodology, sources of information, scope of assessment and cumulative development. No responses were received from the Civil Aviation Authority (CAA); therefore, it is assumed they have no comments to make on the scoping report. Aberdeen Airport, Edinburgh Airport, Glasgow Airport and Glasgow Prestwick Airport advised that the development is located outwith their respective safeguarding zones. A summary of consultation responses regarding issues discussed in this chapter is provided in Table 14.1.

Table 14.1: Consultation Responses

Consultee	Response Date	Consultation Response	Where is this addressed?
The Highland Council	12/11/2024	Carbon balance calculations should be undertaken and included within the EIA with a summary of the results provided focussing on the carbon payback period for the wind farm.	Carbon payback periods are discussed within this Chapter. Carbon balance calculations are presented in EIA Volume 4, Technical Appendix 10.4.
		The EIA should recognise TV, radio, telecommunication links, aviation interests	This information is presented within this chapter under Aviation

Consultee	Response Date	Consultation Response	Where is this addressed?
		including radar, MOD safeguards, etc.	Lighting, and Telecommunications.
		THC request that the applicant demonstrate what interests have been identified and the outcomes of any consultations with relevant authorities such as Ofcom, NATS, BAA, CAA, MOD, Highlands and Islands Airports Ltd, etc. through the provision of written evidence of concluded discussions / agreed outcomes.	Further information is presented within the Aviation section. The consultation responses from the specified consultees are presented within this table. Consultation has been carried out with CAA to understand requirements on aviation lighting.
		If there are no predicted effects on communication links as a result of the development, the EIA should still address this matter by explaining how this conclusion was reached.	This information is presented within this chapter under Telecommunications.
		The EIA should present a clear summary table of all mitigation measures associated with the development proposal.	A Schedule of Mitigation which presents the mitigation measures relevant to each environmental topic is presented within a dedicated chapter of the EIA Report, including Chapter 15: Other Issues. This includes a description of the measures envisaged to prevent, reducing and where possible offset any significant adverse effects on the environment
Ministry of Defence	25/10/2024	The MoD note the development falls within Tactical Training Area 14T (TTA 14), an area within which fixed wing aircraft may operate as low as 250 feet or 76.2 metres above ground level to conduct low level flight training. the MOD would require that conditions are added to any consent issued requiring that the development is fitted with aviation safety lighting and that sufficient data is submitted to ensure that structures can be accurately charted to allow deconfliction. Additionally, due to the development proposed including WTGs	The concerns of the MoD are addressed within this chapter under Aviation.

Consultee	Response Date	Consultation Response	Where is this addressed?
		exceeding heights of 150m aal, the proposal is subject to the lighting requirements set out in the Air Navigation Order 2016.	
Highlands and Islands Limited (HIAL)	30/10/2024	The development lies within the safeguarded area for the Instrument Flight Procedures (IFP) at Inverness Airport. The Easting and Northings will be required in the EIA report to allow an initial IFP impact assessment to be conducted and depending on the outcome, HIAL would reserve the right to submit an objection.	Provided as part of the application.
NATS	02/10/2024	The consultee has no safeguarding objection towards the proposed development.	Noted – no further action required.
BT	02/10/2024	The proposed development is unlikely to cause interference to BTs current and presently planned radio network.	Noted – no further action required.

Scope of Assessment

Effects Assessed in Full

14.10 The following effects were considered to be potentially significant in relation to “Other Issues” at the scoping stage. The following have been assessed in full within this chapter:

- Aviation Lighting;
- Forestry;
- Telecommunications, and;
- Carbon Balance.

Effects Scoped Out

14.11 Effects within topics which have been scoped out include the following:

Air Quality

14.12 No adverse air quality impacts are anticipated from the operation of the proposed development given the rural nature of the site and the distance from sources of air pollution. Additionally, due to the short term, temporary nature of the construction and decommissioning phases, air is scoped out of the EIA Report.

- 14.13 Potential impacts on air quality from dust during the construction and decommissioning phases will be addressed through standard mitigation techniques to be agreed as part of a Construction Environmental Management Plan (CEMP) post-consent. No further specific assessment is proposed.

Ice Throw

- 14.14 During icing conditions there are two types of risks associated with ice collecting on turbines:
- Fragments are thrown off from the operating turbine due to aerodynamic and centrifugal forces; or
 - Ice falls down from the turbine when the blades are stationary.
- 14.15 If there is significant ice build-up on turbine blades, it can be detected by the machines' own sensors and operation curtailed until it melts.
- 14.16 The Scottish Government states the following in its Onshore Wind Farms: Planning Advice (2014) regarding the likelihood of ice build-up posing a risk to the public:

"The build-up of ice on turbine blades is unlikely to present problems on the majority of sites. When icing occurs the turbines' own vibration sensors are likely to detect the imbalance and inhibit the operation of the machines. Site operators also tend to have rigorous, and computer aided maintenance regimes and control rooms can detect icing of blades. Danger to human or animal life from falling parts or ice is rare."

- 14.17 As an added precaution, warning signage may be placed around the site to make the public aware of any risks.

Major Accidents and Disasters

- 14.18 The proposed development is not located in an area with a history of natural disasters (e.g., earthquakes, volcanic activity, and extreme weather events). The likelihood of peat slide risk occurring during the construction phase is not considered to be significant with Technical Appendix 10.3 indicating that there is a low to negligible risk of peat instability across the site.
- 14.19 With regards to mechanical and structural failure in the event of storms or extreme weather events, modern turbines are fitted with sensors which will shut down operations if wind speeds are too high. This is to prevent damage and excessive wear on both blades and internal mechanisms within the turbine.
- 14.20 With regards to wildfires, a full emergency procedure plan would be in place to deal with the emergency. Turbines are fitted with smoke detectors, to allow detection as early as possible. The turbines installed would also be fitted with a fire suppression system, to help limit the spread of any fire. In the event of a fire, the turbine would be fully shut down and isolated from the grid system, the area around the turbine restricted and fire brigade alerted to deal with the incident until such time as the fire was extinguished.

- 14.21 The construction and operation of the proposed development would be managed within the requirements of a number of health and safety related Regulations, including the Construction (Design and Management) Regulations 2015 and the Health and Safety at Work etc. Act 1974.
- 14.22 In conclusion, the development is not considered vulnerable to any major accidents or disasters that could result in likely significant environmental effects.

Shadow Flicker

- 14.23 Shadow flicker is an event where, under certain combinations of geographical position and time of day, the sun may pass behind the rotors of a wind turbine and cast a shadow over neighbouring properties. When the blades rotate, the shadow flicks on and off. It only occurs inside buildings where the flicker appears through a narrow window opening.
- 14.24 The Highland Council Onshore Wind Energy Supplementary Guidance (November 2016) requires wind energy schemes to be designed to avoid causing shadow flicker at regularly occupied buildings not associated with the development.
- 14.25 There is no standard guidance for assessing shadow flicker in Scotland however, as per THC guidance, a shadow flicker assessment is required if any regularly occupied properties not associated with the development lie within 11 x rotor diameter of the wind farm. Northern Ireland Department for Infrastructure - Best Practice Guidance to Planning Policy Statement (PPS) 18 Renewable Energy (2009, updated 2019) recommends that for properties within 500 m of turbines, shadow flicker should not exceed 30 hours per year or 30 minutes per day.
- 14.26 With a tip height of 230m, candidate turbine specifications suggest a likely rotor diameter of 163m. Applying a 11-rotor diameter distance from each turbine gives an allowance of 1793m where effects may occur. The closest inhabited property lies approximately 2.5km from the nearest turbine.
- 14.27 When taking this into consideration, it is unlikely that significant effects would occur, however in the unlikely event of shadow flicker complaints, the Applicant would be willing to commit to a shadow flicker management plan to be agreed with THC post-consent. Mitigation measures could include provision of blinds, curtains or vegetation as deemed appropriate.

Summary of Technical Topics

Aviation Lighting

- 14.28 The Applicant commissioned WPAC to produce an aviation lighting and mitigation report and agree a lighting scheme that meets all requirements of the Civil Aviation Authority (CAA) and Defence Infrastructure Organisation (DIO).
- 14.29 In correspondence dated 20th November 2024, the CAA agreed to the proposed Aviation Lighting Scheme, the design of which is summarised below and detailed in full in Technical Appendix 14.1.

- 14.30 The site proposed site is located in MOD Low Flying Area (LFA) 14T which includes Tactical Training Area (TTA) 14 by day and the Highland Restricted Area (HRA) by NOTAM. This is the busiest LFA and converts to Night Allocated Region (NAR) 1BE during the hours of darkness. Although primarily a fast jet training area, the airspace is also used by NATO tactical aircraft and helicopters day and night. Military fast jet aircraft operate down to 250ft (76.2m) and military transport aircraft down to 150ft (46m) above ground level.
- 14.31 To fulfil all CAA and MoD requirements, all 15 turbines will be fitted with Infra-Red (IR) Lights (at hub height), and 6 dominant, by position, turbines fitted with medium intensity ANO 2000/200cd Visible Red Lights to the nacelles. MOD IR lights have been developed to be invisible to the public at large but very detectable to aircrew night vision aids.
- 14.32 The proposed development is located under unregulated airspace, which is designated Class G by the CAA and away from any civil or military airfields.
- 14.33 A total of six out of 20 of the proposed turbines will be fitted with visible aviation lights to fulfil the CAA's requirements, which state that all perimeter turbines must be lit unless removing a light leaves a gap of less than 900m between remaining lit turbines. These requirements have allowed for the removal of lights from nine perimeter turbines while maintaining a gap of less than 900m between remaining lit turbines.
- 14.34 The visible aviation lights have a maximum brightness of 2000 candela (cd) when viewed on a horizontal plane. This figure is reduced significantly as the viewing angle changes. For example, the brightness is reduced by 50% to 1000cd when viewed from 1 degree below the horizontal (as outlined in Technical Appendix 14.1 within EIA Volume 4).
- 14.35 Distance from aviation lights also reduces their perceived brightness, a phenomenon known as attenuation. Measurements indicate that attenuation is typically in the order of 10 to 20% but can be as much as 75% depending on atmospheric conditions.
- 14.36 Visible aviation lights are only operated at their maximum brightness when visibility is less than 5km in all directions, such as during thick mist or heavy rain. In all other conditions, which account for approximately 95% of the time, visible aviation lights are operated at 200cd, or 10% of their maximum brightness. Assessing Met Office records from Inverness Airport suggests that maximum brightness is only required for approximately 5% of the time.

Forestry

- 14.37 Given the open nature of the site, there is very little in the way of forestry. Small areas of plantation however can be found close to the site entrance and along the proposed, upgraded access track to site as outlined within Technical Appendix 14.2.
- 14.38 Felling to allow the access track upgrading would result in a woodland loss of 4.79 ha of conifer woodland and 0.33 ha of broadleaved woodland.
- 14.39 Felling the edges of mature compartments would open the remainder of the tree crop to windblow therefore felling to windfirm boundaries would require a further 11.60 ha of management or temporary felling of productive conifer, which would be replanted in situ. Of this area 8.53 ha is recorded as native pinewood within NWSS. The current species within this native pinewood area includes Sitka spruce and lodgepole pine planted in 1973, an

area of Scots pine planted in 1973 with mixed conifer replanted in 2016. Smaller areas of Sitka spruce were replanted in 2013.

- 14.40 As part of the proposed development, the area of woodland lost would be replanted off-site in accordance with the implementation guidance to CoWRP. The new woodland would be to at least the area of woodland lost resultant from the proposed development. The new woodland would meet the requirements of UKFS.
- 14.41 In upgrading the existing forest track to the standard required for the construction and operation of the Proposed Development there would be a permanent woodland loss of 5.12 ha.
- 14.42 The Applicant is committed to providing suitable compensatory planting at a location yet to be determined. The compensatory planting arrangements would be agreed with Scottish Forestry and THC prior to commencement of the construction stage.

Telecommunications

- 14.43 Telecommunication links across the Site were investigated as part of initial constraint investigations. A mobile telecommunications link is located within the site boundary and a 200m buffer was applied.
- 14.44 The Office of Communications (Ofcom) is responsible for the licensing of two-way radio transmitters. It holds a register of most microwave links and will therefore be consulted in order to establish baseline conditions.
- 14.45 However, as not all microwave links are published, system operators will also be individually consulted on the proposed development's potential to cause electromagnetic interference.
- 14.46 Given the distance between the links and the turbine envelope, it is considered that the turbines are located suitably out with the telecoms links and therefore will not result in any effects upon these assets.
- 14.47 Furthermore, no consultees have raised concerns regarding telecommunication links, as further detailed in the Scoping Opinion (see EIA Report Volume 4, Technical Appendix 1.2), therefore issues relating to telecommunications have not been considered further within this assessment.

Carbon Balance

- 14.48 The results described in the following section use the Scottish Government's Carbon Calculator⁽¹⁾ for wind farms on peat to estimate the benefit of displacing conventionally generated electricity in the grid relative to the predicted direct and indirect emissions of carbon resulting from the construction and operation of the proposed development. This includes losses of stored carbon from felled forestry and affected peatland. The Carbon Calculator also provides an estimate of the carbon payback time for the proposed development.

- 14.49 The Scottish Government's Carbon Calculator was designed in response to concerns on the reliability of methods used to calculate reductions in greenhouse gas emissions from large scale wind farm developments on peat land. The methodology used considers the wider potential impacts on peat land hydrology and the decomposition of organic matter. The baseline assessment of carbon stored in soils at the proposed development has been calculated using site-based data and standard conversion factors.
- 14.50 The results of the Carbon Calculator for the proposed development show that it is estimated to produce annual carbon savings in the region of 99,845 tonnes of CO₂e per year, and lifetime savings of 3,494,575 t of CO₂e. These savings come about through the displacement of grid electricity, based on the current average grid mix.
- 14.51 The assessment of the carbon losses and gains has estimated an overall loss of 1,546,340 tonnes of CO₂e, mainly due to embodied losses from the manufacture of the turbines and provision of backup power to the grid, which should be reduced through the provision of on-site energy storage. As such, the estimated payback time (against grid mix) of the proposed development, using the Scottish Government's Carbon Calculator, is estimated at 2.6 years, with a minimum/maximum range of 1.1 to 2.7 years.

Cumulative Effects

- 14.52 There is no potential for significant cumulative impacts in relation to aviation and telecommunications when considered alongside other proposed developments in the local area. There is, however, consideration of cumulative visual effects arising from the requirement for aviation lighting which is addressed further in EIA Report Chapter 6: Landscape and Visual.

Residual Effects

- 14.53 Following implementation of mitigation through design and best practice as well as the mitigation measures identified above, it is considered that there would be no significant effects on aviation, telecommunications and climate change.

Summary

- 14.54 The topics of Aviation Lighting, Forestry, Telecommunications and Carbon Balance have been discussed in this chapter along with associated mitigation where required. This chapter has therefore provided a summary of results, relevant information, and viable solutions agreed with consultees where necessary.

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Edinburgh

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Environmental Impact Assessment Report Volume 1 Chapter 15: Schedule of Mitigation

July 2025

15 SCHEDULE OF MITIGATION

Introduction

- 15.1 This chapter sets out a Schedule of Mitigation relevant to the proposed development, including all embedded and additional mitigation set out within Chapter 6: Landscape and Visual to Chapter 14: Other Issues.
- 15.2 This chapter therefore acts as a succinct guide as to the mitigation which would be required in order to avoid or reduce likely significant environmental effects so that they would be acceptable. It may act as a basis upon which detailed post-consent mitigation is based upon and would be a founding basis upon which to produce a detailed and comprehensive Construction Environmental Management Plan (CEMP) to be produced and agreed prior to construction.
- 15.3 It also includes monitoring measures to understand future baseline and effects of the proposed development, where relevant and applicable.
- 15.4 Mitigation from each chapter is summarised in the tables overleaf. These tables set out the nature of the mitigation measure, and whether it is required pre-construction, during construction, or relates to post-construction monitoring. Justification for each of the mitigation measures is contained within the relevant section of the EIA Report.

Table 15.1: Schedule of Mitigation

Subject	Detail of mitigation or monitoring commitment	Stage of Mitigation
Chapter 6: Landscape and Visual		
Mitigation Through Design	Where possible, visual screening has been prioritised, along with efforts to avoid overlapping or 'stacked' turbines, isolated outliers, and to develop a layout that harmonises with existing and proposed wind turbines through considered design, placement and proposed height.	Design
	The turbines would be a uniform, semi-matte grey colour (no company logos or advertising) to reduce their contrast with the background sky and minimise their reflectivity.	Design
	The proposed development has adopted a cardinal lighting design where only six of the outermost turbines are lit (T2, T3, T7, T14, T17, and T20).	Design
	Site infrastructure including the construction compound, substation and energy storage compound have been designed and located to maximise the screening effects of the surrounding landscape and would be constructed in low contrast materials where possible.	Design
Night-Time Visual Effects	Mitigation of nighttime visual effects from Aviation Lighting in set out in EIAR Volume 4, Technical Appendix 14.1, and is summarised in Chapter 14: Other Issues below.	Operation
	Visibility sensors to be installed on relevant turbines to measure the prevailing atmospheric conditions and meteorological visibility range. Should atmospheric conditions mean that visibility from the turbines within the Site is greater than 5km from the proposed development, CAA policy permits lights to operate in a lower intensity mode, being a minimum of 10% of their capable illumination.	During Construction and Operation
Access Infrastructure	On completion of Site construction, the Site entrance and access tracks would be cleared of any construction signage and left in a tidy and co-ordinated condition with verges restored and field boundary fencing neatly tied into new gates / access details. A post-consent detailed design of the site entrance would be combined with a Landscape Plan setting out tree retention and vegetation management.	During Construction and Operation
Development Decommissioning	When the proposed development is decommissioned, the turbines would be removed from the Site, and the hardstanding would be restored in accordance with a restoration plan. Sote tracks would be 'softened'. A Site Restoration Plan will be submitted for approval by THC before construction begins.	Decommission
Chapter 7: Cultural Heritage		
Mitigation Through Design	The design process has included consideration of turbine sitings and construction works to avoid areas of known heritage assets, and siting of turbines to avoid impacts through changes within the setting of designated heritage assets.	Design

Subject	Detail of mitigation or monitoring commitment	Stage of Mitigation
Fieldwalking Investigations	It is proposed that a supplementary archaeological walkover targeted to all turbine locations and access tracks is required prior to construction. This will identify if there are any unrecorded upstanding remains that would have direct physical impacts to them from the construction phase of the proposed development. Should archaeological remains be identified, consultation will be undertaken with Highland Council's Archaeologist, to assess whether archaeological investigation would yield results which could provide information to the archaeological record. If archaeological investigation was warranted, the scope of such works would be agreed with Highland Council prior to commencement.	Pre-construction
Archaeological monitoring during construction	It is proposed that construction of the main access track from the A831 until it reaches the higher and steeper ground of Beinn a' Chlaonaidh will be subject to targeted archaeological monitoring and recording during groundworks to preserve any archaeological remains by record. With the archaeological monitoring and recording methodology to be set out in an Archaeological Project Design that is to be agreed with Highland Council Historic Environment Team (HCHET) and will follow the standards and guidance from the Chartered Institute for Archaeologists (CIfA 2023). Should the archaeological remains prove to be more extensive and complex, this may require a programme of open area excavation, to be determined by HCHET. Should this be required, groundworks related to construction will temporarily cease in this area to allow for open area excavation and recording following the methodology of the approved Archaeological Project Design.	During Construction
Avoidance of archaeological assets	It is proposed that all non-designated heritage assets within the site but outside the construction footprint will not be directly physically impacted during the construction phase of the proposed development.	
Demarcation of known heritage assets	It is proposed that should the design of the proposed development change and as such construction work is required within 20m of non-designated heritage assets the assets will be demarcated by an archaeological contractor. Demarcation will take the form of visible barriers or fencing placed 5m from the edge of the heritage assets. The methodology and details of demarcation required will be set out within the Archaeological Project Design for the archaeological monitoring, to be agreed with HCHET.	
Chapter 8: Ecology		
Good Practice Mitigation Measures	Generic mitigation measures that would apply during construction and operational phases are outlined below. The following measures represent general best practice and would reduce potential effects on a number of receptors:	Pre-construction, during construction and postconstruction

Subject	Detail of mitigation or monitoring commitment	Stage of Mitigation
	• Not more than 16 weeks prior to construction of the Proposed Development and within the correct survey season, the Applicant will engage a Suitably Qualified Ecologist (SQE) to undertake a series of repeat ecological surveys to update the baseline data. • The aim of the repeat ecological surveys will be to provide up to date information in order to confirm required mitigation, including the need for protected species licensing and species protection plans for the site. The result of the pre-construction surveys will be communicated to the Contractor by the SQE and will be fed into the CEMP. The recommendations will ensure compliance with the necessary wildlife legislation. • Adherence to SEPA Guidance Pollution Prevention (GPP) in respect to working in and around watercourses. • Adherence to NatureScot (formally SNH) guidance on upland track construction. • All vehicles will be restricted to 5 mph while within 100m of watercourses. • Avoidance of unnecessary disturbance to habitats by minimising the extent of vegetation clearance and other construction practices. • Restriction of plant and personnel to a prescribed working corridor through the use of temporary barriers or fences, minimising damage to habitats and potential direct mortality and disturbance to species. • Adherence to best practice guidance with respect to culvert and bridge design. • Any trenches dug during construction and decommissioning operations will be covered at the end of each day to prevent mammals becoming trapped. Alternatively, mammal ramps will be positioned in such a way that trapped mammals may be allowed to escape. • All exposed pipes and trenches will be checked each morning prior to starting construction activities. If trapped animals are found, the SQE will be contacted. • Ecological toolbox talks will be provided to all new site staff on the potential presence of protected species and any measures that need to be undertaken.	
OHMP & OPMP	An Outline Habitat Management Plan (OHMP) (EIAR Volume 4, Technical Appendix 8.4) and an Outline Peat Management Plan (OPMP) (EIAR Volume 4, Technical Appendix 10.3) details the proposed mitigation and enhancement measures designed to reduce negative impacts. In summary, these proposals include: • Reduction of grazing through deer management; • Peatland restoration of suitable areas amounting to 522Ha;	During Construction, Operation and Decommission

Subject	Detail of mitigation or monitoring commitment	Stage of Mitigation
	• Translocate any surplus excavated peat within the Developable Area; • Riparian woodland creation amounting to 7Ha; and • Native woodland creation amounting to 39Ha.	
Bats	All site lighting (if required) will be directed to the area required and light spill minimised. No lighting of woodland edges or tree/structures with suitable features should be undertaken.	During Construction, Decommission
	Prior to the small amount of felling, and within the correct survey season, all trees within the felling plan will be further surveyed from the ground to determine the potential to support roosting bats. Should feature be identified trees will be inspected at height and presence / absence surveys will be conducted where necessary.	During Construction
Operational Mitigation	Monitoring of the proposed mitigation and enhancement activities outlined above will be carried out to measure effectiveness during the lifespan of the windfarm (35 years).	During Construction, Operation
Chapter 9: Ornithology		
Outline Habitat Management Plan	An Outline Habitat Management Plan (OHMP) for the site is included in Volume 4: Technical Appendix 8.4, and sets out mitigation measures for peatland, woodland habitats, fish fauna and protected species.	Pre-Construction
Toolbox Talk	A 'toolbox talk' will be delivered by a suitably experienced ECoW to ensure that all contractors working on the Development are aware of ornithological sensitivities and relevant legislation.	During Construction and decommission
Wildlife and Countryside Act 1981	The main legislation which embedded mitigation needs to comply with is the Wildlife and Countryside Act 1981 (as amended). Under this legislation, it is an offence to kill or injure any bird, or to damage or destroy nests and eggs. Breeding species listed on Schedule 1 of the Act are afforded extra protection from disturbance while breeding	During Construction, Operation, Decommission
Survey for Breeding Birds	A pre-construction survey of areas of suitable habitat for breeding divers within 1km of works will be completed ahead of any operations, by a suitably experienced and Schedule 1 licenced qualified Ecological Clerk of Works (ECoW), to check for active nests (or other evidence of breeding). where construction works are required during the breeding bird season (March to August inclusive), the area within 500m of works will be surveyed ahead of any operations, by a suitably experienced and qualified ECoW, to check for active nests of all bird species.	Pre-construction, Decommission
	If any nests (or breeding territories of Schedule 1 species) are identified during pre-construction surveys, an exclusion zone around the nest/breeding territory will be established (with the distance appropriate to the species and in consultation with NatureScot as deemed necessary)). No works will be permitted within the exclusion zone and no personnel or vehicles will be allowed to enter	Pre-construction, Decommission

Subject	Detail of mitigation or monitoring commitment	Stage of Mitigation
	or pass through until the ECoW has confirmed that the chicks have fledged or the breeding attempt has failed. Where this is not feasible, NatureScot will be contacted and further mitigation measures agreed to ensure that nesting birds are not harmed and those species listed on Schedule 1 not disturbed either.	
Breeding Bird Disturbance	Where construction works are required during the breeding bird season, further mitigation measures to limit the impact of vehicular disturbance will be considered and implemented where necessary.	During Construction and decommission
Black Grouse	No works within 750m of black grouse leks are to be permitted until two hours following sunrise between mid-March and mid-May inclusive to safeguard lekking black grouse.	During Construction and decommission
Significant Operational Works in Breeding Season	Routine maintenance required during operation is expected to be minimal, limited to small areas and of temporary duration. However, should significant operational works be required during the nesting bird season, or any Schedule 1 nesting birds be observed during the operational phase, it is recommended that the mitigation measures outlined above for the construction phase are implemented to protect breeding birds and ensure compliance with the relevant legislation.	Operation
Monitoring	It is proposed that ornithological monitoring should take place post-construction, as outlined below and within OHMP (Technical Appendix 8.4): ▪ Year-round collision monitoring, to determine whether actual bird collisions are in line with predicted values; and ▪ Breeding bird surveys with a focus on waders, divers, and Schedule 1 listed raptors, to determine the operational impacts on breeding success.	Operation
Chapter 10: Geology, Hydrology and Peat		
Buffers	A 50m buffer has been maintained around all surface watercourses, except where watercourse crossings are required.	Design
	Application of appropriate buffers (250m) around identified GWDTE	Design
Peatland	Avoiding the placement of turbines in peat greater than 1m in depth where possible	Design
	Avoidance of high-quality peatland as identified within the NVC and Peatland Condition Assessment.	Design
	No infrastructure is proposed to be constructed in or near areas of medium or high peat landslide risk.	Design
Floating Tracks	It is proposed that floated access tracks will be placed where peat exceeds 1m in depth.	Design

Subject	Detail of mitigation or monitoring commitment	Stage of Mitigation
Construction Environmental Management Plan	Rigorous construction environmental management procedures will be implemented in line with a Construction Environmental Management Plan (CEMP) (see below) to ensure appropriate protection of the above-noted watercourses, and all other surface water receptors.	Pre-Construction
Water Quality	The appointed Contractor will undertake pre-construction baseline water quality sampling and analysis of the principal surface water receptors (see EIA Volume 1 chapter 10). The Contractor will implement a programme of monthly monitoring and analysis of the water quality of these watercourses / features during the construction period to ensure that they are not being impacted by the construction works. The full scope of monitoring will be detailed within the CEMP.	Pre-Construction, During Construction, Decommissioning
Pre-Construction Site Investigations	To determine ground and groundwater conditions across the site, pre-construction site investigations will be conducted. These investigations will focus on areas where construction is proposed to be undertaken and will allow the turbines and the associated infrastructure to be micro-sited away from any areas considered to be unsuitable, such as areas of contamination (unlikely), areas of deeper peat wherever possible, or where there are significant groundwater flows.	Pre-construction
	Investigations will also include targeted monitoring and assessment of the groundwater levels and flows beneath the site. This will allow for micro-siting and to assist in the detailed design of infrastructure and selection of appropriate materials for use during the construction process. Investigations within the borrow pit search areas will allow appropriate selection of specific extraction areas, to avoid or minimise any adverse effects associated with quarrying activities.	Pre-construction
	No excavation will occur until site investigations have been undertaken to assess the suitability of the areas and refine the assessment of peat slide risk. For example, areas of deeper peat, if found to be present within the search areas would be avoided, thereby reducing the peat slide risk. If it is determined that no suitable excavation site within any given search area can be identified, then no excavation will occur at that search area.	Pre-Construction
Peat Management	Any peat excavated will be re-used on site as set out in the Outline Peat Management Plan (EIA Volume 4, Technical Appendix 10.3).	During Construction, Decommissioning
Pollution Impact	All earthmoving works or similar operations will be carried out in accordance with BSI Code of Practice for Earth Works BS6031:1981.	During Construction, Decommissioning
	All watercourse crossings and site discharges will be regulated under the CAR licensing regime and all necessary licences will be sought from SEPA prior to the commencement of any operations on site.	Pre-Construction, During Construction, Decommissioning
	While it is acknowledged that best practice to minimise run-off would be to undertake construction and dismantling during the driest period of the year, given the location of the proposed development site, there are likely to be significant periods of rainfall throughout the	Pre-Construction, During Construction, Decommissioning

Subject	Detail of mitigation or monitoring commitment	Stage of Mitigation
	year. Therefore, site management will check the local weather forecast daily and prime all site staff to ensure that everyone is aware of their responsibilities to maintain the pollution control system during wet weather or suspend sensitive operations during adverse weather conditions.	
	All fuel and other chemicals will be stored in accordance with best practice procedures, including being kept within a designated fuelling site located at a safe distance from existing watercourses and in appropriate impermeable bunded containers/areas, which will be defined within the outline CEMP. These will be designed to capture any leakage, whether from a tank or from associated equipment such as filling and off-take points, sighting gauges etc., all of which will be located within the bunded area.	During Construction, Decommissioning
	Oil booms and soakage pads will be maintained in all work areas and spill kits kept in all vehicles to enable a rapid and effective response to any accidental spillage or discharge. All construction staff will be trained in the effective use of this equipment.	Pre Construction, During Construction, Decommissioning
	Construction vehicles and plant will be regularly maintained and all maintenance, fuelling and vehicle washing will be undertaken on appropriate impermeable surfaces away from watercourses to minimise risks of leaks to soil and surface waters.	During Construction, Decommissioning
	Concrete batching will be undertaken in a designated area within a temporary construction compound. The Contractor will develop a method statement to address the on-site batching of concrete and the transport, transfer, handling and pouring of liquid concrete at foundations. It is likely that water will require to be abstracted to facilitate any on-site batching processes. A separate CAR licence application for any water abstractions required will be made to SEPA at the appropriate point prior to the commencement of construction.	Pre-Construction, During Construction, Decommissioning
	Cement, grout and unset concrete will not be allowed to enter the water environment. No operations involving concrete transfer between vehicles or into vehicles will take place within 30m of watercourses and water bodies.	During Construction, Decommissioning
	Any vehicles used for delivery of concrete will only be washed out at locations to be agreed with SEPA. Excess concrete or wash-out liquid will not be discharged to drains or watercourses on site or at compounds. Drainage from washout facilities will be collected and treated or removed to an appropriate treatment point / licensed disposal site.	During Construction, Decommissioning
	Where topography dictates that working platforms are needed, these will be formed to ensure that surface water drains away from watercourses.	During Construction, Decommissioning
	The requirement for dewatering will be minimised in all locations by timely and efficient excavation of the foundation void and subsequent concrete pouring and backfilling.	During Construction
Integrity of Banking	Construction staff will be instructed to maintain a sufficient distance from the watercourses located on site to ensure there is no incursion towards them.	During Construction, Decommissioning

Subject	Detail of mitigation or monitoring commitment	Stage of Mitigation
	Water crossing designs will follow best practice to prevent impact on the integrity of the banking of watercourses. Detailed design will be included within a Construction Method Statement to be agreed with The Highland Council and SEPA and detailed watercourse crossing designs will be regulated under the CAR licensing regime.	Design, Pre-Construction, Decommissioning
GWDTEs	Robust silt mitigation plans will be put into place in order to minimise the risk of pollution events or sedimentation deposition within the GWDTE areas. An Ecological Clerks of Works (ECoW) will also be employed to ensure that mitigation measures are proactively put in place and maintained to an acceptable standard for the duration of the construction works.	During Construction, Decommissioning
	Turbine infrastructure and associated access tracks have been sited in locations below the topographical level of the GWDTE's that have been identified, which will ensure that the natural flow of water within the communities is not disrupted.	Design
Direct Discharge of Untreated Foul Drainage	Welfare facilities will either connect directly to self-contained storage tanks or to a septic tank, subject to approval from SEPA.	During Construction, Decommissioning
	If self-contained or septic tanks are to be used, these will be maintained and emptied on a regular basis by a suitably licensed contractor.	During Construction, Decommissioning
Surface Water Drainage	A detailed Drainage Strategy (DS) will be developed and agreed with SEPA and The Highland Council. The DS will detail the site drainage design, including the type of surface to be used for new access tracks, the soft engineering and habitat enhancement measures proposed to slow surface water flows and any necessary ponds, swales, cross drains, and bunds, to ensure that run-off from hard surfaces will be controlled. The DS will also detail the dimensions and final design of proposed watercourse crossings which will be designed to maintain continuous flows.	Pre-construction, Operation
Fluvial Geomorphology	The detailed design for the watercourse crossings, and the requirements for CAR authorisations or licenses, will be agreed with in order to ensure that any potential impacts are minimised.	Pre-construction, Operation
Chapter 11: Noise		
Construction times	Construction activities will be scheduled, unless otherwise agreed, from Monday to Friday 07:00 to 19:00 and Saturday 07:00 to 13:00. Unattended plant equipment should be kept to a minimum. Construction activities outside of these times, short term high transient noise events, or activities relatively close to noise sensitive receptors (NSRs) should be scheduled in consultation with the residents to minimise their inconvenience	During construction
Construction Noise Management Plan	As part of a Construction Environmental Management Plan (CEMP) a Construction Noise Management Plan (CEMP) would be produced. The plan would be taken forward for all construction works and any post-construction works of a similar nature that are associated with the proposed development (e.g. maintenance). The plan would include a clear construction schedule detailing the equipment to be used and the following information:	Pre-construction and post-construction

Subject	Detail of mitigation or monitoring commitment	Stage of Mitigation
	- Detailed plan showing how permitted working hours will be adhered to; - Selection of quiet equipment and possibly acoustic barriers near noisy sources to ensure construction noise limits are met - A detailed plan on community relations including a Stakeholder Engagement Plan (SEP) including the setting up of a complaint phone line, a procedure to notify residents and the EHO of any necessary work outside of the permitted working hours and an approach to the investigation of complaints.	
Operation	The assessment of operational immission from the Proposed Development assumed that the turbines would operate in their standard mode of operation using rotor blades fitted with trailing edge serration. The results demonstrated that immission from the proposed turbines would be able to meet a simplified 35dB(A) ETSU-R-97 noise limit at all receptors by a comfortable margin. Therefore, operational noise assessments considering the Proposed Development in isolation demonstrate that no mitigation is required.	N/A
Chapter 12: Traffic and Transport		
Abnormal Indivisible Loads Route	On narrow sections of the A831, there will be a requirement to upgrade sections of the road to accommodate abnormal indivisible load traffic (AIL) associated with the wind turbine components. It is proposed that all road improvement works would be undertaken in full consultation with THC, with a specialist traffic management contractor employed to minimise the potential impact on existing road users as far as practicable. It is considered that the works on the A831 and the mitigation works / traffic management required to construct the upgrades can be secured by a suitably worded planning condition with THC.	Pre-Construction
HGV Numbers	Where possible, the detailed design process will minimise the volume of material to be imported to site to help reduce HGV numbers.	Pre-Construction, During Construction, Decommissioning
Public Notice	It is proposed that during the construction period a project website, blog or X (previously Twitter) feed would be regularly updated to provide the latest information relating to traffic movements associated with vehicles accessing the Site and travelling between the PoE and the site. This would be agreed with THC.	During Construction, Decommissioning
Staff Travel Plan	A Staff Travel Plan will be deployed where necessary, to manage the arrival and departure profile of staff and to encourage sustainable modes of transport, especially car-sharing. A package of measures could include: ▪ appointment of a Travel Plan Coordinator (TPC);	During Construction, Decommissioning

Subject	Detail of mitigation or monitoring commitment	Stage of Mitigation
	- provision of public transport information; - mini-bus service for transport of site staff; - promotion of a car sharing scheme; and - car parking management.	
Materials Delivery	All materials delivery lorries (dry materials) should be sheeted to reduce dust and stop spillage on public roads.	During Construction
Training and Disciplinary measures	Specific training and disciplinary measures should be established to ensure the highest standards are maintained to prevent construction vehicles from carrying mud and debris onto the carriageway;	During Construction, Decommissioning
Wheel Cleaning	Wheel cleaning facilities may be established at the site entrance, depending on the views of THC.	During Construction, Decommissioning
Working Hours	Normal Site working hours will be limited to between 0700 and 1900 Monday to Friday and 0700 and 1300 on Saturdays though component delivery and turbine erection may take place outside these hours i.e. depending on when police escort is available.	During Construction, Decommissioning
Traffic management measures	Appropriate traffic management measures will be put in place on the A831 leading through to the Site, to avoid conflict with general traffic, subject to the agreement of THC. Typical measures will include HGV turning and crossing signs and / or banksmen at the Site access and warning signs;	During Construction, Decommissioning
Speed Limits	Adoption of voluntary reduced speed limits, for example on the A831 in the vicinity of the site access junction and at other locations to be agreed with THC.	During Construction, Decommissioning
Driving Health and Safety Induction	All drivers will be required to attend an induction to include: - A toolbox talk safety briefing; - The need for appropriate care and speed control; - Highlighting the presence of pedestrian and cyclists on the study area, in particular on the A831; - A briefing on driver speed reduction agreements (to slow site traffic at sensitive locations, for example along the A831, in particular on narrower sections; and - Identification of the required access routes and the controls to ensure no departure.	During Construction, Decommissioning
Baseline road condition	Video footage of the pre-construction phase condition of the abnormal loads access route and the construction vehicles route would be recorded to provide a baseline of the state of the road prior to any construction work commencing. This baseline would inform any change in the road condition during the construction stage of the proposed development. Any necessary repairs would be coordinated with The Highland Council. Any damage caused by traffic associated with	Pre-construction, During Construction, Decommissioning

Subject	Detail of mitigation or monitoring commitment	Stage of Mitigation
	the proposed development, during the construction period that would be hazardous to public traffic, would be repaired immediately.	
Road condition during construction	There would be a regular road edge review, and any debris and mud would be removed from the public carriageway to keep the road clean and safe during the initial months of construction activity, until the construction junction and immediate access track works are complete.	During construction, Decommissioning
Street Furniture	Any damage to road infrastructure caused directly by construction traffic would be made good, and street furniture that is removed on a temporary basis would be fully reinstated.	During Construction, Decommissioning
Abnormal Indivisible Loads	Before the AILs traverse the routes from the PoE, the following tasks would be undertaken to ensure load and road user safety: • Ensure any vegetation which may foul the loads is trimmed back to allow passage; • Confirm there are no roadworks or closures that could affect the passage of the loads; • Check no new or diverted underground services on the proposed route are at risk from the abnormal loads; and • Confirm the police are satisfied with the proposed movement strategy.	Pre-construction
	An AIL Transport Management Plan will be developed. All AIL deliveries would be undertaken at appropriate times (to be discussed and agreed with THC, TS and Police Scotland) with the aim of minimising the effects on the road network.	Pre-construction
	Advance warning signs would be installed on the approaches to the affected road network. This signage will assist in helping improve driver information and allow other road users to consider alternative routes or times for their journey (where such options exist). The location and numbers of signs would be agreed post consent and would form part of the wider Traffic Management Proposal for the project.	Pre-construction, During construction, Decommissioning
	The Abnormal Load Transport Management Plan would also include: • Procedures for liaising with the emergency services to ensure that police, fire and ambulance vehicles are not impeded by the loads. This is normally undertaken by informing the emergency services of delivery times and dates and agreeing communication protocols and lay over areas to allow overtaking; • A diary of proposed delivery movements to liaise with the communities to avoid key dates and times; • A protocol for working with local businesses to ensure the construction traffic does not interfere with deliveries or normal business traffic; and	Pre-construction, During Construction, Decommissioning

Subject	Detail of mitigation or monitoring commitment	Stage of Mitigation
	Proposals to establish a construction liaison committee to ensure the smooth management of the project / public interface with the applicant, the construction contractors, the local community, and if appropriate, the police forming the committee. This committee would form a means of communicating and updating on forthcoming activities and dealing with any potential issues arising.	
	The AIL convoys will be no more than three AILs vehicles long, or as advised by the police, to permit safe transit along the delivery route, and to allow limited overtaking opportunities for following traffic where it is safe to do so.	During construction
Outdoor Access Management Plan	Consideration has been given to pedestrians, cyclists and equestrians alike due to potential interactions between construction traffic and users of forest tracks and public roads. If required, a Path Planning Study will be conducted post consent and will be secured through a planning condition. Findings from the study will be used to formulate a set of measures into an Outdoor Access Management Plan (OAMP).	During construction, Decommission
	Signage will be installed on the site exits that makes drivers aware of local speed limits and reminding drivers of the potential presence of pedestrians, cyclists and equestrians in the area. This will also be emphasised in the weekly toolbox talks.	During Construction, Decommission
	The British Horse Society has previously recommended the following actions that will be included in the site training for all HGV staff: - On seeing riders approaching, drivers must slow down and stop, minimising the sound of air brakes, if possible; - If the horse still shows signs of nervousness while approaching the vehicle, the engine should be shut down (if it is safe to do so); - The vehicle should not move off until the riders are well clear of the back of the HGV; - If drivers are wishing to overtake riders, please approach slowly or even stop in order to give riders time to find a gateway or lay by where they can take refuge and create sufficient space between the horse and the vehicle. Because of the position of their eyes, horses are very aware of things coming up behind them; and	During Construction, Decommission

Subject	Detail of mitigation or monitoring commitment	Stage of Mitigation
	All drivers delivering to the site must be patient. Riders will be doing their best to reassure their horses while often feeling a high degree of anxiety themselves.	
Operational Phase Mitigation	The Site entrance will be gated, well maintained and monitored during the operational life of the proposed development. Regular maintenance will be undertaken to keep the site access track drainage systems fully operational and the road surface in good condition and to ensure there are no adverse issues affecting the public road network. The Site entrance gate would allow for access to the Site area for walkers, cyclists and horse riders. Details of the proposed gate and access arrangement would be provided post consent.	Operation
Chapter 13: Socioeconomics and Tourism		
Community Benefit Fund	It is proposed and committed to that a community benefit fund of five-thousand pounds per MW per annum (index linked, or Scottish government equivalent) based on a 134MW design will be established for the operational life of the development.	Operation
Chapter 14: Other Issues		
Aviation Lighting	Aviation lights will be fitted to specific turbines in line with the Aviation Lighting Strategy (set out in EIAR Volume 4, Technical Appendix 14.1) as agreed with the CAA.	Operation
	To fulfil all CAA and MoD requirements, all 20 turbines will be fitted with Infra-Red (IR) Lights (at hub height), and 6 dominant, by position, turbines fitted with medium intensity ANO 2000/200cd Visible Red Lights to the nacelles. MOD IR lights have been developed to be invisible to the public at large but very detectable to aircrew night vision aids.	Operation
	A total of six out of 20 of the proposed turbines will be fitted with visible aviation lights to fulfil the CAA's requirements	Operation
Telecommunications	Given the distance between the links and the turbine envelope, it is considered that the turbines are located suitably out with the telecoms links and therefore will not result in any effects upon these assets.	N/A
Forestry	Apart of the proposed development, the area of woodland lost would be replanted off-site in accordance with the implementation guidance to CoWRP. The new woodland would be to at least the area of woodland lost resultant from the proposed development. The new woodland would meet the requirements of UKFS. The compensatory planting arrangements would be agreed with Scottish Forestry and THC prior to commencement of the construction stage.	Construction and Operation
Shadow Flicker	As the closest inhabited property lies approximately 2.5km from the nearest turbine it is unlikely that significant shadow flicker effects would occur, however in the unlikely event of shadow flicker	Construction and Operation

Subject	Detail of mitigation or monitoring commitment	Stage of Mitigation
	complaints, the Applicant would be willing to commit to a shadow flicker management plan to be agreed with THC post-consent.	

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